



ANNUAL REPORT 2020-'21



ACHARYA N. G. RANGA AGRICULTURAL UNIVERSITY
LAM, GUNTUR, ANDHRA PRADESH, INDIA



Food and Agriculture
Organization of the
United Nations



Grow,
Nourish,
Sustain.
Together.

my
GOV
मेरी सरकार

17 Biofortified Crop Varieties Dedicated to Nation by Hon'ble Prime Minister on World Food Day



Rice: CR Dhan 315



Wheat: HI 1633



Wheat: HD 3298



Wheat: DBW 303



Wheat: DDW 48



Finger Millet: CFMV-2



Wheat: MACS 4058



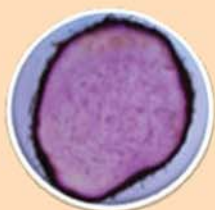
Maize: LQMH-1



Maize: LQMH-2



Maize: LQMH-3



Yam: Da 340 &
SreeNeelima



Ground nut: Girnar-5



Little Millet: CLMV-1



Mustard: PM-32



Ground nut: Girnar-4



Finger Millet: CFMV-1



#SahiPoshanDeshRoshan

Hon'ble Prime Minister, Sri Narendra Modi dedicating bio-fortified
ragi variety, CFMV-1 (Indravathi) to Nation on 16.10.2020

Fifty Seventh Annual Report

2020 - ` 21

*7th Rank among State Agricultural Universities
by ICAR in 2020*



Acharya N.G. Ranga Agricultural University

Lam, Guntur-522 034, Andhra Pradesh, India



Annual Report 2020-2021

Compiled by

Planning and Monitoring Cell

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Lam, Guntur - 522 034

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First Cover:

Top Photo - Spearheading in Drone Technology in Agriculture

Bottom Photo - Promoting Commercial Floriculture in Tribal Zone

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FOREWORD

The ANGRAU is one of the largest Agricultural Universities in India, catering needs of millions of farmers and thousands of scholars of not only the state of Andhra Pradesh, but also stakeholders from all over India. I am happy to state that ANGRAU is ranked number '7' among State Agricultural Universities in India for the year 2020-21. I am pleased to recognise the strenuous efforts of the teaching, non-teaching, and other supporting staff, for the remarkable progress during this period under report. This 57th annual report gives an overview of the salient activities and achievements of ANGRAU in academics, research and extension wings for the year 2020-'21.

In academics, a total of 1542 students (1256 in Agriculture; 205 in Agricultural Engineering & Technology; and 81 in Community Science) had passed out during 2020-'21. I am happy to share that our students made us proud in securing ICAR Award to ANGRAU for securing 2nd position in PG Admissions at National Level during 2020-'21.

ANGRAU rice varieties occupied an average area of 14 M ha (31.58%) out of the 45 M ha of rice area grown in India, and produced about 39 million tonnes (MT) of rice out of 121 million tonnes of paddy during 2020-21, contributing for about 33% of India's total rice production and about 2% of the National Agricultural GVA. About 95.06% area of Groundnut in AP is with ANGRAU released varieties, in which K-6 occupies 90.15% area in AP.



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ANGRAU released eight crop varieties (three each in rice & cotton; and one each in bengalgram and horsegram) at national level during the year, and release proposals for 14 crop varieties (4 in rice; 3 in blackgram; 2 each in greengram & cotton; 1 each in bengalgram, groundnut & sugarcane) were submitted at State level. During the year 2020-21, a total of 43,063 quintals of seed was produced in ANGRAU farms for supply of breeder and foundation seed to different stakeholders.

ANGRAU with the motto of "Serve Farmer-Serve Mankind" is in forefront in the country in transfer of technology coordinating all line departments of the state and central organizations, most significantly with strong linkages with Rythu Bharosa Kendras (RBKs), an unique one stop advisory centre in every village introduced by the state government, led to reaching every farmer and successful implementation of ANGRAU technologies in all the fields of the state. Our extension wing has also been outstanding with several KVKs receiving accolades at national level.

ANGRAU focuses specially on tribal areas introducing farming systems, new crops and new varieties, which led to transformation in the areas. The good work of ARS, Vizianagaram was honored with "Fakhruddin Ali Ahmed Award" for outstanding research in "Tribal Farming Systems" for the year 2020, which also received "Best AICRP on IFS under On-Farm Scheduled Tribe Components (STC) category" during 2018-'20. Also, GoI granted two patents to ANGRAU during 2020-'21 and I congratulate the concerned researchers.

I am sure that we will show continued progress in years to come and live up to the expectations emerging into a world class agricultural university. I congratulate the Planning and Monitoring Cell team on their good efforts in bringing out this 57th Annual Report.

(A. VISHNUVARDHAN REDDY)

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EXECUTIVE SUMMARY

Acharya N G Ranga Agricultural University is a State Agricultural University, vested with responsibility for education, research and extension in agricultural sciences. The University has three faculties namely Agriculture, Agricultural Engineering & Technology, and Community Science. The University offers degrees in Undergraduate, Post Graduate and Doctoral Programmes in various disciplines. Besides, diploma courses in Agriculture, Organic Farming and Seed Technology in local dialect (Telugu) and in Agricultural Engineering in English medium are also being offered. The University carries out its teaching mandate through 11 constituent colleges (5 Agricultural Colleges, 2 Agricultural Engineering Colleges, 2 Food Science and Technology Colleges, one College of Community Science, and one Advanced Post Graduate Centre). Diploma courses are offered in 15 Agricultural Polytechnics, one each of Agricultural Polytechnic (Organic Farming) and Agricultural Polytechnic (Seed Technology); and two Agricultural Engineering Polytechnics. Research is carried out in 33 Agricultural Research Stations spread over in six agro-climatic zones of the State. The research results are disseminated through 13 Krishi Vigyan Kendras (KVKs), 13 District Agricultural Advisory and Transfer of Technology Centres (DAATTCs) and one each of Agricultural Information and Communication Centre (AI&CC), Electronic Wing (EW), and Farmers Call Centre (FCC). Besides, the Extension Units in different RARSs also function as effective lab to land agents.

Administration

His Excellency, the Governor of Andhra Pradesh is the Chancellor of the University. The Board of Management (BoM) with 21 Members is the governing body of the University with Vice-

Chancellor as the Chairman. The BoM met six times during the year and took decisions on various issues and aspects. The Vice-Chancellor acts as the Chief Executive Officer of the University with the assistance of Deans (Agriculture, Agricultural Engineering & Technology, Community Science, Post Graduate Studies, and Student Affairs), Director of Experimental Stations, Director of Extension, Registrar, Comptroller, Estate Officer, University Librarian and Controller of Examinations.

The activities of the University in the areas of education, research and extension carried out during the period of June 2020 to May 2021 have been summarized and placed below.

Teaching

- A total of 1871 students were admitted in the University. Out of them, 1077 were admitted in undergraduate courses, 190 in masters, 62 in doctoral programmes, and 542 in diploma courses.
- A total number of 1511 students were admitted into the Faculty of Agriculture, comprising of 793 in B.Sc. (Hons) Agriculture course, 171 in masters programmes, 54 in doctoral programmes, and 493 in diploma programmes.
- A total of 265 students were admitted into the Faculty of Agricultural Engineering & Technology, comprising of 202 undergraduate students, 08 in masters programmes, 06 in doctoral programmes, and 49 in diploma programmes. In the Faculty of Community Science, a total of 95 students were admitted, comprising of 82 undergraduate students, 11 masters' students, and two doctoral students.

- Altogether, 5657 students (2155 boys & 3502 girls) were on rolls in different undergraduate, masters, doctoral, and diploma programmes.
- A total number of 1542 students (1256 in Agriculture, 205 in Agricultural Engineering & Technology, and 81 in Community Science faculties) have passed out from the University during the academic year 2020-'21.
- During the year, 450 students in Agriculture, 21 in Organic Farming, 17 in Seed Technology and 46 in Agricultural Engineering have obtained diploma.
- A total of 132 students of different colleges of ANGRAU qualified in ICAR- JRF/ SRF and GATE examinations, while 37 students have qualified in other competitive examinations.
- Sanction order was received from 22(A) Battalion, Tenali for new NCC unit comprising 50 cadet strength to Agricultural College, Bapatla during April, 2021.
- The NSS volunteers of various colleges actively participated in NSS Camps during the year.
- Annual Sports, Games, Cultural & Literary Competitions 2020-21 for non teaching staff of ANGRAU were conducted at Agricultural College, Bapatla from 24.02.2021 to 26.02.2021.
- A total of 97 students got placed in different public and private organizations through the Students' Counseling and Placement Cells functioning in different constituent colleges of the University.
- The University Library has rich collection both print and non-print documents. All the library e-Resources are made available

through EZProxy remote access to various Colleges, Research Stations, Polytechnics, DAATT centers and KVKs of ANGRAU. A total of 1956 books and 302 theses have been added to the library collection.

Activities under Institutional Development Plan (IDP)

Institutional Development Plan has been granted to ANGRAU by the National Agricultural Higher Education Project of ICAR (World Bank funded) with a budget outlay of Rs. 2910.01 Lakhs (Rs. 2410.01 Lakhs-NAHEP share & Rs. 500 Lakhs – ANGRAU share) for three financial years 2018-19, 2019-20 and 2020-21 at five accredited colleges of ANGRAU, Agricultural College, Naira; Agricultural College, Mahanandi; S V Agricultural College, Tirupati; Agricultural College, Bapatla, and Dr NTR College of Agricultural Engineering, Bapatla.

- During the financial year 2020-'21, the IDP is instrumental in strengthening of Central Instrumentation Cells (CICs) at Agricultural College, Mahanandi and S V Agricultural College, Tirupati with an amount of Rs. 2.25 Crores. The IDP has also successfully completed all the minor repair works in the five accredited colleges for a total amount of Rs. 136.41 Lakhs.
- Training programmes, conferences, workshops, webinars, guest lectures, skill development programmes were organized under IDP at national and international level.

Research

- During 2021, eight improved crop varieties were released at National Level through Central Sub Committee on Crop Standards, Notification and Release of Varieties (CVRC). These include Rice (MTU 1212,

MTU 1280, MTU 1281), Bengalgram (NBeG 857), Horsegram (Ananta Vulava-ATPHG 11) and Cotton (NDLH 2005-4, NDLH 2028-2, NDLH 2051-1). In addition, the release proposals of 14 improved crop varieties viz., four varieties in rice, three varieties in blackgram, two varieties each in greengram and cotton; one variety each in bengalgram, groundnut, and sugarcane were submitted to SVRC for identification and release.

- A quantity of 21021.1 quintals of Breeder seed in various crops was produced during 2020-'21. In addition, 18467.90, 400.68 and 3376.01 quintals of foundation, certified and Truthful label seed was produced.
- A total of 32 minikit trials were conducted in different crops during the year 2020-'21 for obtaining response of the crop varieties. They included 17 in rice; four in bengalgram; one each in *ragi*, *korra*, redgram, greengram, groundnut, cotton, sugarcane; and two each in blackgram and sesame.
- Different field trials such as Initial Varietal Trials, Observational Varietal Trials, Advanced Varietal Trials, Preliminary Yield Trials, Observational Yield Trials, Advanced Yield Trials, Main Yield Trials, Multi-location Trials, Initial Evaluation Trials, Screening trials, Initial Hybrid Trials, Advanced Hybrid Trials etc., were conducted in both during *kharif* & *rabi* (as the case may be) in different crops.
- In deriving genetic coefficients of popular rice cultivars of Andhra Pradesh for ORYZA model, eight released varieties and two minikit cultures were evaluated at RARS, Maruteru. The results revealed that BPT 2766 (6468 kg/ha) followed by BPT 2782 (6436 kg/ha) and BPT 2776 (6319 kg/ha) were the top

yielders. Maximum straw yield was recorded in BPT 2270 (8111 kg/ha). BPT 2782 manifested maximum harvest index (47.5) followed by BPT 2766 (45.7) and BPT 2776 (44.1) (RARS, Maruteru).

- A total of 250 inbred lines (S1-148, S2-82, S3-20) during *kharif* 2020 and 217 inbred lines (S0-50, S2-147, S4-20) during *rabi* 2020-21 were studied. DUS characterization of 79 inbred lines of maize was completed (ARS, Peddapuram).
- Fifteen entries were tested including check (VR 929) during *kharif*, 2020 in Finger millet Multi Location Yield Trial. Among long duration entries, PPR 1152 (39.9 q/ha) followed by PPR 1096 (38.0 q/ha) recorded numerically higher grain yields than the checks, VR 929 (35.8 q/ha) and best check, Sri Chaitanya (34.59 q/ha). While among early duration group, VR 1117 (89 days to maturity, 33.15q/ha) significantly outyielded the early check, Vakula (91 days to maturity, 19.93 q/ha) (ARS, Vizianagaram).
- The redgram entries TRG-152, TRG-147, TRG-158, and TRG-118 (in AVT and IVT) and LRG- 105 (in MLT) were found better when the crop suffered severely due to excess moisture conditions coupled with severe SMD at RARS, Tirupati.
- The groundnut pre-release variety K1609 with an average yield potential of 25 q/ha was given for first year minikit testing during *kharif* 2020 (ARS, Kadiri).
- In the project 'Development of high yielding cotton varieties with resistance to American boll worm', trait integration for Bt is going on for 12 elite lines. The back cross material is in BC3F1 at RARS, Lam.

- Evaluation of the effects of nano particulate delivery of zinc on the productivity of rice in black soils and zinc bio-fortification at RARS, Maruteru indicated that RDF+Foliar application of nanoscale ZnO @ 2 g/10L at 21 & 60 DAT recorded maximum grain yield than control. The zinc content in grain and straw was also found maximum with RDF+ foliar application of nanoscale ZnO @ 2g/ 10L at 21 & 60 DAT.
- Three basmati rice varieties were tested with four planting dates at RARS, Chintapalle. Among the three varieties tested, Pusa Basmati 1 recorded higher grain yield (35.0 q ha⁻¹) when sown in 2nd FN of July compared to other dates of planting.
- Maximum reduction (19.74%) in leaf folder incidence on rice was found with spraying of potassium silicate @ 80 mg/L at 2 wks after transplantation and at active tillering stage followed by *Beauveria bassiana* application @ 1.3x10⁶ conidia /ml as compared to *B. bassiana* spraying alone (8.40 % reduction) at ARS, Nellore.
- In evaluation of various maize based inter and sequence crop systems at ARS, Vijayarai, highest maize equivalent yields were observed with Maize- Maize+ cauliflower system (16283 kg/ha) followed by Maize- Maize+ blackgram (16217 kg/ha). Lowest maize equivalent yields were recorded with Fallow-Maize (8648 kg/ha). However, highest net returns and BCR were recorded with foxtail millet - maize and blackgram – maize systems.
- Screening of popular hybrids against Fall Army Worm (*Spodoptera frugiperda*) in maize during *kharif*, 2020-21 indicated no significant difference in per cent plant infestation by fall army worm at 20, 30, 40 and 50 days after sowing but yield variation was observed among the different hybrids. Lowest % cob infestation was noticed in DKC 9133 (39.68%) which resulted in higher yields. During *rabi*, 2020-21 lowest % cob infestation (20.08) was noticed in ADV 759 followed by NK 6607 (36.38) and CP 333 (38.08) that resulted in higher yields at ARS, Vijayarai.
- Among cultivated pigeonpea entries, BRG3 and BRG5 recorded zero incidence of SMD, where as BRG1 and BSMR736 recorded <10% SMD incidence under natural conditions (100% in ICP8863) at RARS, Tirupati.
- Pre emergence application of (PE) Butachlor @ 1.25 kg a.i. ha⁻¹, followed by (fb) PoE Imazethapyr 10% SL @ 75 g a.i ha⁻¹ recorded 2766 kg/ha pod yield of groundnut with higher net returns (Rs.87058/ha) and B:C ratio (2.05) which is on par with PE application of Pendimethalin @ 750 g a.i./ha fb PoE application of Imazethapyr 10 % SL @ 75 g a.i ha⁻¹ (2604 kg/ha), Hand weeding at 20 & 40 DAS (2580 kg/ha). The net returns (Rs.57274/ha) and B:C ratio (1.69) with two hand weedings at 20 and 40 DAS was lesser compared to herbicidal weed management practices at RARS, Tirupati.
- Sunflower response to varying planting geometry and fertilizer levels under rainfed conditions at RARS, Nandyal revealed that ridge and furrow planting at 60 cm x 30 cm with 125 % RDF (75 N, 75 P₂O₅, 37.5 K₂O kg/ha) has higher yield (959 kg/ha) and profit (net returns Rs. 11016/- ha) followed by Broad bed and furrow with paired row planting at 45 cm x 30 cm with 125 % RDF

(75 N, 75 P₂O₅, 37.5 K₂O kg/ha) with 906 kg/ha and Rs 8125 /ha seed yield and net returns, respectively.

- The highest seed cotton yield of 26.75 q/ha was recorded with application of Kresoxim methyl 44.3% SC @1ml/l by suppressing the progress of *Corynespora* leaf spot during *kharif*, 2020-21 followed by propiconazole 25% EC @ 1ml/l (26.49 q/ha), azoxystrobin 18.2% w/w + difenconazole 11.5% w/w SC @ 1ml/l (26.46 q/ha) and propineb 70% WP @ 2.5 g/l (26.39 q/ha) as against control (19.51 q/ha) at RARS, Lam.
- Among 15 sugarcane clones tested under waterlogged condition during the grand growth stage (rainy season) at RARS, Anakapalle, sugarcane clones 2015A 230 (83.32 t/ha), 2015A 93 (83.32 t/ha), 2015A 152 (84.19 t/ha) and 2015A 199 (81.59 t/ha) recorded comparatively less per cent dead canes and higher cane yield over other clones. The standards 87A 298 and 83V 15 recorded a cane yield of 72.91 t/ha and 77.25 t/ha, respectively.
- Evaluation of rice-based cropping systems for higher productivity with non-traditional crops in HAT zone revealed that groundnut (61.6 q ha⁻¹), maize (42.0 q ha⁻¹) and finger millet (41.9 q ha⁻¹) crops recorded more system productivity than the remaining crops.
- In a trial on organic rice at ARS, Ragolu, grain yield of 6384 kg/ha was recorded with application of NPK @ 120-60-50 kg/ha + ZnSO₄ @ 50 kg/ha with the variety Sridhruthi (MTU 1121), whereas organic production practices gave 5685 kg/ha and Green manuring + application of NPK @ 80-60-50 kg/ha (INM approach) recorded 5709 kg/ha and all the treatments were at higher compared to Control (No fertilizer or manurial application) which recorded the lowest yield of 4731 kg/ha.
- Yield reduction (21%) was observed in chilli with use of saline irrigation water at water salinity of 4.0 dS m⁻¹ and it was further reduced to 34.6% and 57% at water salinity of 6.0 and 8.0 dS m⁻¹, respectively. The highest yield of 28.6 t ha⁻¹ (green pods) was recorded with good quality water (0.6 ECiw) when tested at Saline Water Scheme, Bapatla.
- Application (foliar spray) of nanoscale oxide of zinc @150-200 ppm (twice at 25 & 40 DAS) significantly increased the yield of groundnut to the tune of 9%-12% compared to zinc sulphate foliar application @2000 ppm (twice- at 30 & 60 DAS) at RARS, Tirupati.
- A quantity of 21021.1 quintals of breeder seed was produced during 2020-21. Among the various crops, large quantity of groundnut breeder seed (16,773 quintals) was produced covering the major varieties viz., Kadiri Lepakshi, K6, Dharani, Narayani, Kadiri Harithandra, Kadiri Amaravati and K9 during 2020-21. A sizeable quantity of breeder seed (2947.8 q) of rice particularly in 12 varieties of viz., BPT 5204, MTU 1061, MTU 1010, MTU 7029, MTU 1121, MTU 1156, MTU 1075, MTU 1153, NLR 34449, BPT 3291, RGL 2537 and NDLR 7 was also produced during 2020-21. In addition, 18266.48, 400.68 and 3376.01 quintals of Foundation, Certified and Truthful label seed was produced in different crops during the year 2020-21. A total of 43,024.27 quintals of all classes of seed was produced by ANGRAU under quality seed production programme during 2020-21.

- The price forecasts for the important crops of state were regularly released by the Agril Market Intelligence Centre (AMIC) at RARS, Lam with an accuracy of 86%-94% and the Reliance Foundation is disseminating the same to 40 lakh farmers. The forecasted price bulletins were uploaded in the ANGRAU website and the information was shared by the toll free call centres.
- In the Design and development of centrifugal clarifier for quality jaggery production using centrifugal clarifier, at RARS, Anakapalle, sugarcane juice at 70° C was clarified, using filter pore size of 10µm and centrifugation time of 10 minutes recorded a clarification efficiency of 75%. The jaggery obtained using clarified juice appeared brighter in color with less impurities compared to jaggery prepared using without clarification.
- At APSARA (A.P. Sensors and Smart Applications Research in Agriculture) Centre, Lam, Guntur, research on drone applications in important crops such as paddy (Direct Seeded Rice & Transplanted Rice), sugarcane, groundnut, maize, sorghum, blackgram, redgram, bengalgram were carried out during the year 2020-'21 and Standard Operating Procedures (SOPs) for Agricultural Drone Spraying were developed.
- benefitted 5696 staff working at 1767 RBKs.
- During the year 2020-'21, the 13 DAATTCs have tested 40 minikit cultures of 10 crops such as rice (19), finger millet (1), foxtail millet (1), redgram (1), blackgram (5), greengram (2), Bengalgram (3), groundnut (4), sesame (2), and cotton (2). These minikits were evaluated in 1324 locations, both during *kharif* (631 locations) and *rabi* (693 locations).
- A total of 1932 diagnostic surveys were undertaken in different districts of AP.
- A total of 42 Vocational Training Programmes were organized by 11 KVKs, benefitting 2408 stakeholders.
- Various capacity building programmes were organized by DAATTCs, KVKs and Extension Specialists (ESs) during 2020-'21 to build the capacity of clientele groups on crop production and protection in Agriculture, Horticulture, Community Science, and Fisheries. The number of Capacity Building Programmes that were conducted in each category includes a) 733 to Farmers and Farm Women; b) 47 to Rural Youth; c) 394 to Extension Personnel; d) 88 to NGOs & Input Agencies etc. Besides, a) 438 Method Demonstrations; b) 694 Group Discussions; c) 128 Field Days; and d) 73 Rythu Sadassus; were also conducted during the year.

Extension

- Extension wing of ANGRAU is working in liaison with Rythu Bharosa Kendras (RBKs) in serving the farming community. During 2020-'21, ANGRAU had popularized Dr. YSR Polambadi (Farmers Field School) among 10,851 VAAs (Village Agricultural Assistants) & farmers by covering 888 RBKs. Other activities with RBKs included organizing 373 Scientist-RBK meetings that
- During 2020-'21, about 85 T&V meetings were organized by ANGRAU in 13 districts and solutions were offered to farm problems.
- During the year 2020-'21, three batches in Organic Farming; two batches in Terrace Gardening; One batch in Mushroom cultivation have completed the certificate courses. A total of 658 candidates have

completed the ODL C of which, 250 candidates each in Mushroom Production & Terrace Gardening and 158 candidates were in Organic Farming.

- Year Long DAESI programme for 120 Input Dealers was organized at two KVKs (Banavasi & Darsi) and three DAATTCs (East Godavari, Guntur, and Nellore) during 2020-'21 with an aim to transform them as Para-Extension Professionals. The DAESI programme was spread over a period of 48 weeks, with 40 classroom sessions and 8 field visits and visits to various institutions.
- The AI & CC has brought out publications on a) Vyavasaya Panchangam 2020-'21; Journal of Research, ANGRAU (Quarterly); e-News Letter; Vyavasayam (Monthly Telugu Farm Magazine); Diagnostic Bulletins on Redgram, Bengalgram, Maize, Jowar, and small millets.
- During 2020-'21, a total of 13 Kisan Melas were organized, of which five at RARSs (Anakapalle, Chintapalle, Lam, Tirupati and Nandhyal), six at ARSs (Amadalavalasa, Vizianagaram, Peddapuram, Ghantasala, Nellore and Kadiri), and one at KVK (Undi) and other one at Agricultural College, Bapatla with the participation of 12,918 farmers.
- During the year 2020-'21, about 19 centres comprising Colleges, ARSs and RARSs were involved in Village Adoption Programme. A total of 118 diagnostic team visits covering 1307 farmers, 13 demonstrations on 135 farm holdings, 38 training programmes, thereby benefitting 1635 farmers and one animal health camp covering 304 animals were conducted.
- A total of 26 OFTs (100 beneficiaries); 49 FLDs (444 beneficiaries); 79 Trainings to

farmers (2344 beneficiaries); 22 Trainings to rural youth (577 beneficiaries); 34 Trainings to extension personnel (1443 beneficiaries); 20 Skill Training Programmes (390 beneficiaries); 126 Extension Activities (4116 beneficiaries) were conducted under Tribal Sub Plan. Besides, a total of 215.9 Q of seed material (867 beneficiaries); 2,34,825 number of planting material (2199 beneficiaries); 4303 livestock strains (427 beneficiaries); and 25.90 Q & 480 L of bio-products (995 beneficiaries) were supplied under TSP. Further, a total of 858 soil samples (858 beneficiaries) were analyzed and about 2381 mobile advisories were extended to 13,588 farmers.

- ARYA (Attracting and Retaining Rural Youth in Agriculture) has been implemented by two KVKs in ANGRAU viz., Nellore and Utukur during 2020-'21. Activities under ARYA included establishing enterprise units such as a) Vermi-composting unit, b) Mushroom production, c) Shadenets for vegetable and fruit nursery (KVKs-Nellore & Utukur); and d) Value addition (KVK, Utukur).
- Three KVKs of ANGRAU (Amadalavalasa, Reddipalli, & Ghantasala) in AP under Seed Hub Programme have altogether produced 1107.78 quintals of Certified and Foundation seed of redgram (LRG 52, PRG 176); greengram (WGG 42, IPM 2-14) and blackgram (LBG 752, LBG 787) during the year.
- During 2020-'21, all KVKs of ANGRAU had analyzed 5695 soil samples with the established Soil Testing Laboratories (STLs) and Mini Soil Testing Laboratories (MSL). A total of 5,695 Soil Health Cards were distributed, benefitting 4919 farmers from 150 villages.

- Eight KVKs (Amadalavalasa, Kondempudi, Undi, Ghantasala, Darsi, Kalikiri, Reddipalli, and Banavasi) implemented CSISA (Cereal System Initiative for South Asia) during the year 2020-'21.
- Biotech Kisan Hub-ANGRAU was in operation by two KVKs (Utukur and Rastakuntabai) in Kadapa (KVK, Utukur), Vizianagaram, and Visakhapatnam (KVK, Rastakuntabai) districts.
- During the year 2020-'21, ANGRAU has taken massive steps in popularizing FFS (Farm Field School) among 10851 VAAs and farmers by covering 888 RBKs.

Research Publications

- The research and extension activities carried out by the students and teaching staff of Agriculture, Agricultural Engineering & Technology, and Community Science were published in various national and international journals, accounting to a total of 647 publications and 30 books/book chapters during the period under report.

Awards

- ICAR Award to ANGRAU for securing 2nd position in PG Admissions at National Level during 2020-'21.
- ARS, Vizianagaram has bagged “Fakhruddin Ali Ahmed Award” for outstanding research in “Tribal Farming Systems” for the year 2020.
- KVK, Garikapadu received “Best performance in CFLD Pulses Award” during Annual Zonal Review workshop of KVKs of Zone X during 23-25 July, 2020.

Patents Granted

- “A Process for Preparing Dehydrated Fruit Bar from Prickly Pear Fruits (*Opuntia ficus indica*) and Product Thereof” (Patent No: 367043 dt: 19.05.2021).
- “Machinery & Process of Manufacturing of Cane Jaggery in Crystal Form” (Patent No.361025 dt: 12.03.2021).

Inaugurations

- New Administrative Building & Farmers' Hostel of KVK was inaugurated virtually by Dr Trilochan Mohapatra, Secretary (DARE) & Hon'ble Director General (ICAR), New Delhi and Sri Y. Madhusudhana Reddy, IFS, Hon'ble Vice Chancellor (FAC), ANGRAU at Kalikiri on 02.07.2020.
- New Agricultural Research and Polytechnic Building at ARS, Podalakur with an outlay of Rs.1.70 crores was inaugurated on 25.07.2020 by Sri K Govardhan Reddy, Hon'ble MLA, Sarvepalli Constituency.
- NABARD (RIDF XX) funded Annex building worth 50 crores was inaugurated by Dr G R Chintala, Chairman, NABARD on 19.03.2021 at Agricultural College, Bapatla. Sri Kurasala Kanna Babu, Minister of Agriculture and Cooperation; Sri V Balashowry, MP Machilipatnam; Sri Kona Raghupathi, Hon'ble Deputy Speaker, AP Assembly; Dr. A Vishnuvardhan Reddy, Hon'ble Vice Chancellor, ANGRAU; Dr A Pratap Kumar Reddy, Dean of Agriculture, ANGRAU were present.

I. INTRODUCTION

As per the APAU Act, 1963, Acharya N G Ranga Agricultural University (ANGRAU) was established on June 12, 1964 as “Andhra Pradesh Agricultural University” (APAU). Later, on November 7, 1996, the APAU was renamed after the noted Parliamentarian and Kisan Leader, Sri Gogineni Ranga Nayakulu (popularly known as N G Ranga) as “Acharya N G Ranga Agricultural University”. Subsequent to bifurcation of United Andhra Pradesh into Andhra Pradesh State (AP) and Telangana State (TS) on June 2, 2014, the ANGRAU has been bifurcated on “Order to Serve Basis” into ANGRAU for residual state of Andhra Pradesh and has been shifted from Rajendranagar, Hyderabad to Lam, Guntur during May, 2016. The ANGRAU, a State Agricultural University (SAU), is continuing its services to meet the requirements of the students and the farmers with renewed interest and dedication.

MANDATE OF THE UNIVERSITY

- Train the manpower in Agriculture, Agricultural Engineering and Technology and Community Science for the development of the state (Teaching)
- Constantly generate and improve technologies for increasing production in Agriculture and for the welfare of rural folk (Research)
- Assist in dissemination of the improved technologies to the farmers of the state through development departments of Government (Extension)

The ANGRAU is entrusted with the responsibility of generating and grooming students into this profession (Agricultural Education), formulating technical programmes that boost crop production and productivity (Research) and transferring technologies and other research outcomes to farmers and other stakeholders (Extension).

The ANGRAU is governed by the Board of Management comprising 21 members with the Hon’ble Vice-Chancellor as the Chairman. The Vice-Chancellor is assisted by University Officers viz., Faculty Deans (Dean of Agriculture; Dean of Agril. Engg & Technology; Dean of Community Science), Dean of Post Graduate Studies, Dean of Student Affairs, Director of Experimental Stations, Director of Extension, Registrar, Controller of Examinations, Comptroller, University Librarian and Estate Officer in day to day University’s administration. The Academic Council and Faculty Boards steer the academic matters of the University under the guidance of Vice Chancellor. The Research and Extension Programmes are formulated by the Research and Extension Advisory Council (REAC) under the Chairmanship of the Vice Chancellor.

The ANGRAU has three faculties namely Agriculture, Agricultural Engineering & Technology and Community Science. The University offers degrees in Undergraduate, Post



Graduate and Doctoral Programs in various disciplines. The teaching mandates of ANGRAU are being carried out through ten constituent colleges and one Advanced Post Graduate Centre. ANGRAU is the pioneer in introducing few programs like RAWEP (Rural Agricultural Work Experience Programme) during the final year of different undergraduate programmes and starting diploma courses in Agriculture, Organic Farming and Seed Technology in local dialect (Telugu) and in Agricultural Engineering in English medium with the intention to impart training to grass root level technical workers for developing skilled manpower. Till date, a total of 43,043 students, comprising 32,095 graduates and 10,948 post graduates including doctoral students have received degrees from ANGRAU.

The research wing of ANGRAU is ramified across the State and has 33 Research Stations including six Regional Agricultural Research Stations (RARS). The University has made outstanding contribution in research with a motto of making agriculture, a sustainable and profitable one. In this direction, ANGRAU has released so far, more than 450 improved crop varieties/hybrids.

Some of these released varieties are claimed to be first of their kind and have gained global importance by sizable contribution in boosting agricultural production.

The Extension wing of ANGRAU is robust and the University claims first in the country in introducing DAATT Centres (District Agricultural Advisory and Transfer of Technology Centres), popularly known as “Eruvaka Kendras” functioning in all the 13 districts of Andhra Pradesh. The University also has 13 Krishi Vigyan Kendras (KVKs), located in all the districts of Andhra Pradesh. A “Farmers’ Call Centre” is also being operated successfully at University Head Quarters, which facilitates direct access to farmers to speak to Crop Experts and get ideas/solutions to farm problems instantaneously.

Against this backdrop of ANGRAU, this 57th Annual Report of ANGRAU showcases its worthwhile activities and significant achievements in Education, Research and Extension along with other events and development activities taken place in the University during the period from June 2020 to May 2021.

II. UNIVERSITY ADMINISTRATION

His Excellency, the Governor of Andhra Pradesh, Sri Biswa Bhusan Harichandan is the Chancellor of the University. Dr A Vishnuvardhan Reddy, Hon'ble Vice-Chancellor, acts as the Chief Executive of the Acharya N G Ranga Agricultural University.

The administration of ANGRAU is governed by three authoritative bodies:

- i) Board of Management
- ii) Academic Council and the Faculty Boards
- iii) Research and Extension Advisory Council

The organogram of the University is presented in Fig.1.

A. AUTHORITATIVE BODIES OF THE UNIVERSITY

1. Board of Management (BoM)

The Board of Management of ANGRAU, which acts as an apex body, and responsible for taking policy decisions, consists of 21 members

nominated from different categories, as presented hereunder (Table 1).

The Vice Chancellor shall be ex-officio member and acts as the Chairman of the BoM. The Registrar acts as the Secretary to the BoM. The term of office of the members of the BoM other than ex-officio members shall be three years. The BoM includes Secretaries to Government from Panchayat Raj (1) and Finance (1) Departments; Directors of the State Department of Agriculture (1) and Animal Husbandry (1) as ex-officio members. The other members of BoM include representatives from State Legislature / Parliament (4); representatives from the Agro-industry (2); the State Chamber of Panchayat Raj (1); Distinguished Agricultural Scientist (1); ICAR representative (1); Members of the Academic Council of ANGRAU (3); and Progressive Agriculturalists (4).

Table 1. Members of the Board of Management, ANGRAU during 2020-'21

Ex-Officio Members (5)	Dr V Damodara Naidu Hon'ble Vice Chancellor, ANGRAU (05.06.2017 (AN) to 05.06.2020 (A.N))
	Sri Y Madhusudhana Reddy, IFS Special Secretary to Government (Marketing & Cooperation) and Hon'ble Vice-Chancellor (FAC) (05.06.2020 (AN) to 14.08.2020 (FN))
	Dr A Vishnuvardhan Reddy Hon'ble Vice-Chancellor, ANGRAU and Chairman (14.08.2020 AN onwards)
	Sri Gopal Krishna Dwivedi, IAS Principal Secretary to Government, Panchayat Raj Department
	Sri H Arun Kumar, IAS Commissioner of Agriculture

	<p>Dr M Srinivasa Rao Director of Animal Husbandry (30.01.2020 to 19.11.2020)</p> <p>Dr R Amarendra Kumar Director of Animal Husbandry (from 19.11.2020)</p>
	<p>Dr K V V Satyanarayana, IRAS Special Secretary to Government Finance Department</p>
Other Members (16)	
<i>ICAR Nominee (1)</i>	<p>Dr Ch Srinivasa Rao Director ICAR – NAARM Rajendranagar, Hyderabad.</p>
<i>Distinguished Agricultural Scientist (1)</i>	<p>Dr V Chenga Reddy Principal Scientist (Cotton) (Retd.), ANGRAU</p>
<i>Three Persons from Academic Council</i>	<p>Dr V Srinivasa Rao Professor & Univ. Head (Stat. & Comp. Appli.), Agricultural College Bapatla</p>
	<p>Dr J Lakshmi Associate Dean College of Community Science, Lam, Guntur</p>
	<p>Dr Lakka Vijay Bhaskar Professor (Entomology) Agricultural College, Mahanandi</p>
<i>Four Persons from Members of Legislative Assembly / Parliament</i>	<p>Sri V Balashowry Hon'ble Member of Parliament, Machilipatnam</p>
	<p>Sri Alla Ramakrishna Reddy Hon'ble MLA, Mangalagiri</p>
	<p>Sri K Sanjeevaiah Hon'ble MLA, Sullurupeta</p>
	<p>Smt. Viswasarayi Kalavathi Hon'ble MLA, Palakonda</p>
<i>Four Persons from Progressive Agriculturists of whom one shall be a woman</i>	<p>Sri T V Muralinadha Reddy Chittoor Dist.</p>

	Smt. Mukala Kasturi Vizianagaram Dist.
	Sri P Devullu Visakhapatnam Dist.
	Sri Batchu Srinivasa Rao Guntur Dist.
<i>One Person from among the Members of the State Chamber of Panchayat Raj</i>	Dr P V R M Reddy Director, IWMP Department of PR & RD
<i>Two Persons from among Agro Industrialists and other Entrepreneurs, including Self Employed Graduates</i>	Sri C Rammohan Reddy, MD Sree Nandiswara Polymers (I) Pvt. Ltd. Nandyal, Kurnool Dist.
	Dr S V S R K Netaji Agri Business Centre of Excellence Srikakulam Dist.
<i>Secretary</i>	Dr D Bhaskara Rao Registrar (24.03.2018 to 22.06.2020) Dr P Sudhakar Registrar (22.06.2020 to 21.09.2020) Dr N Trimurtulu Registrar (21.09.2020 to 21.12.2020) Dr T Giridhara Krishna Registrar (from 22.12.2020)

2. Academic Council (AC) and Faculty Boards (FBs)

On the academic front, the University has three Faculties viz., Agriculture, Agricultural Engineering & Technology, and Community Science. The Academic Council and Faculty Boards are vested with the powers to implement and monitor all the academic programmes. Hon'ble Vice-Chancellor is the Chief Executive and the Registrar acts as the Ex-Officio Secretary of

Academic Council (Table 2). The Faculty Deans act as the Chairman of respective Faculty Boards. The members of Academic Council include representatives of other Universities; representatives from BoM, ANGRAU; Commissioner & Director of Agriculture, Govt. of Andhra Pradesh, Deans, Directors, Controller of Examinations, Co-opted members, Associate Deans, University Heads of Departments, Professors, Special Invitees and other Nominated Members.

Table 2. Members of the Academic Council during 2020 –'21

<i>Chairman</i>	Sri Y Madhusudhana Reddy Special Secretary to Government (Marketing & Cooperation) and Hon'ble Vice Chancellor (FAC) (104 th AC) Dr A Vishnuvardhan Reddy Hon'ble Vice Chancellor (105 th AC)
<i>Ex-Officio Secretary</i>	Dr P Sudhakar Registrar (104 th AC) Dr T Giridhara Krishna Registrar (105 th AC)
<i>Members</i>	Vide Annexure I

The members of Faculty Board of Agriculture include Deans, Directors and Controller of Examinations of ANGRAU; Associate Deans, Principal Scientists, Professors and University Heads of Agriculture faculty; College Heads of Agriculture faculty and other Nominated members.

The Faculty Board of Agricultural Engineering and Technology includes Deans, Directors and Controller of Examinations of ANGRAU, Associate Dean and Professors, University Heads and College Heads of Agricultural Engineering and Technology faculty and other nominated persons as members.

The members of Faculty Board of Community Science include Deans, Directors, Controller of Examinations of ANGRAU, Associate Dean of College of Community Science, Professors, University Heads and College Heads of faculty of Community Science and other Nominated members.

The Faculty Board of Post Graduate Studies includes University Heads of all the faculties, Heads of Departments in Colleges where PG

courses are offered, Associate Deans of the Colleges, Special Officer - APGC, Lam, Heads of Departments offering minor courses to P.G. students located at Agricultural College, Naira / Mahanandi, two eminent scientists from outside the University to be invited by the Dean of Post Graduate Studies, three representatives from each faculty (2 Assoc. Professors + 1 Asst. Professor) to be nominated by the Vice-Chancellor and Officers-in-charge of PG Academic activities in the Colleges.

3. Research and Extension Advisory Council (REAC)

The research and extension functions are the responsibilities of the Director of Experimental Stations and Director of Extension, respectively. The Research and Extension Advisory Council (REAC) is an apex body of the University to review the research and extension achievements of previous year and give directions to formulate strategies for the future research and extension activities under the Chairmanship of Hon'ble Vice-Chancellor.

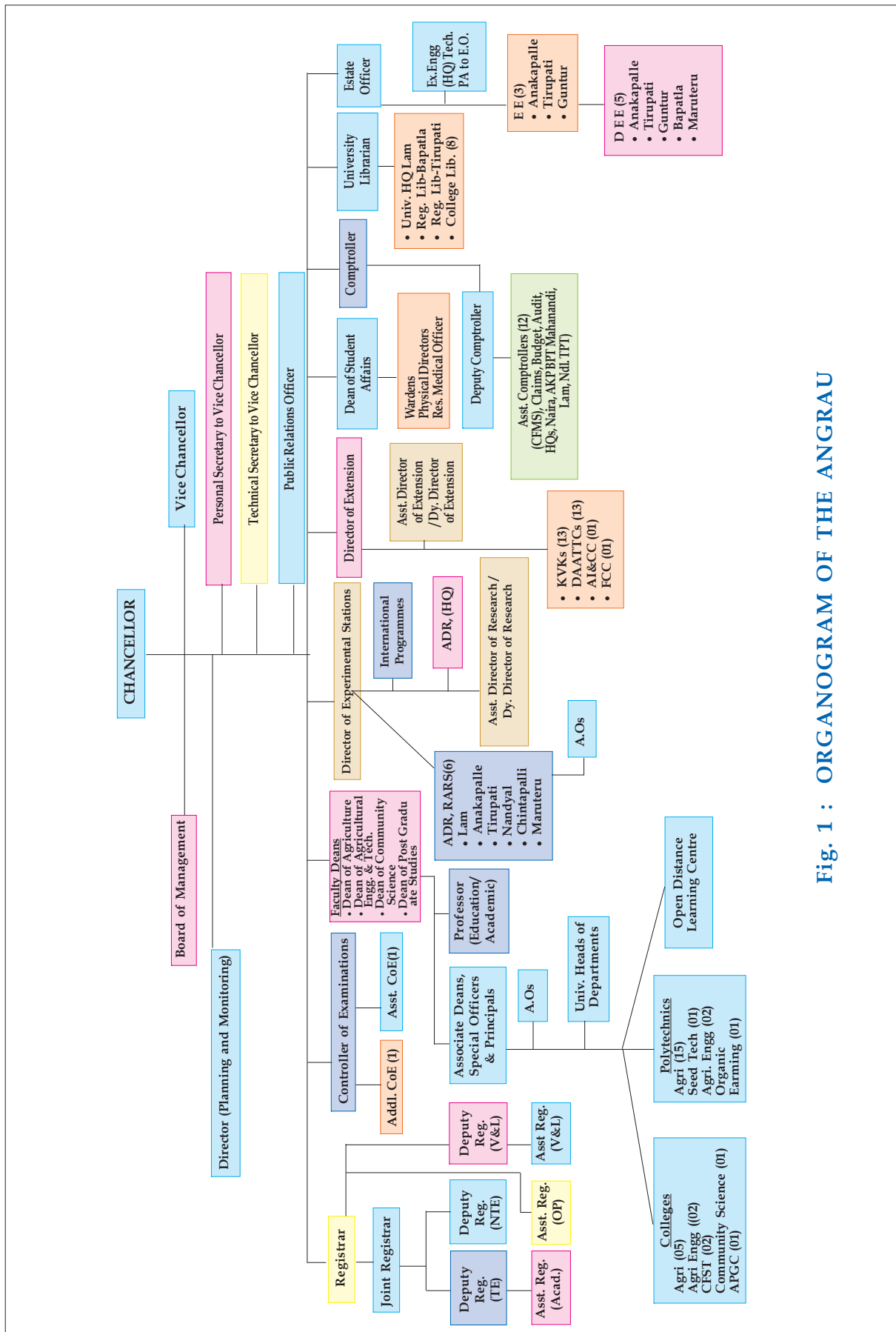


Fig. 1 : ORGANOGRAM OF THE ANGRAU

The REAC is comprised of Director of Experimental Stations as the Convener and Secretary, Director of Extension, Associate Directors of Research, three persons from Innovative Farmers Network, three from Agri Business Consortium, three from KVKs operated by NGOs, Special Invitees, two Eminent Scientists of Agriculture and Principal Scientists

of Crops and University Heads, as its members (Annexure II).

B. MEETINGS OF THE AUTHORITATIVE BODIES OF THE UNIVERSITY

1. Meetings of Board of Management

The meetings of Board of Management are held during the period under report as per the details given below.

S.No.	BoM Meeting	Venue & Date
1	293 rd BoM Meeting	Administrative Office, Lam, Guntur on 17.06.2020
2	294 th BoM Meeting	Administrative Office, Lam, Guntur on 15.09.2020
3	295 th BoM Meeting	Administrative Office, Lam, Guntur on 19.11.2020
4	296 th BoM Meeting	Annavaram, East Godavari district on 16.02.2021
5	297 th BoM Meeting	Administrative Office, Lam, Guntur on 06.04.2021
6	298 th BoM Meeting (urgent meeting)	Administrative Office, Lam, Guntur on 22.04.2021

2. Meetings of Academic Council and Faculty Boards

The Academic Council normally meets once in six months. The 104th and 105th meetings of the Academic Council were held through online at Administrative Office, Lam, Guntur on 17th July 2020 and 28th December 2020. The respective Faculty Boards met before each Academic Council and discussed thoroughly on the agenda items. The agenda items discussed in the meetings of the individual faculty boards were put up to the Academic Council for final discussion and decision thereon.

3. Meetings of Research and Extension Advisory Council (REAC)

The 50th meeting of REAC was held on 20-21 January, 2021 at SVVC Auditorium, Tirupati. The research and extension highlights for the year

2019-'20 were released on 20th January 2021. The achievements of University in research and extension were reviewed and future activities were formulated.

C. OFFICERS OF THE UNIVERSITY

His Excellency, the Governor of Andhra Pradesh is the Chancellor of the University. The Vice Chancellor acts as the Chief Executive Officer of the University with the coordination of four faculty deans comprising of Agriculture, Agricultural Engineering & Technology, Community Science and Post Graduate Studies, besides one each of Director of Experimental Stations, Director of Extension, Dean of Student Affairs, Comptroller, Estate Officer, Registrar and Controller of Examinations. The details of the University Officers for the period under report are given below in Table 3.

Table 3. Details of the University Officers of ANGRAU during 2020-'21

S.No	Name	Designation
01	His Excellency the Governor of Andhra Pradesh and the Chancellor, ANGRAU	Sri Biswa Bhusan Harichandan
02	Vice Chancellor	Dr V Damodara Naidu (up to 05.06.2020) Sri Y Madhusudhan Reddy, IFS Special Secretary to Government (Marketing & Cooperation) and Hon'ble Vice-Chancellor (FAC) (from 05.06.2020 to 14.08.2020) Dr A Vishnuvardhan Reddy Hon'ble Vice Chancellor (from 14.08.2020 onwards)
03	Registrar	Dr D Bhaskara Rao (up to 22.06.2020 (FN)) Dr P Sudhakar (from 22.06.2020 to 21.09.2020) Dr N Trimurtulu (from 21.09.2020 to 21.12.2020) Dr T Giridhara Krishna (from 22.12.2020)
04	Dean of Agriculture	Dr A Pratap Kumar Reddy
05	Dean of Agricultural Engineering & Technology	Dr K Yella Reddy
06	Dean of Community Science	Dr L Uma Devi
07	Dean of Post Graduate Studies	Dr D Balaguravaiah
08	Dean of Student Affairs	Dr S R Koteswara Rao (up to 24.03.2021) Dr M Martin Luther (from 25.03.2021)
09	Director of Experimental Stations (Director of Research)	Dr A S Rao (up to 21.06.2020) Dr T Giridhara Krishna (from 22.06.2020 to 21.12.2020) Dr N Trimurtulu (from 22.12.2020)
10	Director of Extension	Dr P Ram Babu
11	Comptroller	Dr B Vijayabhinandana (up to 21.06.2020) Dr R Veeraraghavaiah (from 22.06.2020 to 31.10.2020) Dr K Yella Reddy (from 01.11.2020)
12	Estate Officer	Er P V Narasimha Rao
13	Controller of Examinations	Dr A Siva Sankar (up to 23.03.2021) Dr P Sudhakar (from 24.03.2021)

D. FACULTY STRENGTH

The cadre-wise strength of teaching staff of the ANGRAU working in three wings viz., teaching, research and extension along with the

administration is shown in Table 4, while the details of faculty working in various Colleges, Agricultural Research Stations and other Extension Centres including Administration are given in Annexure III.

Table 4: Faculty Strength in the ANGRAU during 2020-'21

S. No.	Item	Professor		Associate Professor		Assistant Professor		Total	
		SS	IP	SS	IP	SS	IP	SS	IP
01	Teaching	39	26	88	41	268	164	395	231
02	Research	24	14	73	54	216	165	313	233
03	Extension	5	-	15	13	113	86	133	99
04	Administration	08	11	03	06	01	20	12	37
	Total	76	51	179	114	598	435	853	600

SS – Sanctioned Strength; IP – In Position

Note: In-position includes faculty under Career Advancement Scheme also.
(from 24.03.2021)

III. TEACHING

A. EDUCATION

1. Teaching Institutes

ANGRAU has three faculties namely Agriculture, Agricultural Engineering and Technology and Community Science with UG, PG and Doctoral Programmes. The University carries out its teaching mandate through 11 constituent colleges (5 Agricultural Colleges, 2 Agricultural Engineering Colleges, 2 Food Science and Technology Colleges, one College of Community Science, and one Advanced Post Graduate Centre). In addition to professional degrees, for skill development in youth on agriculture and allied sciences, two-year Diploma in Agriculture, Organic Farming and Seed Technology programmes in the local vernacular Telugu language and three-year diploma in Agricultural Engineering in English are also being offered through Polytechnics. The diploma courses are offered in 15 Agriculture Polytechnics, one each of Agriculture Polytechnic (Organic Farming), and Agriculture Polytechnic (Seed Technology); and two Agricultural Engineering Polytechnics.

The organogram of teaching in the University is depicted in Fig. 2. The list of Colleges and Polytechnics with their location, year of establishment and courses offered is given in Table 5.

2. Admission Strength and Out-turn of Students

During the academic year 2020-'21, a total of 1871 students were admitted in the University. Out of them, 1077 were admitted in undergraduate courses, 190 in masters, 62 in doctoral programmes and 542 in diploma courses. Student enrolment by courses and year-wise is presented in Annexure IV and students strength in various colleges of the ANGRAU is shown in Annexure V.

A total number of 1511 students, comprising of 793 in undergraduate programmes, 171 in masters programmes, 54 in doctoral programmes and 493 in diploma programmes were admitted into the Faculty of Agriculture. In the Faculty of Agricultural Engineering & Technology, a total of 265 students, comprising of 202 in undergraduate courses, 08 in masters programmes, 06 in doctoral programmes and 49 in diploma programmes were admitted. A total of 95 students, comprising of 82 in undergraduate programmes, 11 in masters programmes, and 02 in doctoral programmes were admitted in Community Science.

A total number of 5657 students were on rolls of the University in different Undergraduate, Masters, Doctoral and Diploma programmes. Out of them, 2155 were boys and 3502 were girls. The information pertaining to the number of students admitted, students enrolled and students out-turn during the year 2020-'21 is given in Table 6.

A total number of 1542 students comprising of 1256 in Agriculture, 205 in Agricultural Engineering & Technology and 81 in Community Science faculties have passed out during the academic year 2020-'21.

In the Faculty of Agriculture, 616 undergraduates, 112 at masters level and 40 at doctoral level have passed. In addition, 450 students in Agriculture; 21 in Organic farming and 17 students in Seed Technology obtained their diploma during 2020-'21.

In the Faculty of Agricultural Engineering & Technology, a total of 149 undergraduates, 04 masters, 06 doctorates, and 46 diploma students had passed out. In the Faculty of Community Science, a total of 68 undergraduates, 11 masters, and 02 Ph D students obtained their degrees.

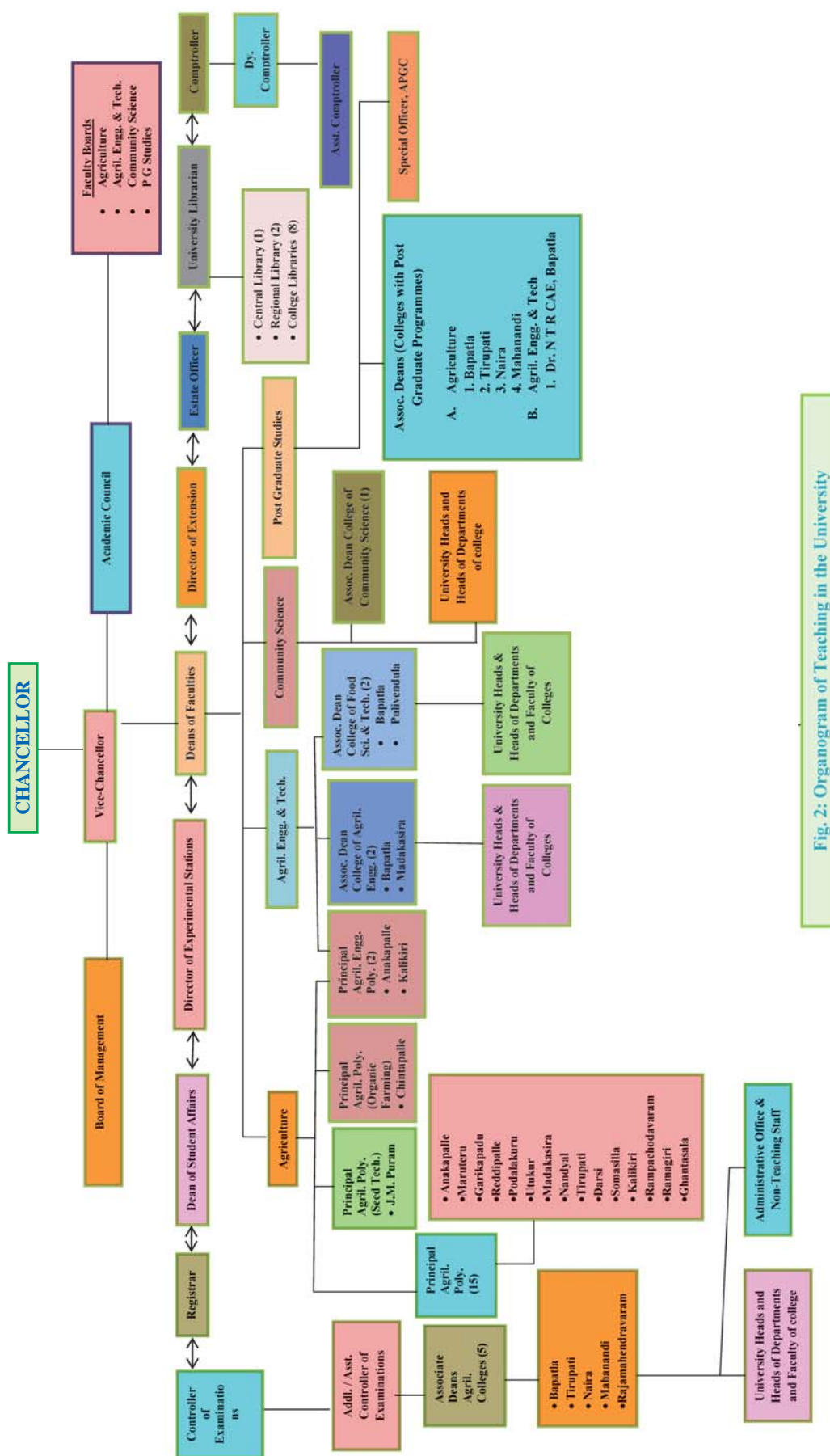


Fig. 2: Organogram of Teaching in the University

Table 5. Teaching Institutes of the University

S.No.	Teaching Institute with Location	Year of Establishment	Name of the Associate Dean / Principal	Courses Offered
Faculty of Agriculture				
1	Agricultural College Bapatla – 522 101, Guntur Dist.	1945	Dr. P V Krishnayya (up to 11.09.2020) Dr. G. Ramachandra Rao (from 12.09.2020)	B.Sc. (Hons) Agriculture, M.Sc.(Ag.) Ph.D. (Ag.)
2	S V Agricultural College Tirupati – 517 502 Chittoor Dist.	1961	Dr R Sarada Jayalakshmi Devi (up to 30.06.2020) Dr B Ravindranatha Reddy (from 01.07.2020)	B.Sc. (Hons) Agriculture, M.Sc.(Ag.) MBA (ABM) Ph.D. (Ag.)
3	Agricultural College Naira – 532 185 Srikakulam Dist.	1989	Dr A V Ramana	B.Sc. (Hons) Agriculture, M.Sc. (Ag.)
4	Agricultural College Mahanandi- 518 502 Kurnool Dist.	1991	Dr A Pratap Kumar Reddy (up to 02.07.2020) Dr G Prabhakara Reddy (from 03.07.2020)	B.Sc. (Hons) Agriculture, M.Sc. (Ag.)
5	Agricultural College Rajamahendravaram Pin 533 103 East Godavari Dist.	2008	Dr J Krishna Prasadji (up to 12.06.2020) Dr K Madhavi (FAC) (15.06.2020 to 14.07.2020) Dr G Subba Rao (from 15.07.2020)	B.Sc. (Hons) Agriculture
6	Advanced Post-Graduate Centre, Lam, Guntur Pin 522034 Guntur Dist.	2015	Dr G Ramachandra Rao (11.05.2020 to 22.06.2020) Dr N Trimurtulu (22.06.2020 to 21.09.2020) Dr D V Ramana Reddy (from 22.09.2020)	M.Sc. (Ag.) M.Sc. (C.Sc.) Ph.D. (Ag.) Ph.D. (C.Sc.)

Agriculture Polytechnics				
1	Agriculture Polytechnic Regional Agricultural Research Station, Maruteru – 534 122 West Godavari Dist.	1999	Dr P V Satyanarayana (up to 30.06.2020) Dr G Jogi Naidu (from 01.07.2020)	Diploma in Agriculture
2	Agriculture Polytechnic Regional Agricultural Research Station, Anakapalle – 531 001 Visakhapatnam Dist.	1999	Dr P Jamuna (up to 26.06.2020) Dr M Bharatha Lakshmi (from 27.06.2020)	Diploma in Agriculture
3	Agriculture Polytechnic Podalakur– 524345SPS Nellore Dist.	2005	Dr P Sujathamma (up to 04.07.2020) Dr O Venkateswarlu (from 05.07.2020)	Diploma in Agriculture
4	Agriculture Polytechnic Reddipalli– 515001 Anantapuramu	2005	Dr K Bhargavi (up to 09.07.2020) Dr S Vasundhara (from 10.07.2020)	Diploma in Agriculture
5	Agriculture Polytechnic Utukur – 516 003YSR Kadapa Dist.	2005	Dr M Sreenivasa Chari (up to 06.12.2020) Dr V Chandrika (from 07.12.2020)	Diploma in Agriculture
6	Agriculture Polytechnic Garikapadu – 521175 Krishna Dist.	2007	Dr Y Padma Latha (up to 01.07.2020) Sri K Satish Babu (01.07.2020 to 11.07.2020) Dr S B S Narasimha Rao (from 12.07.2020)	Diploma in Agriculture
7	Agriculture Polytechnic Madakasira– 515 301 Anantapuramu Dist.	2007	Dr P V K Jagannadha Rao (01.06.2020 to 07.07.2020) Dr G Ravi Babu (from 08.07.2020)	Diploma in Agriculture
8	Agriculture Polytechnic Regional Agricultural Research Station, Tirupati – 517 502 Chittoor Dist.	2011	Dr P Rajasekhar (up to 26.06.2020) Dr L Prasanthi (from 27.06.2020)	Diploma in Agriculture

9	Agriculture Polytechnic Regional Agricultural Research Station, Nandyal – 518 502 Kurnool Dist.	2011	Dr D Sampath Kumar (up to 02.07.2020) Dr T Murali Krishna (from 03.07.2020)	Diploma in Agriculture
10	Agriculture Polytechnic Somasila, SPS Nellore Dist.	2012	Dr M C Obaiah (up to 06.12.2020) Dr K Pullam Raju (from 07.12.2020)	Diploma in Agriculture
11	Agriculture Polytechnic Kalikiri- 517234, Chittoor Dist.	2012	Dr K Ankaiah Kumar	Diploma in Agriculture
12	Agriculture Polytechnic Rampachodavaram-533103 East Godavari Dist.	2013	Dr TVP Rajendra Prasad	Diploma in Agriculture
13	Agriculture Polytechnic Darsi-523247, Prakasam Dist.	2018	Dr G Subba Rao (up to 07.07.2020) Dr L Rajesh Chowdary (07.07.2020 to 06.12.2020) Dr S Bharathi (from 07.12.2020)	Diploma in Agriculture
14	Agriculture Polytechnic Ghantasala (MD), Krishna (Dist.) - 521133	2016	Dr K Nagendra Rao	Diploma in Agriculture
15	Agriculture Polytechnic Ramagiri, Ramagiri (Md), Anthapuram Dt	2016	Dr A Subramanyam	Diploma in Agriculture
16	Agriculture Polytechnic (Seed Technology) Jangameswarapuram, Gurajala-522415, Guntur Dist.	2011	Dr N Sambasiva Rao (up to 25.08.2020) Dr V Saida Naik (from 26.08.2020)	Diploma in Seed Technology
17	Agriculture Polytechnic (Organic Farming) Regional Agricultural Research Station, Chintapalle-531 111 Visakhapatnam Dist.	2016	Dr G Rama Rao	Diploma in Agriculture

Faculty of Agricultural Engineering & Technology				
1	Dr NTR College of Agricultural Engineering Bapatla – 522 101 Guntur Dist.	1990	Dr A Mani (upto 05.07.2020) Dr S Joseph Reddy (from 06.07.2020)	B.Tech.(Ag. Engg.), M.Tech.(Ag. Engg.) Ph.D.(Ag. Engg.)
2	College of Agricultural Engineering Madakasira - 515 301 Anantapuram Dist.	2008	Dr P V K Jagannadha Rao (up to 07.07.2020) Dr G Ravi Babu (from 08.07.2020)	B.Tech. (Ag.Engg.)
3	Dr NTR College of Food Science & Technology Bapatla – 522 101 Guntur Dist.	2003	Dr Y Radha (upto 18.09.2020) Dr B John Wesley (from 19.09.2020)	B.Tech. Food Technology)
4	College of Food Science and Technology Pulivendula – 516 390 YSR Dist.	2008	Dr D D Smith	B.Tech. (Food Technology)
Agricultural Engineering Polytechnics				
1	Polytechnic of Agricultural Engineering Kalikiri - 517 234 Chittoor Dist.	2013	Dr K Ankaiah Kumar	Diploma in Agricultural Engineering
2	Polytechnic of Agricultural Engineering Anakapalle - 531 001 Visakhapatnam Dist.	2013	Dr P Jamuna (up to 26.06.2020) Dr M Bharatha Lakshmi (from 27.06.2020)	Diploma in Agricultural Engineering
Faculty of Community Science				
1	College of Community Science Guntur – 522 034	2013	Dr M S Chaitanya Kumari (up to 22.06.2020) Dr L Uma Devi (23.06.2020 to 25.06.2020) Dr J Lakshmi (from 26.06.2020)	B.Sc. (Hons) Community Science

Table 6. Admission Strength, Students on Rolls and Out-turn of Students under Various Programmes during the Year 2020-'21

Degree	Faculty & Course	Intake Capacity	Students Admitted			Students on Rolls			Students' Out-turn		
			Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Faculty of Agriculture											
Diploma	Diploma in Agriculture	510	197	275	472	361	558	919	167	283	450
	Diploma in Seed Technology	25	04	07	11	10	18	28	06	11	17
	Diploma in Organic Farming	25	04	06	10	09	22	31	05	16	21
	Total (Diploma)	560	205	288	493	380	598	978	178	310	488
UG	B.Sc. (Hons) Agriculture	762	286	507	793	1096	1777	2873	239	377	616
Masters	M.Sc. (Ag.)	170	61	96	157	93	162	255	28	71	99
	M.B.A. (ABM)	22	09	05	14	15	13	28	07	06	13
	Total (Masters)	192	70	101	171	108	175	283	35	77	112
Doctorate	Ph.D. (Ag.)	68	21	33	54	66	87	153	16	24	40
	Sub Total (Agriculture)	1582	582	929	1511	1650	2637	4287	468	788	1256
Faculty of Agricultural Engineering & Technology											
Diploma	Diploma in Ag. Engg.	60	20	29	49	64	88	152	18	28	46
UG	B. Tech. (Ag. Engg.)	138	54	52	106	244	206	450	51	38	89
	B. Tech. (Food Sci. & Tech.)	121	40	56	96	158	253	411	30	30	60
	Total (UG)	259	94	108	202	402	459	861	81	68	149

Masters	M. Tech. (Ag. Engg.)	18	04	04	08	11	10	21	01	03	04
Doctorate	Ph.D. (Ag. Engg.)	09	06	—	06	11	06	17	06	—	06
	Sub Total (Agril. Engg.)	346	124	141	265	488	563	1051	106	99	205
Faculty of Community Science											
UG	B.Sc.(Hons) Community Science	91	09	73	82	16	275	291	—	68	68
Masters	M.Sc. (Home Science)	15	—	11	11	—	19	19	—	11	11
Doctorate	Ph.D. (Home Science)	05	—	02	02	01	08	09	—	02	02
Sub Total	(Community Science)	111	09	86	95	17	302	319	—	81	81
	Total (Diploma)	620	225	317	542	444	686	1130	196	338	534
	Total (UG)	1112	389	688	1077	1514	2511	4025	320	513	833
	Total (Masters)	225	74	116	190	119	204	323	36	91	127
	Total (Ph.D.)	82	27	35	62	78	101	179	22	26	48
	GRAND TOTAL	2039	715	1156	1871	2155	3502	5657	574	968	1542

Note: 1. ICAR quota – 25% of seats in M.Sc. and Ph.D. through All India Entrance Examination (AIEEA) conducted by ICAR

3. Academic Excellence

A total of 132 students of different colleges of ANGRAU have qualified in ICAR- JRF/ SRF

and GATE examinations. About 37 students have qualified in other competitive examinations such as CAT and GRE during 2020-'21 as detailed below in Table 7.

Table 7. Details of Ranks Secured by Students of ANGRAU in Different Competitive Examinations during 2020-'21

S. No.	Name of the College	No. of ranks secured				
		ICAR-JRF	ICAR-SRF	GATE	Others	TOTAL
1	Agricultural College, Bapatla	55	12	—	8 (CAT); 2 (GRE)	77
2	S V Agricultural College, Tirupati	13	—	—	6 (CAT); 2 (GRE)	21
3	Agril. College, Naira	21	—	—	—	21
4	Agril. College, Mahanandi	6	—	—	—	6
5	Agril. College, Rajamahendravaram	—	—	—	—	—
6	Dr NTR College of Agril. Engg., Bapatla	—	—	9	—	9
7	College of Agril. Engg., Madakasira	4	—	3	—	7
8	Dr NTR College of Food Science and Technology, Bapatla	—	—	1	—	1
9	College of Food Science and Technology, Pulivendula	—	—	—	—	—
10	College of Community Science, Guntur	19	—	—	—	19
11	APGC, Lam, Guntur	—	8	—	—	8
TOTAL		118	20	13	18	150

4. Academic Initiatives

Student READY

Indian Council of Agricultural Research (ICAR) has initiated 'Student READY' (Rural Entrepreneurship Awareness Development Yojana) from the Academic year 2016-'17. This programme is for the final year students of the

undergraduate programme, which aims to build confidence among the agri-graduates for establishing self-employment avenues or for securing employment in various public or private sector organizations so as to serve the farming community with better quality and commitment. The programme is intended to provide hands-on

experience and practical training to the undergraduates to utilize the technical knowledge learned during the preceding three years of their undergraduate course. The three components which were included under Student READY by Acharya N G Ranga Agricultural University, viz., Rural Agricultural Work Experience Programme (RAWEP), Internship/In-Plant Training /Industrial Attachment Programme and Experiential Learning programme (ELP) are providing ample opportunities for the students to acquire practical knowledge and skills to orient them towards providing best services for the welfare of the farming community.

i) B.Sc., (Hons) Agriculture - Rural Agricultural Work Experience Programme (RAWEP)

As a part of the regular curriculum, the final year B Sc (Hons) Agriculture students were placed in rural areas for one semester during *kharif/ rabi* seasons, where each student was attached to one host farmer for practical learning with regard to crop production, crop protection, rural economics and also the dynamics of rural society.

ii) B.Sc., (Hons) Agriculture - Agricultural Experiential Learning Programme (AELP)

As a part of the regular curriculum, the final year students, either before or after the completion of RAWEP were placed in different areas of entrepreneurship, for one semester, wherein each student was attached to any one of the experiential learning units. The AELP enables students to gain self confidence in understanding critically the grass root level realities in farming. Further, the students can thoroughly understand the intricacies in starting their own agri-business after their studies.

iii) B.Tech. (Ag. Engg.) - In-plant Training

The final year students of B Tech (Ag. Engg.) were sent to different firms for practical learning.

iv) B.Tech. (Food Sci. & Tech.) - In-Plant Training

The students of B. Tech. (Food Science & Technology) underwent In-plant Training at different Food Processing units all over India.

v) B Sc (Hons) Community Science - Rural Awareness Work Experience Programme (RAWEP)

Each student of the final year B Sc (Hons) Community Science of College of Community Science, Guntur was attached to 5 households to teach rural women, youth and children in the identified areas of Community Science.

vi) B Sc (Hons) Community Science - Experiential Learning Programme (ELP)

In Community Science, the Departments of Foods and Nutrition, Apparel and Textiles and Resource Management and Consumer Sciences, Human Development and Family Studies and Extension Education and Communication Management have provided in-depth managerial and entrepreneurial skills to the students in the production, marketing and management through Experiential Learning Program in the areas viz., Tie and Dye and Block Printing, Designing and Development of Multimedia Products, Institutional Canteen, Developmental Assessment of Children, Development of Teaching and Learning material for early childhood education centres and Interior Design Solutions etc.

The details of number of students, who attended the RAWEP/ Internships/ ELP programmes during the year, are given in Table 8.

Table 8. Details of Number of Students attended RAWEP / Internships / ELP Programmes during 2020-'21

Faculty and Name of the College	RAWEP	ELP	Internships
Faculty of Agriculture			
Agricultural College, Bapatla	223	226	223
S V Agricultural College, Tirupati	144	150	118
Agricultural College, Mahanandi	97	101	97
Agricultural College, Naira	127	125	131
Agricultural College, Rajamahendravaram	74	69	77
Faculty of Agricultural Engineering & Technology			
Dr NTR College of Agricultural Engineering, Bapatla	—	67	67
College of Agricultural Engineering, Madakasira	—	37	119
Dr NTR College of Food Science & Technology, Bapatla	—	51	48
College of Food Science & Technology, Pulivendula	—	27	25
Faculty of Community Science			
College of Community Science	72	86	72

5. Scholarships and Stipends

The students of Acharya N G Ranga Agricultural University were provided with

financial assistance through scholarships, fellowships and stipends sponsored by various agencies. The details are given in Table 9.

Table 9. Details of Scholarships and Stipends

S.No.	Name of the Scholarship	No. of Students Awarded
1	National Merit/ Talent Scholarship (UG)	56
2	National Merit/ Talent Scholarship (PG)	20
3	Government of India Post- Matric Scholarship to Scheduled Castes	32
4	Government of India Post-Matric Scholarship to Scheduled Tribes	63
5	Government of India Post- Inter Merit Scholarship (Dist. Level) to SCs and STs.	12
6	State Scholarship to Denoted Tribes	430
7	State Scholarship to Listed Backward Classes	1130
8	State scholarship to Scheduled Castes	22
9	State scholarship to Scheduled Tribes	72

10	State Scholarship to Economically Poor Persons	427
11	State Stipend to Post Graduate Students	179
12	State Stipend to Ph D Students	NA
13	Stipend to Under Graduate Students from Other States (ICAR)	130
14	Dress and Book Allowance	485
15	Others, if any (Bayer Fellowship)	11
16	ICAR – JRF Scholarship	15
17	ICAR – SRF Scholarship	8
18	GoI Merit cum Means Scholarship	18
19	GoI Scholarship to the students under HRD Programme	2

6. Students' Hostels

The hostel facilities available in the Colleges and the number of students accommodated in different hostels in all the campuses of the University are given in Table 10.

Table 10. Campus-wise Hostel Accommodation

S. No.	Campus	No. of Hostels			No. of Students Accommodated		
		Boys	Girls	Total	Boys	Girls	Total
Faculty of Agriculture							
1	Agricultural College, Bapatla	5	4	9	384	723	1107
2	S V Agricultural College, Tirupati	4	2	6	355	533	888
3	Agricultural College, Mahanandi	3	3	6	176	201	378
4	Agricultural College, Naira	3	2	5	205	280	485
5	Agricultural College, Rajamahendravaram	-	-	-	-	-	-
6	Advanced Post Graduate Centre	-	-	-	-	-	-
7	Agriculture Polytechnic, Maruteru	1	1	2	19	52	71
8	Agriculture Polytechnic, Anakapalle	2	2	4	25	48	72
9	Agriculture Polytechnic, Podalakur	-	1	1	-	50	50
10	Agriculture Polytechnic, Reddipalli	1	1	2	22	25	47
11	Agriculture Polytechnic, Utukuru	1	1	2	15	35	50
12	Agriculture Polytechnic, Kalikiri	0	1	1	0	22	22
13	Agriculture Polytechnic, Rampachodavaram	-	-	-	-	-	-
14	Agriculture Polytechnic, Darsi	1	1	2	15	37	52

S. No.	Campus	No. of Hostels			No. of Students Accommodated		
		Boys	Girls	Total	Boys	Girls	Total
15	Agriculture Polytechnic, Madakasira	1	1	2	21	30	51
16	Agriculture Polytechnic, Chintapalli	-	-	-	4	6	10
17	Agriculture Polytechnic, Nandyal	-	-	-	21	21	42
18	Agriculture Polytechnic, Somasila	1	-	1	36	-	36
19	Agriculture Polytechnic, Garikapadu	3	1	4	15	48	63
20	Agriculture Polytechnic, Tirupati	-	-	-	27	30	57
21	Agriculture Polytechnic, Ghantasala	1	1	2	19	44	63
22	Agriculture Polytechnic, Ramagiri	1	1	2	31	51	82
23	Agriculture Polytechnic, (SST) J M Puram	1	1	2	10	18	28
24	Agriculture Polytechnic, (OF) Chintapalle	-	-	-	-	-	-
Faculty of Agricultural Engineering & Technology							
25	Dr NTR College of Agricultural Engineering, Bapatla	2	2	5	142	106	248
26	College of Agricultural Engineering, Madakasira	3	2	5	85	74	159
27	Dr NTR College of Food Science & Tech., Bapatla	2	2	4	73	135	208
28	College of Food Science & Tech., Pulivendula	2	1	3	43	68	111
29	Polytechnic of Agricultural Engg. Kalikiri	-	1	1	-	-	42
30	Polytechnic of Agricultural Engg. Anakapalle	-	-	-	-	-	-
Faculty of Community Science							
31	College of Community Science, Guntur	-	1	-	-	130	-

B. RESEARCH PROJECTS OPERATED IN THE COLLEGES

1. ICAR –NASF ‘Effective delivery of nutrients, insecticides and fungicides using nano particulates and its effect on growth and uptake in groundnut and chillies with an outlay of Rs. 111.34 lakhs for the years 2018-21 by

Dr A R Nirmal Kumar, Department of Crop Physiology, S V Agricultural College, Tirupati, as Co-Investigator.

2. ICAR-NASF ‘Effective identification of genomic regions and genes for drought and heat tolerance in groundnut’ with an outlay of Rs 40.1 lakhs for the years 2018-’21 by

- Dr A R Nirmal Kumar, Department of Crop Physiology, S V Agricultural College, Tirupati, as Co Investigator.
3. 'Causes and consequences of e-National Agriculture Market on the South Indian agriculture', with an outlay of Rs.31.29 lakhs for the period from 01.06.2019 to 31.05.2022

by Dr I Bhavani Devi, Professor, IABM, S V Agricultural College, Tirupati, as Principal Investigator.

C. STUDENTS' RESEARCH

The details of theses/dissertation topics of students in Masters & Doctoral programme during the year 2020-'21 are given in Table 11.

Table 11. Students' Research Titles at Masters and Doctoral Programmes in different Colleges of ANGRAU during the year 2020-'21

Name & ID. No.	Title of Thesis / Dissertation
AGRICULTURAL COLLEGE, BAPATLA	
Entomology	
Bhanu Pratap, BAM/2018-033	Evaluation of border crops and selected insecticides against pest complex and natural enemies in blackgram
Bandaru Harika, BAM/2018-034	Evaluation of different semi-synthetic diets for Fall Army Worm, <i>Spodoptera frugiperda</i> (J.E. Smith) (Lepidoptera: Noctuidae) and its management with biopesticides
Syed Mastan Shareef, BAM/2018-035	Studies on laboratory and field evaluation of newer insecticides against Fall Army Worm, <i>Spodoptera frugiperda</i> (J.E Smith) (Lepidoptera: Noctuidae) on maize
Nagireddy Veera Venkata Naga Mounika, BAM/2018-038	Survey on incidence of major insect pests and natural enemies in direct seeded rice and studies on effect of aqueous leaf extracts against them
Sunkara Venkata Lakshmi Sunitha, BAM/2018-039	Seasonal incidence and ecofriendly management of Fall Army Worm <i>Spodoptera frugiperda</i> (J.E Smith) (Lepidoptera: Noctuidae) in sorghum
U Vijaya Rachel, BAM/2018-040	Screening of advanced rice cultures against resistance to Brown planthopper, <i>Nilaparvata lugens</i> (Stal.) and its management with non-chemical methods
Prudhvi Vijay Babu, BAM/2018-041	Studies on management of insect pests of tomato and determination of insecticide residues
Agronomy	
D Mounika, BAD/2016-003	Site-specific nutrient management in rice-blackgram sequence
A Aliveni, BAD/2017-002	System of intensification and nutrient management in finger millet-horsegram sequence
T Bhargavi, BAM/2018-002	Response of pearl millet to organic and inorganic sources of nitrogen
S Chandru, BAM/2018-003	Influence of dates of sowing on performance of groundnut (<i>Arachis hypogaea</i> L.)

Name & ID. No.	Title of Thesis / Dissertation
J Rakesh, BAM/2018-004	Impact of plant density and topping on seed production in olitorius jute
B Pavan, BAM/2018-006	Response of groundnut (<i>Arachis hypogaea</i> L.) to nutrient levels and liquid biofertilizers
B Sai Praharsha, BAM/2018-007	Studies on intercropping of millets with groundnut
N Swetha, BAM/2018-008	Performance of finger millet as influenced by establishment methods and nitrogen rates
Y V Lavanya, BAM/2018-010	Response of pearl millet to application of zinc and iron
B Rajendra Kumar, BAD/2016-005	Crop stand establishment and nutrient management in rice- based cropping system in North Coastal Andhra Pradesh
S Sravanthi, BAD/2017-002	Studies on defoliant in high density planting cotton greengram sequence
B Venkata Krishna BAM/2018-009	Studies on intercropping of legumes with castor
Agril Extension	
P. Revathi Nagamani BAM/2018-052	Tenant farming in East Godavari district of Andhra Pradesh - A critical analysis
M Shanmukh Raju, BAM/2018-053	A study on effectiveness on e-NAM in Duggirala market of Andhra Pradesh
S Raveena, BAM/2018-051	Role of tribal women in farm and home management - A critical analysis
K Archana, BAD/2017-019	Prospects of sugarcane cultivation for jaggery - A critical analysis
N Harisha, BAD/2017-020	Impact of technical service centres on sericulture farmers in Karnataka state of India
M V Krishnaji, BAD/2014-015	Farmers' tele viewing behaviour and effectiveness of farm broadcasts in Andhra Pradesh –A critical study
Soil Science & Agricultural Chemistry	
R S Raghu, BAD/2017-011	Studies on site-specific nutrient management using geo-spatial techniques in Chinnapalem village of Guntur district
D K D Deekshitha, BAD/2017-009	Studies on soil health and carbon pools under integrated nitrogen management in rice-maize cropping sequence
M Bhagya Lakshmi, BAM/2018-025	Effect of different sources and methods of silicon application on direct sown rice
B Prasanath Naik, BAM/2018-026	Soil nutrient transformations and performance of direct sown rice as influenced by liquid biofertilizers

Name & ID. No.	Title of Thesis / Dissertation
B Sowjanya, BAM/2018-030	Assessment of soil health in rice growing areas of Bapatla mandal of Guntur district
G Sarath Kumar, BAM/2017-02.	Effect of combined use of organic and inorganic fertilizers on soil chemical properties and nutrient use efficiency in <i>kharif</i> maize
Plant Pathology	
Shaik Roshan Baba, BAM-2018-049	Progression of fungal foliar diseases and yield losses in cotton
Mediga Kasi Rao, BAM-2018-048	Studies on incidence, genotypic reaction and management of yellow mosaic virus disease of blackgram (<i>Vigna mungo</i> (L.) Hepper)
P Naveena, BAM-2016-059	Studies on variability and non-chemical management of <i>Pythium aphanidermatum</i> (Edson) Fitz
U Honey Dew, BAM-2018-045	Occurrence, pathogenic variability and management of Turcicum leaf blight of maize
B R Sayiprathap, BAD-2016-022	Investigations on prevalence, transmission and management of sterility mosaic disease of pigeonpea (<i>Cajanus cajan</i> (L.) mill sp.)
K Saratbabu, BAD-2016-021	Studies on tobacco streak virus (TSV) causing peanut stem necrosis disease (PSND) and its interaction with groundnut bud necrosis virus (GBNV) in groundnut (<i>Arachis hypogaea</i> L.)
N Pavithra, BAM-2018-022	Physiological basis of somatic embryogenesis in rice (<i>Oryza sativa</i>) cv BPT-5204
Debashis Mahapatra BAM-2018-021	Effect of signaling molecules on growth and yield of groundnut (<i>Arachis hypogaea</i> L.) under water stress
V Dinesh Rahul, BAD-2017-007	Physiological and biochemical variability in blackgram genotypes (<i>Vigna mungo</i>) (L) Hepper for tolerance to leaf curl disease
T Vaghdevi, BAM-2018-024	Characterization of foxtail millet (<i>Setaria italica</i> L.) varieties for growth, photosynthesis and yield in rainfed conditions
Agril. Economics	
Ronanki Saidhar, BAD/2016-017	Livelihood security of tenant farmers in Andhra Pradesh
K Vykhaneeswari, BAD/2016-019	Study on performance of dairy sector in Andhra Pradesh
Ch Gowthami, BAM/2018-042	Employment opportunities and income generation for women workers in agriculture in Prakasam district of Andhra Pradesh
B Meher Gita, BAM/2018-043	Performance of primary agricultural cooperative societies in Guntur district of Andhra Pradesh
Genetics & Plant Breeding	
K Sudeepthi, BAD/2016-009	Genetics of anaerobic germination traits in rice (<i>Oryza sativa</i> L.)
Ch Santhi Priya, BAD/2017-005	Genetic analysis of yield and its components and phenotyping against yellow mosaic disease in mungbean [<i>Vigna radiata</i> L. Wilczek]

Name & ID. No.	Title of Thesis / Dissertation
P Kavya, BAD/2016-007	Stability analysis in sorghum [<i>Sorghum bicolor</i> (L.) Moench] genotypes
U Anusha, BAM/2018-011	Studies on genetic diversity of blast resistance lines in finger millet (<i>Eleusine coracana</i>)
M. Bala Barathi, BAM/2018-012	Heterosis and combining ability studies for yield and quality attributes in dual purpose pearl millet (<i>Pennisetum glaucum</i> (L.) R. Br.)
T Ramya Vardhini, BAM/2018-015	Genetic analysis of grain yield and its component traits in maize (<i>Zea mays</i> L.) inbred lines
G. Sandhya Sree, BAM/2018-018	Studies on heterosis and combining ability of powdery mildew resistant genotypes in sunflower (<i>Helianthus annuus</i> L.)
J. Srilatha, BAM/2018-019	Studies on genetic divergence for grain yield and yield components in foxtail millet (<i>Setaria italica</i> L. Beauv.)
R Navya, BAM/2018-014	Identification of QTLs associated with oil content related traits in safflower (<i>Carthamus tinctorius</i> L.)
Kumar Saurabh Singh, BAM/2018-013	Genetic divergence studies in white and coloured rice (<i>Oryza sativa</i> L.)
V Niharika, BAM/2018-016	Genetic divergence studies on Browntop millet (<i>Brachiaria ramosa</i> (L.) Stapf.)
S V AGRICULTURAL COLLEGE, TIRUPATI	
Crop Physiology	
R Somala Naik, TAD/2015-026	Seed dormancy behavior and its manipulation in different botanical types of groundnut
M Swetha Sree, TAD/2017-002	Evaluation of groundnut genotypes for growth, radiation use efficiency and yield under high density planting
G Deepika TAM/2018-044	Physiological evaluation of super early and mid-early pigeonpea (<i>Cajanus cajan</i> (L.) Millsp) genotypes for delayed <i>kharif</i> sowing
C Haritha, TAM/2018-045	Evaluation of blackgram genotypes for heat tolerance and high yield
Kalebile karata, TAM/2018-046	Effect of induced seed dormancy on post harvest physiological and quality parameters of groundnut genotypes
K. Vishnu Priya, TAM/2018-047	Influence of salicylic acid and boron on source-sink relationship of blackgram
Agronomy	
B Sandhya Rani, TAD/2016-002	Weed management with new generation herbicides in maize (<i>Zea mays</i> L.) and their residual effect on succeeding greengram in alfisols
D V Srinivasulu, TAD/2014-002	Live mulching with annual legumes and nitrogen management on resource use efficiency in maize and it's residual effect on succeeding groundnut

Name & ID. No.	Title of Thesis / Dissertation
Kaviti Vijaya Lakshmi, TAD/2017-003	Weed and nutrient management in dry direct sown rice in North coastal Andhra Pradesh
K Prabhakar, TAD/2017-001	Studies on effect of crop residue, sowing time and irrigation on chickpea (<i>Cicer arietinum</i> L.) under double cropping system in vertisols of Andhra Pradesh
N Ram Mohan TAM/2018-003	Efficacy of certain new generation herbicides in Reddy, blackgram (<i>Vigna mungo</i> L.)
Felix Mwiza Mayuni, TAM/17-002	Response of maize (<i>Zea mays</i> L.) to fertilizer nitrogen with biofertilizers
T Sunil Kumar, TAM/2018-005	Evaluation of yield and quality of groundnut under high density plantations with graded levels of phosphorus
P Srilakshmi, TAM/2018-004	Production potential of little millet (<i>Panicum sumatrense</i> L.) based intercropping systems
S Teja, TAM/2018-008	Performance of fodder jowar genotypes in response to nitrogen application
Karnam Thulasiram TAM/2018-007	Performance of proso millet (<i>Panicum miliaceum</i> L.) Dimple, under varied times of sowing and levels of nitrogen
K Divyasree, TAM/2018-001	Productivity and quality of forage maize under different legume intercropping systems
Moturi Thirumala, TAM/2018-006	Performance of kodo millet (<i>Paspalum scrobiculatum</i> L.) varieties and their response to nitrogen
Vishal Nayaka, H TAM/2018-009	Integrated nutrient management for enhancing productivity and profitability of maize (<i>Zea mays</i> L.)
Soil Science and Agricultural Chemistry	
S Vandana, TAM-2018/053	Digital soil fertility mapping of Gudipala mandal in Chittoor district of Andhra Pradesh
B Anjani Chowdary, TAM-2018/048	Studies on the influence of sewage irrigation water on the properties of rice growing soils
M Madan Mohan, TAD/2016-022	Characterization and evaluation of rice growing soils of Tirupati revenue division of Chittoor district – A remote sensing and GIS approaches
Mrs D V Sujatha TAD/2017-21	Assessment of pedogenic development of soils in parts of Pennar river basin in YSR Kadapa District of Andhra Pradesh
Agricultural Extension	
K Madhuri, TAD/2017-005	Critical analysis of farm based ICTs in Andhra Pradesh
Md. Mubeena, TAD/2017-006	Development of strategies for attracting rural youth towards agri-preneurship
N Srividya Rani, TAD/2014-007	An analysis of sustainable cultivation practices followed by groundnut farmers in Andhra Pradesh

Name & ID. No.	Title of Thesis / Dissertation
Kenanao Ntsuape, TAM/2018-023	A study on perception of students towards teaching and learning environment in Acharya N.G. Ranga Agricultural University
Megha M TAM/2018-027	Technological gaps in adoption of production Nagayyavanavar, recommendations in Acid lime cultivation in Karnataka
Plant Pathology	
D Vijay Kumar TAD/2015-024	Molecular characterization and mapping of genetic loci Naik, governing yellow mosaic virus resistance in blackgram (<i>Vigna mungo</i> (Linn.) Hepper)
D Anusha, TAM/2018-038	Studies on the integrated management of blast disease (<i>Pyricularia grisea</i> (Cooke) Sacc.) in ragi (<i>Eleusine coracana</i> (L.) Gaertn.)
K Prasindhu, TAM/2018-039	Studies on sesame phyllody incited by Phytoplasma
B Rajyalakshmi, TAM/2018-040	Studies on biochemical changes in paddy on inoculation with endophyte against bacterial leaf blight (<i>Xanthomonas oryzae</i> pv. <i>oryzae</i>)
Y.Sindhu Keerthana, TAM/2018-042	Studies on dry root rot of groundnut incited by <i>Rhizoctonia bataticola</i> (Taub.) Butler.
Agri. Economics	
Joash Odhiambo Okeyo, TAM/2018-011	Study on export performance of tea in Kenya.
P Sruthi, TAM/2018-014	An economic analysis of production and marketing of niger vis-à-vis rajma in Visakhapatnam district of Andhra Pradesh
K Vasantha, TAM/2018-015	Study on production and marketing of rabi jowar in Kurnool district of Andhra Pradesh
P. Kavya, TAM/2018-010	Study of performance and impact of MGNREGA in Chittoor district of Andhra Pradesh
Genetics & Plant Breeding	
G. Kavitha, TAD/2015-013	Marker assisted introgression of drought tolerance and phosphorus uptake quantitative trait loci into rice (<i>Oryza sativa</i> L.)
Ms. Shaik Sofia, TAD/2016-013	Studies on induced mutations for morphological, yield and yield contributing traits in mungbean (<i>Vigna radiata</i> (L.) Wilczek)
M. Sreevalli Devi, TAD/2016-015	Genetic improvement for yield and yield component traits through induced mutagenesis in blackgram (<i>Vigna mungo</i> (L.) Hepper)
Sruthi S B, TAD/2015-017	Estimation of combining ability, heterosis and inbreeding depression for growth, yield and its attributes in super early maturity group of pigeonpea [<i>Cajanus cajan</i> (L.) Millspaugh]
Ally Mwichande Russinga, TAM/2018-028	Association study of allelic variation identified at yield contributing loci in rice (<i>Oryza sativa</i> L.)

Name & ID. No.	Title of Thesis / Dissertation
B. Sukrutha, TAM/2018-036	Study on transferability of rice gene tagged markers to peanut (<i>Arachis hypogaea</i> . L)
S Hima Bindu, TAM/2018-030	Genetic analysis of yield, physiological and biochemical attributes in pigeonpea [<i>Cajanus cajan</i> (L.) Millsp.]
Y Soujanya, TAM/2017-033	Assessment of molecular diversity and mapping of bruchid tolerance loci in greengram (<i>Vigna radiata</i> (L.) Wilczek)
K Maneesha, TAM/2018-032	Study of temporal trends in molecular genetic diversity of rice (<i>Oryza sativa</i> L.) cultivars using gene-specific markers related to grain traits
C Suvarna, TAM/2018-037	Studies on genetic variability, correlation and path analysis for yield and yield attributing traits in peanut (<i>Arachis hypogaea</i> L.)
Mondem Bhargavi, TAM/2018-029	Identification of rice (<i>Oryza sativa</i> L.) varieties using DUS descriptors and gene-specific markers
M Prashanth, TAM/2018-034	Study of genetic diversity in sugarcane [<i>Saccharum</i> spp.]
P Sai Kumar, TAM/2018-035	Genetic analysis of maintainer and restorer lines for yield and yield attributes in pearl millet (<i>Pennisetum glaucum</i> (L.) R. Br.)
Entomology	
G Sarada, TAD/2016-007	Seasonal incidence, molecular characterization and management of fruit flies in muskmelon (<i>Cucumis melo</i> L.)
T Naresh, TAD/2016-009	Studies on insecticide resistance of <i>Maruca vitrata</i> (geyer) from major blackgram (<i>Vigna mungo</i> L. Hepper) growing areas of Andhra Pradesh
Abhijith N, TAD/2016-006	Insecticide resistance in diamondback moth <i>Plutella xylostella</i> (L.) and assessment of insecticide residues in cauliflower
B Kesini, TAM/2018-018	Isolation and molecular characterization of <i>Bacillus thuringiensis</i> virulent to <i>Spodoptera frugiperda</i> (J.E. Smith) from Tirupati
Abhishek B M, TAM/2018-016	Dietary effects on biology of Melon fly, <i>Batrocera cucurbitae</i> (coquillett), (Diptera: Tephritidae) and its management on bitter melon (<i>Momordica charantia</i> L.)
Mondem Lavan Kumar Reddy TAM/2018-019	Seasonal incidence and management of Fall Armyworm <i>Spodoptera frugiperda</i> (J E Smith) (Lepidoptera: Noctuidae) in sweet corn
B Lakshmi Roja, TAM/2018-017	Studies on oviposition and larval feeding preference of pulse beetle, <i>Callosobruchus chinensis</i> (Linnaeus) on blackgram genotypes and its management
K Shamili Dhatri, TAM-2018-021	Taxonomic studies, seasonal incidence and management of sucking insect pest complex on groundnut.
Ravindren R, TAM/2018-020	Studies on molecular variability of fall armyworm, <i>Spodoptera frugiperda</i> (J.E. Smith) and its management on maize

Name & ID. No.	Title of Thesis / Dissertation
Agri Business Management	
Thangedudhona Anusha, TMBA/2018-001	A study on value chain analysis of chickpea in Kurnool district of Andhra Pradesh
M Bala Krishna, TMBA/18-002	Buying behaviour of tomato seed in Chittoor district of Andhra Pradesh.
Kandukuru Azmath Hussain, TMBA/2018-017	An analysis of farmers buying behavior towards chilli seed in Guntur district of Andhra Pradesh
S Shaik Hussain Javeed, TMBA/2018-005	Route optimization for efficient milk procurement by FPO owned dairy unit
Baratam Renuka, TMBA/2018-011	Seed buying decision process of farmers: A case of sweet corn in Andhra Pradesh
Potharlanka Sowmya, TMBA/2018-013	Assessment of quality control process in procurement of milk: A case of FPO owned dairy
Bhumireddy Supraja TMBA/2018-014	A study on consumer behaviour towards the branded edible oils in Chittoor district of Andhra Pradesh
N Naga Tejasri, TMBA/2018-015	Supply chain analysis of jasmine in Guntur district of Andhra Pradesh
C Yaswanth, TMBA/2018-019	Buying behaviour of farmers towards pesticides in Kurnool district of Andhra Pradesh
AGRICULTURAL COLLEGE, NAIRA	
Entomology	
D Gouthami Bai, NAM/2018-004	Taxonomic studies on genus Spodoptera and management of insect pests in sweet corn with special emphasis on Fall Army worm (<i>Spodoptera frugiperda</i> J.E. Smith)
P Raja Rajeswari, NAM/2018-005	Study on seasonal incidence and insecticidal management of plant hoppers in rice
Ch Sabitha, NAM/2018-006	Study on compatibility and bio-efficacy of insecticides and fungicides against insect pests and diseases of rice
AGRICULTURAL COLLEGE, MAHANANDI	
Agronomy	
B Vyshnavi MAM/2019-004	Effect of physical and chemical weed management practices on growth and yield of chickpea (<i>Cicer arietinum</i> L.)
Genetics & Plant Breeding	
Ch Anand Vardhan, MAM/2019-005	Studies on genetic divergence of elite parental lines useful for development of rice hybrids and study of heterosis of some resultant hybrids in rice (<i>Oryza sativa</i> L.)

Name & ID. No.	Title of Thesis / Dissertation
G. Nehru, MAM/2019-006	Morphological characterization and divergence studies in barnyard millet (<i>Echinochloa frumentacea</i> L.)
G Prasanthi, MAM/2019-007	Stability of phenological traits. seed yield and quality traits in advance breeding lines of chickpea (<i>Cicer arietinum</i> L.)
ADVANCED POST GRADUATE CENTRE	
Microbiology	
B Prasanna Kumar, GAD/2016-001	Development of microbial inoculants for drought stress mitigation and their impact on groundnut crop (<i>Arachis hypogaea</i> L.)
S Vinod Babu, GAD/2017-010	Influence of zinc and silica solubilizing micro organisms isolated from different sources on crop growth and yield of direct sown rice (<i>Oryza sativa</i> L.)
P Srikanth, GAM/2018-023	Effect of microbial inoculants on the uptake of nutrients in the maize crop (<i>Zea mays</i> L.)
Molecular Biology & Biotechnology	
V Ajitha, GAD/2016-002	Identification of bacterial blight resistance genes from <i>Oryza glaberrima</i> and marker assisted introgression into IR64
Sk Noor Ahmed, GAM/2018-011	Identification of homozygous lines having blast and bacterial leaf blight genes through marker assisted selection in black rice (<i>Oryza sativa</i> L.)
P Ayesha Parveen, GAM/2018-009	Studies on the role of Waxy Bloom and Cutin on biochemical and molecular mechanisms of resistance/susceptibility of castor to Gray mold disease (<i>Botryotinia ricini</i>)
M Saileela, GAM/2018-012	Phylogeny analysis of Kurnool strains of <i>Sclerotium rolfsii</i> causing collar rot in Chickpea
S Mounika, GAM/2018-027	Morphological and molecular cataloguing of Mungbean (<i>Vigna radiata</i> (L.) Wilczek) germplasm
A Sheena Sabatina, GAM/2018-28	DNA Fingerprinting of mugbean (<i>Vigna radiata</i> L.) genotypes
Agronomy (Water Management)	
Ch Bhavya Sree, GAM/2018-019	Crop residue management and light irrigations effect on chickpea (<i>Cicer arietinum</i> L.) productivity succeeding foxtail millet (<i>Setaria italica</i> L.)
A Manogna, GAM/2018-020	Effect of humic acid and hydrogel on soil moisture retention and productivity of rabi blackgram (<i>Vigna mungo</i> L.)
K Vineela, GAM/2018-021	Scheduling of nitrogen to rabi maize (<i>Zea mays</i> L.) through drip fertigation
Seed Science & Technology	
B Sai Sudha, GAM/2018-029	Effect of “Seed Priming” with micronutrients on seed yield and quality of blackgram genotypes.

Name & ID. No.	Title of Thesis / Dissertation
S Yasashwini, GAM/2018-031	Influence of “Accelerated Aging” on seed quality of sorghum.
Resource Management and Consumer Science	
R Unesha Fareq, GM/2018-002	Designing studio apartment for elderly to age in place
G Shainy, GHM/2018-010	Designing a smart classroom for higher education institutions
M Aruna Kumari, GHM/2018-003	Implementation status of preschool curriculum by “Anganwadi” centers in tribal areas of Visakhapatnam district
Ch Bhavani, GHM/2018-004	Digital game addiction - Influence on cognitive and behavioural outcomes of children (9-11 years)
B Chandana, GHM/2018-005	Social media influence on living styles of rural and urban adolescent: A comparative study
Foods and Nutrition	
S Divya Prasanna Kumari, GHM/2018-006	Grain quality and glycemic index studies in rice (<i>Oryza sativa</i> L.) varieties developed by ANGRAU
B P V S Ganaga Bhavani, GHM/2018-009	Storage and sensory evaluation studies with value added products of tamarind (<i>Tamarindus indica</i> L.) varieties
DR N T R COLLEGE OF AGRICULTURAL ENGINEERING, BAPATLA	
Soil and Water Engineering	
R Ganesh Babu, BEP/2015-007	Simulation of groundwater dynamics using visual mudflow in Nagarjuna Sagar Right Canal command
P Anila, BEM/2018-015	Assessment of water resources and development of water resource management plan for Pothakamuru watershed
Y Sai Sucharita, BEM/2018-017	Development and evaluation of a circular flume for irrigation water measurement using critical flow concept
G Kishore Kumar, BEP/2016-009	Impact of climate change on crop water productivity of Godavari Eastern Delta
Chippe Pallavi, BEM/2018-016	Impact assessment and mapping of aqua ponds on reduction in paddy area in Guntur district using RS & GIS
Processing and Food Engineering	
D Kalpana, BEP/2013-007	Processing of turmeric leaves for production of extruded films.
V Nethra, BEM/2018-011	Performance evaluation of flaking machine for <i>ragi</i>

Name & ID. No.	Title of Thesis / Dissertation
M Sravani, BEM/2017-007	Evaluation of peanut varieties for butter production
Farm Machinery and Power Engineering	
A Ajay, BEM/2018-001	Development and evaluation of twin-row maize planter
A Kishore, BEM/2018-003	Development and evaluation of semi-automatic inter and intra row weeder for wider row spaced crops
K Raju Yadav, BEM/2018-004	Development and evaluation of cotton stalk up rooter cum shredder
M Vinayak, BEM/2018-005	Development of tractor mounted farm yard manure spreader

D. STUDENTS' ACTIVITIES

1. National Cadet Corps (NCC)

Received sanction order from 22(A) Battalion, Tenali for new NCC unit comprising 50 cadet strength to Agricultural College, Bapatla during April, 2021.

2. National Service Scheme (NSS)

The NSS volunteers of various colleges actively participated in NSS Camps during the year.

The NSS activities included Covid Awareness & Preventive measures; Awareness on improving health status of women, Swatch Bharat programmes, Planting of saplings, and Clean & Green programmes, etc. The NSS special camps were organized for the students of all the final year Undergraduate and Diploma programmes. The details of the NSS special camps conducted by the students during the year 2020-'21 are shown in Table 12.

Table 12. NSS Camps Attended by the Students during 2020-'21

Name of the College	Camp	Venue	Duration of Special Camp		No. of Students attended
			From	To	
Faculty of Agriculture					
Agricultural College, Bapatla	NSS Special Camp	AP, Kerala, Odisha, UP, Bihar and Arunachal Pradesh	16-11-2020	22-11-2020	224
S V Agricultural College, Tirupati	NSS Special Camp	RAWEP villages	17-11-2020	23-11-2020	144
Agricultural College, Naira	NSS Special Camp	RAWEP villages	07-12-2020	13-12-2020	129
Agricultural College, Mahanandi	NSS Special Camp	RAWEP villages	01-11-2020	10-11-2020	92

Faculty of Agricultural Engineering & Technology					
Dr NTR College of Agril. Engg., Bapatla	NSS Special Camp	Jammulapalem Village, Bapatla	30-03-2021	31-03-2021	71
College of Agril. Engg., Madakasira	NSS Special Camp	Gowdanahalli and Chandakacherla	21-03-2021	27-03-2021	36
College of Food Science and Technology, Pulivendula	NSS Special Camp	Chinnarangapuram	15-02-2021	21-02-2021	30
Faculty of Community Science					
College of Community Science, Lam, Guntur	NSS camp	72 villages	01-11-2020	07-11-2020	72



NSS activities by students

3. Sports, Games, Cultural and Other Activities

- Due to the Covid-19 pandemic situation, Sports and Cultural Meet for the students could not be organized during the year 2020-'21.
- Annual Sports, Games, Cultural & Literary Competitions 2020-21 for non teaching staff of ANGRAU were organized at Agricultural College, Bapatla from 24.02.2021 to 26.02.2021.

4. Student Counseling and Placement Cells

The Students' Counseling and Placement Cells are functioning in all the Colleges and Polytechnics of the University. They are acting as liaison between the University Colleges and the public & private sector organizations/institutes that are in need of graduates/diploma holders.

During this year, the campus interviews were held by several organizations and a total of 97 students got placed in different public and private organizations. The list of details of students' placement is shown in Table 13.

Table 13. Details of Students' Placements during 2020-'21

S.No.	College	No. of Students' Placements
1	Agricultural College, Bapatla	36
2	S V Agricultural College, Tirupati	18
3	Agricultural College, Naira	7
4	Agricultural College, Rajamahendravaram	3
5	Dr N T R College of Agricultural Engineering, Bapatla	8
6	Dr N T R College of Food Science & Technology, Bapatla	8
7	College of Food Science & Technology, Pulivendula	6
8	College of Community Science, Guntur	9
9	Advanced Post Graduate Centre, Guntur	2
	Total	97

5. Equipment Purchased

The details of equipment purchased by

different colleges and costs more than Rupees One lakh per item are furnished in Table 14.

Table 14. Major Equipment (>Rs. 1.00 lakh) Purchased in different Colleges during 2020-'21

S.No.	Equipment	Cost (Rs. in Lakhs)
Agricultural College, Bapatla		
1	Water Bath (CIC-NABARD)	1.48
2	Simultaneous ICPOES System (CIC-NABARD)	42.64
3	Horizontal Electrophoresis Unit (CIC-NABARD)	1.35
S V Agricultural College, Tirupati		
4	EPSON LCD Projector	4.50

E. UNIVERSITY LIBRARY

1. ANGRAU Library System and Management

The ANGRAU Library System is having 11 Libraries in its fold including the University Library located at the Head-Quarter in Lam, Guntur. The main motto of the Libraries is to accomplish its task of reaching to wider user community, comprising of teachers, scientists, extension specialists and students. All the ANGRAU libraries hold rich collection in Agriculture and allied sciences which comprises of Books, Periodicals, Back-Volumes and Reports etc. Apart from print

resources, the e-Resources are being made available through online. The University Library also focuses on electronic delivery of information and library resources accessible through web & local area network.

The ANGRAU Libraries function under the overall supervision of the University Librarian. The Regional Libraries and the College Libraries are run by the Assistant Professors (LIS) under the administrative control of the Associate Deans in their respective Colleges. In a nutshell, the ANGRAU University Library has very rich collections of print and non-print documents viz. of books, e-books, e-journals, databases such as

J-Gate Agriculture and Biological Sciences (CeRA), KrishiKosh, DELNET, EPRF Agricultural database, Indiastat.com and many more. All the library e-Resources are being made available through EZProxy remote access to

various colleges, Research stations, Polytechnics, DAATT centers and KVKs of ANGRAU for the benefit of Students, Scientists, Teachers and Research staff.

The Library system of ANGRAU consists of the following centers.

University Library : Lam, Guntur

Regional Libraries : 1. Agricultural College, Bapatla
2. S V Agricultural College, Tirupati

College Libraries : 1. Agricultural College, Naira
2. Agricultural College, Mahanandi
3. Agricultural College, Rajamahendravaram
4. Dr NTR College of Agricultural Engineering, Bapatla
5. College of Agricultural Engineering, Madakasira
6. Dr NTR College of Food Science & Technology, Bapatla
7. College of Food Science & Technology, Pulivendula
8. College of Community Science, Guntur

In addition, every Polytechnic is provided with Library facilities for the benefit of the students and teachers. These libraries are maintained by Officer-in-charge, Library.

2. Components of the Library

Books and Periodicals: All the libraries together continued to receive over 363 Indian and 49 Foreign Periodicals in Agriculture and allied sciences. In addition, 1956 books and about 302 theses have been added during the year. All the libraries have a separate reference book collections viz., dictionaries, encyclopedias, almanacs, etc.

Book Bank Scheme: The ANGRAU libraries are providing important books under special Book Bank Scheme that are built up at each campus for the benefit of SC, ST and BC students.

Reference Section: These include topics that are intended to guide researchers in their studies. Each copy of book recommended by Teachers & Students will be kept for reference purpose.

Competitive Examination Cell: This section provides the useful material required for the aspirants of ICAR Examinations, ASRB, ARS, ICAR-JRF/NET, UPSC, APPSC, GMAT, TOEFL, GRE, IELTS, BSRB Bank Exams and all other competitive exams.

Newspaper Section: The University library subscribes to eight daily newspapers in different languages viz. Telugu and English which covers National and Regional News.

Visitors: During this period, a total of 68,628 visitors utilized the library services in all the

campuses of the ANGRAU Libraries. The regular membership of the libraries including teachers and students was 6,196.

3. Library Services

Reprographic Services: The photocopying facilities available in all the campuses.

Exchange of University Publications: The University Library distributes 50 copies of ANGRAU Journal of Research to various National and International institutes. On exchange, the University Library receives foreign and Indian publications.

Library In-House Publications: The ANGRAU University Library is bringing out ANGRAU Theses Abstracts (yearly-Print and soft copy) and ANGRAU Library Bulletin (Half yearly-Soft copy) regularly for the benefit of Teachers, Scientists, Extension Specialists and Students.

Digital Library Service: The digital library infrastructure facilities viz., interactive digital board, computers with the latest configuration, internet facility, etc., are fully strengthened in existing libraries as well as established digital libraries in new Colleges to utilize the electronic information i.e. CeRA, Indian journals.com with full text journals, KrishiKosh, Indiatat, CABI e-Books, Elsevier e-Books, ASAP e-Books, etc. for the improvement of academic and research programmes.

Resources / Online Resources: The ANGRAU University Library has subscribed e-Resources / Online Resources to provide the latest information to the teachers, scientists, extension specialists and students, etc., to meet their research and educational information needs.

- **Consortium for e-Resources in Agriculture (CeRA):** The ICAR has provided consortium for online e-Resources service called CeRA (Consortium for e-Resources in Agriculture) under NAIP project from 2008 onwards. It is providing access to nearly 4800 journals in Agriculture and allied disciplines.
- **IndiaStat - Statistical Database:** Indiatat.com is an authentic storehouse for socio-economic statistics about India. It provides statistical data, current happenings with a statistical approach and articles from scholars on subjects of social and economic importance, etc.
- **e-Books Taylor and Francis:** The ANGRAU University Library has purchased more than 210 CRC Net Base e-Books on Agriculture and allied sciences, which can be accessed through I.P. and on User ID and Password basis.
- **e-Books CABI:** The ANGRAU University Library has purchased CAB e-Books on perpetual basis, which has unlimited access from the year 2000 and provided access to all the ANGRAU Colleges via I.P. range and on User ID and Password basis.
- **Arts and Science Publication e-Books:** 810e-Books on Agricultural Science provide the comprehensive and reliable content that researcher's need, the accessibility and search ability that researchers want, which alone cannot be available in print sources.
- **J-Gate Agriculture and Biological Sciences:** It provides access to 3500 online e-Journals Portal called J-Gate Agriculture and Biological Sciences for the year 2020-'21.

Table 15. Library Facilities and Services for the Year 2020-2021

S. No.	Name of the Library	Books		e-Resources		Theses		Periodicals Subscribed		Membership		Books Issued	No. of Readers Visited
		No. Added During the Year	Total	e-journals	e-Books	No. Added During the Year	Total	Indian	Foreign	No. Added During the Year	Total		
1	University Library, Lam	71	2861	81	1151	163	1123	23	-	31	61	338	1620
2	Regional Library, Bapatla	604	21919	-	-	59	2169	99	16	251	1464	15256	24323
3	Regional Library, Tirupati	328	24406	-	-	66	4309	139	22	214	980	1443	9148
4	Agricultural College Library, Naira	162	10926	-	-	03	39	19	-	135	529	658	4496
5	Agricultural College Library, Mahanandi	341	14718	-	-	2	58	21	-	64	438	2399	12558
6	Agricultural College, Rajahmahendravaram	120	4230	-	-	-	-	-	-	91	372	395	1001
7	Dr NTR Agricultural Engineering College Library, Bapatla	71	11796	-	-	9	124	10	10	86	1459	3971	5975
8	Agricultural Engineering College, Madakasira	141	6546	-	-	-	-	19	01	42	221	2162	2513
9	Dr NTR College of Food Science & Technology Library, Bapatla	32	8197	-	-	-	-	13	-	66	194	1586	1341
10	College of Food Science & Technology, Pulivendula	63	2877	-	-	-	-	20	-	33	171	882	2405
11	College of Community Science, Guntur	23	1025	-	-	-	-	-	-	81	307	132	3248
TOTAL		1956	109501	81	1151	302	7822	363	49	1094	6196	29222	68628

- **AgriCat:** AgriCat is the Union Catalogue of the holdings of 12 major libraries of the ICAR Institutes, Deemed Universities and SAUs. The ANGRAU University Library is also a member library in AgriCat / WorldCat and contributed nearly 35,000 bibliographical records.
- **KrishiKosh:** KrishiKosh is an Institutional Repository under National Agricultural Research System (NARS). The ICAR Open Access Policy has been implemented in ANGRAU and 1123 M.Sc. and Ph.D. Theses were uploaded in the KrishiKosh Repository after embargo period of one year from 2014 onwards.
- **DELNET:** Developing Library Network (DELNET) DELNET provides access to more than 1.75 crore bibliographic records of books, journals, articles, etc. The internet Library Loan/document Delivery Services are one of the most popular services of DELNET.
- **EzProxy Remote Login Server:** The ANGRAU University Library has implemented EzProxy middleware software to provide remote access to web-based licensed resources offered by the library.

4. Academic Initiatives

- A non-credit library and information services course, PGS-501: Library Services Course is offered to the PG and PhD students.
- An Orientation Programme for newly admitted UG, Masters and PhD students on library system, rules & regulations, access to library facilities and services is organised.

- University Library is regularly conducting “Training cum awareness programmes on e-Resources” for the benefit of teaching faculty and students.

The details of library facilities and services at different constituent colleges of ANGRAU are given in Table 15.

F. INSTITUTIONAL DEVELOPMENT PLAN (IDP)

Institutional Development Plan has been granted to ANGRAU by the National Agricultural Higher Education Project of ICAR (World Bank funded) with a budget outlay of Rs. 2910.01 Lakhs (Rs. 2410.01 Lakhs–NAHEP share & Rs. 500 Lakhs – ANGRAU share) for three financial years 2018-19, 2019-20 and 2020-21 at five accredited colleges of ANGRAU, Agricultural College, Naira; Agricultural College, Mahanandi; S V Agricultural College, Tirupati; Agricultural College, Bapatla, and Dr NTR College of Agricultural Engineering, Bapatla.

IDP has given a unique opportunity to undergraduate students to attain National and International exposure at various National and International institutions. It is instrumental in strengthening of Central Instrumentation Cells (CICs) with advanced analytical equipments, Smart and Virtual classrooms, strengthening of Libraries for having better teaching, learning and research experience for undergraduate students.

Strengthening of Central Instrumentation Cells (CICs)

The following 23 laboratory equipments were purchased for the development of Central Instrumentation facilities at Agricultural College, Mahanandi and S V Agricultural College, Tirupati in the IDP project during FY 2020-‘21 at a cost of Rs. 2.25 crores.

S.No.	Item	Quantity	Amount spent (Rs.)
1	Rt PCR	1	12,64,200
2	Thermomixer	2	6,42,156
3	Nano Drop Spectrophotometer	2	10,70,113
4	UV Vis Spectrophotometer	2	7,77,000
5	Autoclave	3	3,24,450
6	DNA Concentrator	2	7,68,283
7	Leaf area meter	1	25,45,200
8	Refrigerated Micro Centrifuge	1	9,54,196
9	Minispin	2	2,10,000
10	Trinocular Stereo microscope	2	9,03,976
11	Trinocular Florescence Microscope with camera	2	33,89,978
12	Laminar Air Flow Chamber	2	2,35,976
13	-20 Degree Centigrade Freezer	1	1,77,000
14	UPS online 20KVA	4	14,54,940
15	ELIZA reader	2	12,07,500
16	2D Electrophoresis	2	33,57,900
17	Electronic Balance 220g	4	2,28,182
18	-80 degree Centigrade Freezer	2	8,29,500
19	Ultra water purification System	2	6,30,000
20	Electronic Balance 320g	2	1,71,064
21	Single Distillation Set	4	1,47,000
22	BOD Incubators	4	4,90,880
23	Lyophilizers	2	7,77,000
	Total		2,25,56,494

- ANGRAU, Guntur was recognized as the star performer as far as procurement is concerned in IDP for securing 87 per cent of their procurement.
- In the performance scoreboard of IDP, ANGRAU, Guntur stood second and have secured Strength category indicating comparatively more directional efforts in effective planning and implementation of technical and financial milestones.

Minor Repair and Renovation Works

ICAR-NAHEP has sanctioned an amount of Rs. 160 lakhs under sub-head of Minor repair works in the IDP project towards repair works in the classrooms and hostels at five accredited colleges of ANGRAU. Accordingly, ANGRAU-IDP has successfully completed all the minor repair works in the five accredited colleges for a total amount of Rs. 136.41 Lakhs as detailed below.

Details of repair and renovation works taken up in IDP during 2020-'21.

Identification Number	Name of work	Amount spent (Rs.)
IN-ANGRAU GUNTUR-90765-CW-RFQ	Renovation of hostels at Agricultural College, Bapatla and Agricultural Engineering College, Bapatla	39,15,523.00
IN-ANGRAU GUNTUR-90755-CW-RFQ	Renovation of hostels at Agricultural College, Mahanandi	19,68,019.00
IN-ANGRAU GUNTUR-90763-CW-RFQ	Renovation of hostels at Agricultural College, Tirupati	19,88,173.00
IN-ANGRAU GUNTUR-90770-	Renovation of hostels at Agricultural College, Naira	13,38,026.00
IN-ANGRAU GUNTUR-90748-CW-RFQ	Renovation of classrooms and office rooms, Agricultural College, Bapatla	44,31,569.00
	Total	1,36,41,310.00

National and International Training Programmes/Workshops to Faculty under IDP during the year 2020-'21

The following training programmes/workshops were organized under IDP during the year 2020-21

Faculty Programmes				
S. No.	Particulars	No. of participants	Duration	Host Institution
1.	Online Training workshop on Contemporary Education Technologies for Agricultural Education	20	02.06.2020 to 06.06.2020	NAARM, Hyderabad
2.	Online three-day workshop on "Placements and Career Counseling" for placement officers and Officers in-charge of Student Activities	50	28.07.2020 to 30.07/2020	Yuvan Skill Advisory, Noida
3	Online KSU Seminar Series "Communicating Science and Effective Leadership"			
i.	Inauguration of KSU Seminar Series	124	11.06.2020	Kansas State University, USA
ii.	Developing Effective Leadership Skills for Change		18.06.2020	
iii.	Designing and Delivering Effective Presentations		25.06.2020	
iv.	Communicating Science through Effective Publications		09.07.2020	
v.	Key Strategies for Successful Proposal Development		23.07.2020	
vi.	Use of SWOT Analysis as Tool for Research		06.08.2020	
vii.	Strategic Planning for Transformational Change		20.08.2020	
viii.	Closing session of KSU Seminar Series		04.09.2020	

Conferences/Seminars/Webinars/Guest Lectures under IDP during 2020-'21			
1	02.03.2021 & 03.03.2021	Sustainable Intensification and Agricultural Development in Andhra Pradesh in the	Agricultural College, Naira
2	25.03.2021 & 26.03.2021	Strategies for Buffering Ecosystems for their Sustainable Services in the Era of Intensive Agriculture and Climate Change (SSECC – 2021)	Agricultural College, Rajamahendravaram
3	26.03.2021 & 27.03.2021	Data Analysis using Excel	Agricultural College, Bapatla
Webinars conducted by IDP, ANGRAU			
1	03.06.2020	COVID-19 for Health & Well-being	
2	24.06.2020	Recent Biotechnological Tools for Crop Improvement	
3	13.07.2020	Sustain Diversity and Realize the Potential of Agriculture Sector of India	
4	28.07.2020	Information and Communication Technologies for Agri-Business Management	
5	29.07.2020	AgriTech in India – Emerging Trends and Opportunities in Agri-Input Sector	
6	01.08.2020	Communication Skills for Employability in Industry	
7	18.08.2020	Research Opportunities in Food Processing and Value Addition	
8	19.08.2020	Agricultural Engineer for Rural Transformation	
9	21.08.2020	All about of Commodity Exchanges	
10	24.08.2020	Role of Agricultural Students for Food Security in the Context of Climate Change	
11	23.09.2020 to 22.10.2020	1. Seed Industry – Quality Production and Viable Agriculture 2. Agricultural Chemicals and Fertilizers – Enhancing Productivity 3. Agricultural Farm Machinery – Modernizing Agriculture 4. Micro Irrigation – Improved Efficiency in Farming 5. Agri-finance (Banks, NBFC's) – Support to Farmers 6. Agricultural Processing, Supply Chain and Warehousing – Profitable Agriculture 7. Emerging Agri-Tech Companies, Agri-start-ups, FPO's – An Ocean of opportunities for youth 8. Public Sector Initiatives in Agriculture Sector– Empowering Farmers	
12	14.08.2020	Importance of Social safeguards for Agricultural Universities” for Faculty	
13	14.08.2020	Social safeguards and You” for students of ANGRAU	
14	17.08.2020	Mitigation of COVID-19 Pandemic through Health, Nutrition and Family Care	
15	4.12.2020	International webinar on “Pulses to keep soil alive and protect biodiversity”	
16	19.02.2021	Agri-Entrepreneurial Opportunities – About making a difference	
17	08.03.2021	Women in Agri-Entrepreneurship – A Game Changer for Indian Economy	

National and International Guest Lectures conducted by IDP, ANGRAU					
1	05.11.2020	Gender Mainstreaming in Agriculture by Dr Kodali Uma Rani, Director, MANAGE, Hyderabad			
2	11.11.2020	Plant Breeding in the Present Day Context by Dr Alapati Satyanarayana, Director of Extension (Retired), ANGRAU			
3	12.02.2021	Smart Farms – Enhancing Sustainability through Farmers Participation by Dr. Vijaya Gopal Kakani, Warth Distinguished Professor, Member OSU faculty council, Department of Plant and Soil Sciences, Oklahoma State University, USA			
4	18.03.2021	Hyperspectral Imaging for Quality Assessment of Agricultural Products by Dr.Anisur Rahman, Associate Professor, Department of Farm Power and Machinery, Faculty of Agricultural Engineering and Technology, Bangladesh Agricultural University, Mymensingh, Bangladesh			
5	26.03.2021	Managing the Health of Soils in Semi-Arid Tropics for Food, Climate, and Other Ecosystem Services by Dr. Rattan Lal, Distinguished University Professor of Soil Science, SENR; Director, CFAES Dr Rattan Lal Carbon Management and Sequestration Center; IICA Chair in Soil Science and Goodwill Ambassador for Sustainable Development Issues			
6	26.03.2021	Pearl millet Improvement in India by Dr C Tara Satyavathi, Project Coordinator, All India Coordinated Research Project (ICAR) on Pearl Millet, ARS, Mandor, Jodhpur, Rajasthan			
Student Trainings under IDP, ANGRAU during 2020-'21					
S. No.	Name of the programme		No. of participants	Duration & Period	Venue & Sponsored by
National Training Programme for UG students					
1.	Online Training Programme on “Soft Skill Enhancement for Self- Improvement”		544	11.05.2020 to 15.06.2020	Smart Series, Bangalore
2.	Online Personality Development `Training Programme		54	028.10.2020 to 14.12.2020	Communicare, Pune, Maharashtra
3.	Soft Skills, Public Speaking and Personality Development (Online)		300	16.03.2021 to 30.04.2021	Voice out, Gurgaon
4.	National Training Programme on “Plant Health Management”		30	23.03.2021 to 12.04.2021	NIPHM, Hyderabad
Certificate Courses for UG students					
1.	Certificate Course on “Block chain applications for value chain management (online and in-person)		60	11.01.2021 to 14.02.2021	Intelitix, Bangalore
2.	Certificate Course on Export Import of Agricultural Commodities		30	22.02.2021 to 22.03.2020	Lime Institute of Export Import Training, Rajkot, Gujarat

Skill Development Programmes for students/stakeholders				
1.	Hi-Tech Agriculture	30	14.12.2020 to 22.01.2021	Kerala Agricultural University, Thrissur
2.	Agro Based Entrepreneurship	40	15.02.2021 to 12.03.2021	EDII, Gandhinagar, Gujarat
3.	Agro-based Entrepreneurship	40	12.04.2021 to 07.05.2021	Ni-MSME, Hyderabad

G. INTERNATIONAL PROGRAMMES

ANGRAU established an IP (International Programmes) Centre for facilitating International Programmes during 2005. Presently, this IP centre and its activities are governed by the Director of Research. The IP Centre serves as an internal and external liaison for the University, providing a source of assistance to faculty, administrators and students

and enhancing their ability to pursue and develop international activities and initiatives. The ANGRAU promotes the process of actively partnering with the International Universities and Organizations to effectively utilize and apply the knowledge, resources and expertise to mutually address the needs and problems facing global society today.

H. MEMORANDA OF UNDERSTANDING (MoU)

The details of MoUs signed by ANGRAU during the year 2020-'21 are given below (Table 16).

Table 16. MoU signed with different National and International Institutions/Universities

S.No.	MoU with	Date of MoU	Terms of Reference
1	Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad	03.07.2020	PG & Ph.D. research collaborations
2	National Cooperative Development Corporation (NCDC), New Delhi	18.11.2020	Student exchange programme including providing internship opportunities to students
3	Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj (Allahabad)	16.11.2020	Exchange of students to thesis research work
4	Indian Institute of Science Education and Research (IISER), Tirupati	20.01.2021	Sharing of Research facilities Research collaboration and/or joint research projects
5	Maharaja Alak Narayan Society of Arts and Sciences, Vizianagaram	01.02.2021	Education, academic research and trainings Sharing of Research facilities Research collaboration and/or joint research projects
6	CEO, SLNA & Commissioner, PR&RD Department, Govt. of Andhra Pradesh	19.04.2021	Implementation of World Bank assisted programme on "Rejuvenating Watersheds for Agricultural

			Resilience through Innovative Development (REWARD)” - Hydrological Modelling and Agro Advisory by ANGRAU to the O/o Commissioner, PR & RD, Govt. of AP, Tadepalle, Guntur
7.	National Academy of Agricultural Research Management (NAARM), Hyderabad	28.05.2021	PG & Ph.D. research collaborations for students

IV. RESEARCH

The research in the university is being carried out in 33 research stations including six Regional Agricultural Research Stations, spread over 13 districts of Andhra Pradesh. The research activities of the University are mainly focused on crop improvement, crop production, crop protection, post-harvest management, farm mechanization, rainfed research, water management, soil health management, socio economic aspects, farmer-centric extension studies etc., aiming at overall increase in agricultural production and reducing cost of cultivation besides solving location specific problems. In view of frequent occurrence of weather extremes such as droughts, floods, heat waves etc., research efforts are intensified on climate resilient agricultural production in the state. The organogram of research in the University is depicted in Fig.3. The Agro-climatic zone-wise list of research stations of ANGRAU and their functions (Annexure VI) and the list of ICAR Coordinated Research Projects operated in Research Stations of ANGRAU are detailed in Annexure-VII.

Development of eco-friendly technologies for pest and disease management, addressing the biotic and abiotic stresses in crops through frontier technologies like biotechnology, nanotechnology, drone technology and through other innovations is remarkable. Research is also being carried out in basic sciences of agriculture, as a support to applied research. On-farm research is also conducted for evaluation and refinement of newly developed technologies in farmers' fields.

A. SEASONAL CONDITIONS AND CROP PERFORMANCE

During the period from 1st June, 2020 to 31st May, 2021, the average rainfall received in the State was 1191.0 mm, as against the normal rainfall of 966.0 mm, excess being 23.3 per cent, whereas the rainfall during the same period of previous year (2019 -'20) was 874.5 mm, deficit being 9.5 per

cent. The rainfall was normal ($\pm 19\%$) in Vizianagaram, Visakhapatnam and Prakasam districts, the rainfall was deficient (-59% to -20%) in Srikakulam district and the rainfall was excess ($\geq +20\%$) in remaining nine districts of the State.

A rainfall of 704.8 mm was received in the State of A.P. during the South West Monsoon period of 2020-'21 as against the normal rainfall of 556.0 mm with an excess of 26.8%. There was an excess of 25.1% in the North East monsoon period as 370.3 mm rainfall was received as against the normal rainfall of 296.0 mm during the period. Winter period recorded 20.6 mm rainfall as against the normal rainfall of 15.7 mm. Rainfall recorded during summer period was 95.3 mm as against normal rainfall of 98.3 mm.

Season wise normal and actual rainfall received in Andhra Pradesh for the year 2020-'21 is given in Table 17.

The area, production and productivity of major crops in Andhra Pradesh for the year 2020-'21 are presented in Table 18.

Rice, a predominantly irrigated crop was grown in an area of 25.52 lakh ha (16.01 lakh ha in *kharif* and 9.51 lakh ha in *rabi*) during 2020-'21. During *kharif* 2020, rice crop recorded 67.60 lakh t production with a productivity of 4223 kg ha⁻¹. Increase in *rabi* productivity (6655 kg ha⁻¹) resulted in high rice production in the state during 2020-'21. Significant increase in the production of rice during *rabi* season together with productivity improvement was through adoption of best management practices largely recommended by ANGRAU.

Maize grown in 3.01 lakh ha (1.14 lakh ha in *kharif* 2020 and 1.87 lakh ha in *rabi* 2020-'21) recorded an average productivity of 5918 kg ha⁻¹. The total production of maize during 2020-'21 was 17.84 lakh t.

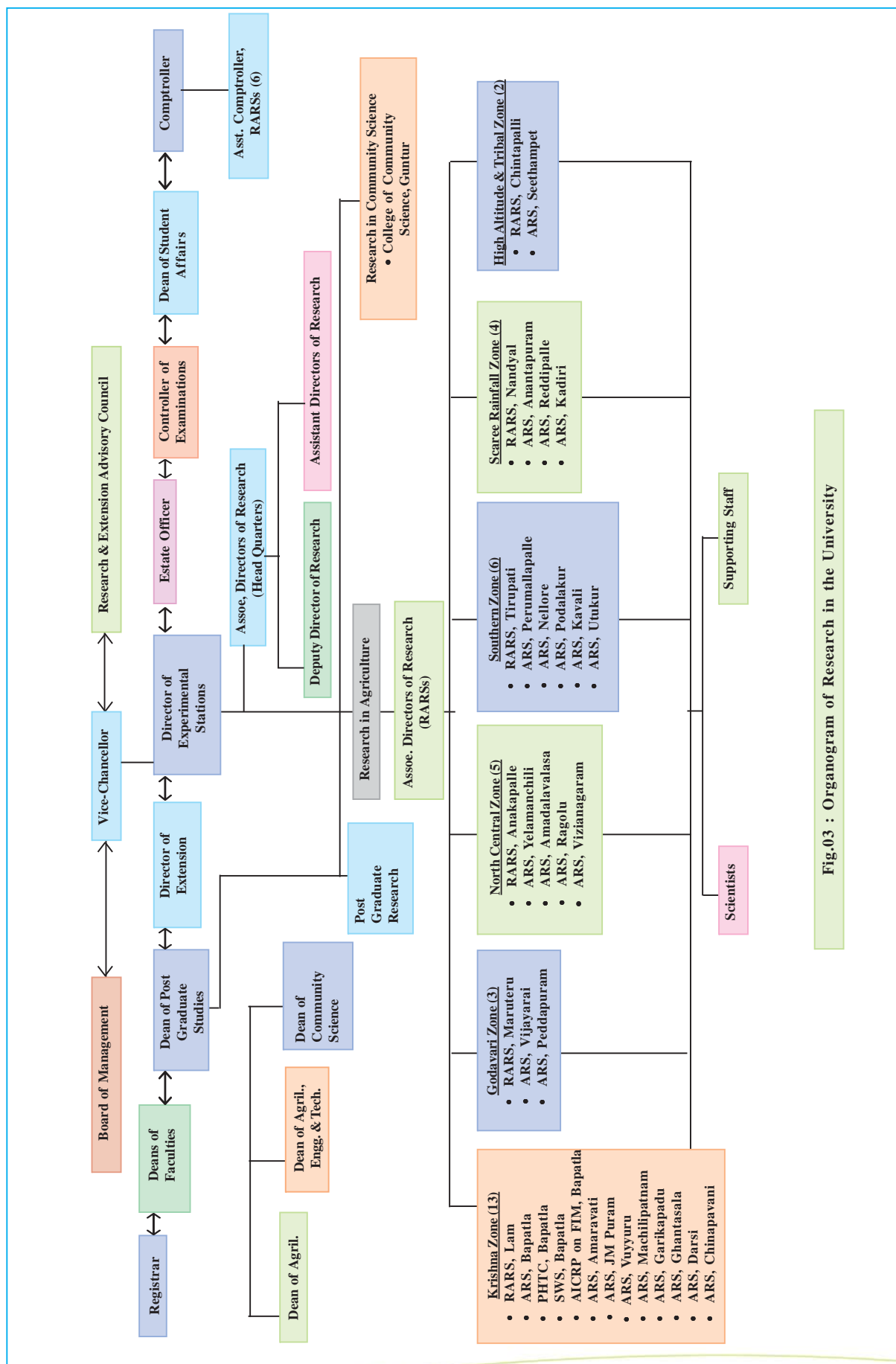


Fig.03 : Organogram of Research in the University

The area under Minor millets (*korra*, *variga* & *sama*) was 0.22 lakh hectares in 2020-'21. There was a decrease in area under *korra* cultivation during the year (0.14 lakh ha) compared to previous year of 0.15 lakh ha). The area under *variga* was 0.04 lakh ha during 2020-'21, which was double than the previous year, 2019-'20 (0.02 lakh ha).

Redgram, an important *kharif* pulse crop was grown in an area of 2.31 lakh ha. Total production in the state was 0.84 lakh tonnes. During *rabi*, 2020-'21, bengalgram, blackgram and greengram were grown in 4.69, 3.93, 1.05 lakh ha, respectively. The total pulse production during the year 2020-'21 was 10.95 lakh t.

Groundnut crop was sown in an area of 8.70 lakh ha during 2020-'21. Seasonal conditions prevailed in major groundnut growing areas resulted in low pod yields in *kharif* (724 kg ha⁻¹). The *rabi*, 2020-'21 yields were improved to the tune of 1895 kg ha⁻¹. During the year, a total production of 7.74 lakh t was recorded. The total area and production of oilseed crops were 10.33 lakh ha and 29.93 lakh t during the year 2020-'21.

Cotton, an important commercial crop of the state was sown in an area of 6.06 lakh ha and 16 lakh bales of lint was produced in the state during the year. The area under sugarcane was 0.55 lakh ha in 2020-'21 as against 0.86 lakh ha in 2019-'20.

The highlights of research in agriculture and allied disciplines are presented subject-wise and crop-wise here under.

B. AGRICULTURE

1. CROP IMPROVEMENT

Crop improvement is one of the major mandates of the University for development of superior varieties/ hybrids with high yielding ability, resistant to biotic and abiotic stresses in tune with

the changing needs of the farmers / millers / consumers and also to develop climate resilient varieties. Also, research is focused on development of varieties which results in cost reduction and varieties with export orientation.

i) Crop Varieties Released During 2021

During 2021, eight improved crop varieties were released at National Level through Central Sub Committee on Crop Standards, Notification and Release of varieties (CVRC). These include three in rice (MTU 1212, MTU 1280, MTU 1281), one each in bengalgram (NBeG 857) and horsegram (Ananta Vulava-ATPHG 11) and three in cotton (NDLH 2005-4, NDLH 2028-2, NDLH 2051-1).

Each of the varieties released are superior to the popular varieties in one or more traits like yield, quality, tolerance to pests and diseases. Further, release proposals of 14 improved crop varieties viz., four varieties in rice, three varieties in blackgram, two varieties each in greengram and cotton; one variety each in bengalgram, groundnut, and sugarcane were submitted to SVRC for identification and release into the public domain at state level during 2021.

ii) Minikits

The minikit trials were conducted in different crops during the year 2020-'21 for obtaining response of the crop varieties. The following (Table 19) are Minikit trials conducted in different crops along with the details on specific characteristics, yields and per cent increase over check.

iii) Other Varietal / Yield Trials in Different Crops

The different crop cultures identified, their performance in different varietal and yield trials during the year 2020-'21 are presented in Table 20.

Table 17. District wise and Monsoon wise Rainfall Received in Andhra Pradesh during 2020-‘21

S.No.	District	South-West Monsoon(mm) (June – September, 2020)			North – East Monsoon (mm) (October – December, 2020)			Winter period (mm) (Jan. and Feb. 2021)			Summer period (mm) (March to May 2021)			Total rainfall (mm) (June 2020 to May 2021)		
		Normal	Actual	% Deviation	Normal	Actual	% Deviation	Normal	Actual	% Deviation	Normal	Actual	% Deviation	Normal	Actual	% Deviation
1.	Srikakulam	705.7	512.4	-27.4	276.0	263.7	-4.5	25.9	10.8	-58.3	154.0	101.7	-34.0	1161.6	888.6	-23.5
2.	Vizianagaram	692.7	581.9	-16.0	245.8	278.7	13.4	25.5	3.3	-87.1	166.7	146.0	-12.4	1130.7	1009.9	-10.7
3.	Vishakapatnam	712.5	710.5	-0.3	297.2	398.5	34.1	22.3	3.1	-86.1	170.2	165.6	-2.7	1202.3	1277.7	6.3
4.	East Godavari	768.1	975.9	27.1	305.4	503.5	64.9	19.7	3.3	-83.22	124.5	96.6	-22.4	1217.6	1579.3	29.7
5.	West Godavari	791.9	1023.3	29.2	239.4	421.8	76.2	17.7	1.0	-94.4	104.0	97.2	-6.5	1153.0	1543.3	33.9
6.	Krishna	685.1	831.8	21.4	393.4	355.7	-42.6	15.8	4.3	-72.8	83.2	76.2	-8.4	1033.5	1268.0	22.7
7.	Guntur	525.8	697.7	32.7	228.9	255.6	11.7	18.4	3.2	-82.6	79.9	69.3	-13.3	853.0	1025.8	20.3
8.	Prakasam	388.3	548.3	41.2	393.7	357.7	-9.1	16.3	19.0	16.6	73.2	86.9	18.7	871.5	1011.9	16.1
9.	SPSR Nellore	331.4	489.1	47.6	661.4	730.5	10.4	19.9	85.5	329.6	67.8	21.6	-68.1	1080.4	1326.7	22.8
10.	Chittoor	439.4	672.7	53.1	395.4	484.0	22.4	12.1	42.7	252.9	87.0	91.5	5.2	933.9	1290.9	38.2
11.	YSR Kadapa	393.6	691.6	75.7	251.0	408.1	62.6	3.4	40.4	1088.2	51.6	95.0	84.1	699.6	1235.1	76.5
12.	Anantapuramu	338.4	567.0	67.6	155.3	180.6	16.3	2.9	26.5	813.8	55.7	112.9	102.7	552.3	887.0	60.6
13.	Kurnool	455.1	757.9	66.5	149.6	164.3	9.8	4.6	17.1	271.7	61.2	100.2	63.7	670.5	1039.5	55.0
Andhra Pradesh (Avg.)		556.0	704.8	26.8	296.0	370.3	25.1	15.7	20.6	31.20	98.3	95.3	-3.1	966.0	1191.0	23.3

Table 18. Area, Production and Productivity of Major Crops in Andhra Pradesh (2020-21)

S.No.	Crop	Kharif, 2020			Rabi, 2020-21			Total 2020-21		
		Area ('000' ha)	Production ('000' tons)	Yield (Kg ha ⁻¹)	Area ('000' ha)	Production ('000' tons)	Yield (Kg ha ⁻¹)	Area ('000' ha)	Production ('000' tons)	Yield (Kg ha ⁻¹)
1	Paddy	1601	6760	4223	951	6329	6655	2552	13089	5130
2	Wheat	-	-	-	N	N	1508	-	-	1508
3	Jowar	3	4	1332	117	406	3482	120	410	3428
4	Bajra	26	60	2303	5	10	2159	31	70	2281
5	Maize	114	434	3807	187	1350	7203	301	1784	5918
6	Ragi	26	30	1143	7	10	1395	33	40	1197
7	Korra	11	10	857	3	2	709	14	12	828
8	Sama	4	2	464	-	-	-	4	2	464
9	Variga	-	-	-	4	5	1204	4	5	1204
TOTAL CEREALS & MILLETS		1785	7300	-	1274	8112	-	3059	15412	-
10	Bengalgram	-	-	-	469	532	1136	469	532	1136
11	Redgram	223	80	357	8	4	538	231	84	363
12	Greengram	11	5	413	94	77	814	105	82	781
13	Blackgram	32	26	788	361	339	941	393	365	929
14	Horsegram	3	1	353	23	13	590	26	14	538
15	Cowpea	3	2	828	7	7	991	10	9	900
16	Other Pulses	2	1	707	8	8	976	10	9	900
TOTAL PULSES		274	115	-	970	980	-	1244	1095	-
17	Groundnut	746	540	724	124	234	1895	870	774	891
18	Castor	15	6	406	1	N	335	16	6	404
19	Niger	N	N		4	2	455	4	2	455
20	Sesame	14	3	211	22	6	262	36	9	242
21	Rapeseed & Mustard	-	-	-	1	1	641	1	1	641
22	Safflower	-	-	-	1	1	523	1	1	523
23	Sunflower	2	1	575	10	8	715	12	9	694
24	Soybean	2	3	1546	N	N	1371	2	3	1544
25	Other Oil seeds	91	2188	24017	-	-	-	91	2188	24017
TOTAL OILSEEDS		870	2741	-	163	252	-	1033	2993	-
26	Cotton (lint*)	603	1595	450	3	5	256	606	1600	449
27	Mesta (**)	1	8	1880	-	-	-	1	8	1880
28	Chillies	139	652	4691	38	145	3760	177	797	4489
29	Tobacco	3	7	2782	58	137	2368	61	144	2386
30	Sugarcane	55	4135	75248	-	-	-	55	4135	75248
31	Potato	N	3	18747	1	23	19031	1	26	18994
** Mesta production in '000' bales of 180 kgs, *Cotton lint production in '000' bales of 170 kgs each bale Source: Directorate of Economics & Statistics, Government of Andhra Pradesh N- Negligible										

New Crop Varieties released from ANGRAU at National Level during 2021



RICE

Variety : **MTU Rice 1280**
 Popular name : **MTU 1280**
 Parentage : MTU 1001 / KMP 150
 Duration : 135 days
 Season : *Kharif*
 Reaction to biotic/abiotic stresses : Moderately resistant to neck blast, rice tungro disease, stem borer and leaf folder

Average yield : 7 t/ha
 Developed by : RARS, Maruteru
 Salient features: Highly non-lodging, high yielding, fertilizer responsive, semi dwarf with green foliage, straw glume, long bold and translucent grains, possessing 2 weeks seed dormancy and low grain shattering.



RICE

Variety : **MTU Rice 1212**
 Popular name : **MTU 1212**
 Parentage : IR 64/ PLA 99-1-3-1-3
 Duration : 140 days
 Season : *Kharif*
 Reaction to biotic/abiotic stresses : Moderately resistant to leaf blast, neck blast, brown spot, sheath rot and sheath Blight.

Average yield : 7 t/ha
 Developed by : RARS, Maruteru

Salient features: It is a non-lodging, high yielding, nitrogen responsive, semi-tall with green foliage, two weeks seed dormancy, low shattering with completely exerted panicles bearing high grain number.



RICE

Variety : **MTU Rice 1281**
 Popular name : **MTU 1281**
 Parentage : (MTU 1075 / MTU 1081) MTU 1121

Duration (days): 140 days
 Season : *Kharif*
 Reaction to biotic/abiotic stresses : Moderately resistant to leafblast, neck blast and BPH

Average yield : 7 t/ha
 Developed by : RARS, Maruteru

Salient features: Non-lodging, high yielding, nitrogen responsive, semi-tall with green foliage, two weeks seed dormancy, low shattering with completely exerted panicles bearing high grain number.

COTTON

Variety : NDLH 2005-4
Popular name : Nandyal cotton 22
Parentage : NDLH 1755 x DWD 12
Duration : 160 Days
Season : *Kharif* - Rainfed
Reaction to biotic/abiotic stresses : Tolerance to Jassids

Average yield : 16 – 17 q/ha

Developed by : RARS, Nandyal

Salient features: This American Cotton variety possesses high yielding with high halo length. Released for cultivation in Madhya Pradesh, Maharastra, Gujarat, South Rajasthan and Odhisha.

**COTTON**

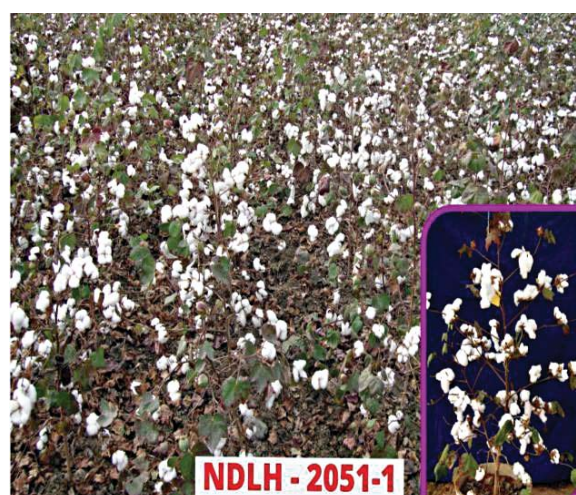
Variety : NDLH 2028-2
Popular name : Nandyal cotton 23
Parentage : NDLH 1938 x TNCBB -05
Duration : 160 Days
Season : *Kharif* - Rainfed
Reaction to biotic/abiotic stresses : Tolerance to Jassids and drought
Average yield : 15 – 16 q/ha
Developed by : RARS, Nandyal

Salient features: This American Cotton variety possesses high yielding with high boll weight. Released for cultivation in Telangana Andhra Pradesh, Karnataka and Tamilnadu.

**COTTON**

Variety : NDLH 2051-1
Popular name : Nandyal cotton 24
Parentage : HAG 823 X HYPS 152
Duration : 160 Days
Season : *Kharif* - Rainfed
Reaction to biotic/abiotic stresses : Tolerance to Jassids, White flies, and Drought
Average yield : 24 – 25 q/ha
Developed by : RARS, Nandyal

Salient features: This American Cotton variety possesses high yielding with high boll weight. Released for cultivation in Madhya Pradesh, Maharastra, Gujarat South Rajasthan and Odhisha, Telangana, Andhra Pradesh, Karnataka, Tamilnadu.





HORSEGRAM

- Variety** : ATPHG-11
Popular name : Ananta vulava 1
Parentage : Selection from ATP-1 Local
Duration : 110-120 days
Season : Late *kharif*
Reaction to biotic/abiotic stresses : Highly resistant to dry root rot and moderately tolerant to YMV
Average yield : 8-11 q ha⁻¹
Developed by : Agricultural Research Station, Anantapuramu
Salient features: Light greyish brown seed with 100 seed weight of 3.6-4.2 g.



BENGALGRAM

- Variety** : NBeG 857
Popular name : Nandyal Gram 857
Parentage : ICC 12419 x JG 11
Duration : 95-100 days
Season : *Rabi*
Reaction to biotic/abiotic stresses : Tolerant to wilt
Average yield : 23-25 q/ha
Developed by : RARS, Nandyal
Salient features: High yielding desi chickpea. Semispreading plant type, medium plant height with attractive light brown seeds. Possess 100 seed weight of 23.4g and protein content of 21.7%. Recommended for cultivation in Andhra Pradesh, Telangana Karnataka and Tamil Nadu states of South Zone under irrigated conditions. It can also be grown under rainfed conditions.



RICE

- Variety** : MTU 1232
Parentage : MTU 1075/ Swarnasub1//*3 MTU 1075
Duration : 135-140 days
Season : *Kharif*
Reaction to biotic/abiotic stresses : Tolerates 14 days flash floods and stagnant flooding. Moderately resistant to leafblast, Sheath blight and BPH
Average yield : 6.0 t/ha under normal condition. 3.7 to 4.0 t/ha under submergence.
Developed by : RARS, Maruteru
Salient features: High yielding, non-lodging, semi-tall with one week dormancy and low grain shattering. Possessing *Sub1A* gene (80% plant survival) for tolerance to floods

RICE

Variety : BPT 2776
Parentage : BPT 2231/NLR145
Duration : 150-155 days
Season : Kharif
Reaction to biotic/abiotic stresses : Tolerant to Blast & BPH: Blast resistant genes **Piks, pi 39, pi1** are present in BPT 2776. Tolerates salinity and water stress to some extent

Average yield : 6.5-7.0 t/ha

Developed by : ARS, Bapatla

Salient features: Non-lodging, medium slender grain with good cooking quality. Suitable to single cropped areas. It has one week seed dormancy and has no shattering of grains at harvest.

**RICE**

Variety : MCM 103
Parentage : BPT 5204/MTU 4870
Duration : 140 days
Season : Kharif
Reaction to biotic/abiotic stresses : Salt tolerant rice variety, moderately tolerant to blast, BPH
Average yield : 5.5t/ha (salinity), 6.5 t/ha (normal)

Developed by : ARS, Machilipatnam

Salient features: Medium slender grain salt tolerant rice variety with head rice recovery 66%, translucent kernel with good cooking quality. Test weight: 14.5g, L/B ratio: 2.5.

**RICE**

Variety : NLR 3186
Popular name : Nellore sampada
Parentage : NLR 28523x Brezilio secundro
Duration : 150-155 days
Season : Kharif
Reaction to biotic/abiotic stresses : Tolerant to blast disease

Average yield : 7-7.5 t/ha

Developed by : ARS, Nellore

Salient features: Medium green foliage, profuse tillering ability, possessing densely packed dark glume (Molagolukulu type) medium slender grains on panicle. Kernels are white and translucent with high milling and head rice recovery.





BLACKGRAM

Variety : **GBG 12**
Parentage : LBG 17 X TU 94-2
Duration : 75-80 days
Season : *Kharif* and *rabi* in uplands and *rabi* in rice fallow situations
Reaction to biotic/abiotic stresses : Resistant to Mungbean Yellow Mosaic Virus disease
Average yield : 20-22 q/ha
Developed by : ARS, Ghantasala
Salient features: Medium duration, having sturdy stem and erect growth habit, top bearing plant type and suitable for mechanical harvesting. Seeds are medium bold in size and shiny black in color. Due to earliness, it can escape terminal moisture stress and suitable for late sowings.



BLACKGRAM

Variety : **LBG 884**
Parentage : LBG 709 x KU 96-3
Duration : 80-85 days
Season : *Kharif* and *rabi*
Reaction to biotic/abiotic stresses : Resistant to Mungbean Yellow Mosaic Virus (MYMV)
Average yield : 20-22 q/ ha
Developed by : RARS, Lam
Salient features: Photo insensitive, suitable for all seasons and rice fallows, medium bold shinyseed.



BLACKGRAM

Variety : **GBG 45**
Parentage : LBG 17 X TU 94-2
Duration : 80-85 days
Season : *Rabi*
Reaction to biotic/abiotic stresses : Tolerant to Mungbean Yellow Mosaic Virus
Average yield : 20-25 q/ha
Developed by : ARS, Ghantasala
Salient features: Medium duration, having sturdy stem and erect plant type, suitable for mechanical harvesting. Seeds are bold, shining black in colour. Suitable for *rabi* rice-fallows after *kharif* paddy and uplands.

GRRENGRAM

Variety : LGG 574
Parentage : LGG 460 x P 101
Duration : 65-70 days
Season : *Rabi*
Reaction to biotic/abiotic stresses: Tolerant to Mungbean Yellow Mosaic Virus (MYMV)
Average yield : 15-16 q/ ha
Developed by : RARS, Lam
Salient features: Tall plant amenable for mechanical harvesting, suitable for *rabi* uplands & rice fallow situations, medium bold shiny seed.

**GRRENGRAM**

Variety : LGG 607
Parentage : MGG 295 x COGG 912
Duration : 60-65 days
Season : *Kharif & rabi*
Reaction to biotic/abiotic stresses: Resistant to MYMV
Average yield : 15-17 q/ha
Developed by : RARS, Lam
Salient features: Photo insensitive, suitable for all seasons and rice fallows, medium bold shiny seed.

BENGALGRAM

Variety : NBeG 776
Popular name : Nandyal Gram 776
Parentage : ICC 12419 x JG 11
Duration : 95-105 days
Season : *Rabi*
Reaction to biotic/abiotic stresses: Resistant to wilt
Average yield : 24-28q/ha
Developed by : RARS, Nandyal
Salient features: Semi erect high yielding *desi* chickpea suitable for combine harvesting. It has attractive light brown coloured seeds with a 100 seed weight of 25.0 g and protein content of 20.9%. Suitable for cultivation in all chickpea growing districts in AP during *rabi* season under rainfed conditions and also responds to one or two irrigations.





COTTON

Variety : **NDLH 2010**
 Popular name : **Kundu**
 Parentage : NDLH 1325 x FFLC 1
 Duration : 160 Days
 Season : *Kharif* - Rainfed
 Reaction to biotic/abiotic stresses : Tolerance to Jassids, Thrips & Aphids
 Average yield : 23 q/ha
 Developed by : RARS, Nandyal
 Salient features: High yielding with high boll weight and staple length.

COTTON

Variety : **NDLA 2985**
 Popular name : **Ahobilam**
 Parentage : NDLA 2708 x DSAV 2
 Duration : 150 Days
 Season : *Kharif* - Rainfed
 Reaction to biotic/abiotic stresses : Tolerance to Black arm disease, Jassids, and Aphids
 Average yield : 21 q/ha
 Developed by : RARS, Nandyal
 Salient features: High yielding with high boll weight and staple length.



GROUNDNUT

Variety : **TCGS 1694**
 Parentage : **Kadiri 6 x ICG(FDRS)79**
 Duration : 95-100 days (*Kharif*)
 100-105 (*Rabi*)
 Season : *Kharif* and *rabi*
 Reaction to biotic/abiotic stresses : Late Leaf Spot resistant, Drought and Heat tolerant
 Average yield : 33-35q/ha (*Kharif*)
 42-45q/ha (*Rabi*)
 Developed by : RARS, Tirupati
 Salient features: Possessing good seed quality traits that can alternate to Kadiri 6.

**SUGARCANE**

Variety : 2006A 223 (CoA 12323)

Popular name : Aswini / Aarudra

Parentage : 87A298 (CoA 92081) X
87A380 (CoA 90081)

Duration : Early maturing

Season : 10 months

Reaction to biotic/abiotic stresses : Moderately resistant to
red rot, wilt and Yellow
Leaf Disease

Average yield : 85-90 t/ha

Developed by : RARS, Anakapalle

Salient features: Early maturing, semi erect growing clone with non lodging habit. Tolerance to moisture stress and water logging conditions. It maintained tolerance to cane quality deterioration upto 76 hours after cane harvest (stale cane) in terms of cane weight loss with a minimum of less than 10% during January, February and March harvests when compared to other clones tested.

Table 19. Particulars of Minikits in Different Crops during 2020-'21

S. No.	Minikit entry and parentage	Year of testing/ season	Mean minikit entry yield (Kg (ha ⁻¹))	Mean check yield (Kg (ha ⁻¹))	Percent increase over check	Specific characters
CEREALS & MILLETS						
RICE						
RARS, Maruteru						
1	MTU-1271 Vs MTU 7029	Kharif 2020	6250	5625	11.1	Moderately tolerant to BPH
2	MTU-1318 Vs PLA1100	Kharif 2020	5500	5060	8.7	Slightly tolerant to BPH & BLB
3	MTU-1232 Vs. MTU 7029	Kharif 2020	5512	5016	9.9	Slightly tolerant to BPH, BLB & Water-logged conditions.
4	MTU-1238 Vs. MTU 7029	Kharif 2020	5250	4882	7.5	Slightly tolerant to BPH, BLB.
5	MTU-1253 Vs. BPT 5204	Kharif 2020	4875	4485	8.7	Moderately tolerant to BPH, Blast & BLB
6	MTU-1315 Vs. BPT 5204	Kharif 2020	5350	5029	6.4	Moderately tolerant to BPH & BLB
7	MTU-1311 Vs. MTU1121	Rabi 2020-21	5500	5650	-2.7	Slightly tolerant to BPH & Blast

8	MTU-1290 Vs.	Rabi 2020-21 MTU1121	5750	5572	3.2	Slightly tolerant to BPH & Blast. Moderately tolerant to salinity
9	MTU-1341 Vs. MTU 1121	Rabi 2020-21	7200	6840	5.3	Slightly tolerant to BPH & Blast
10	MTU-1282 Vs.	Rabi 2020-21 MTU1121	6200 Blast	6076	2	Slightly tolerant to BPH &
ARS, Nellore						
11	NLR 3238 Check: NLR 34449/ MTU1010	Rabi (2 nd year of testing)	7482	6886	8.61	Short duration rice culture (120-125 days) having zinc of 22.5 ppm, 4.4 ppm of iron and 8.43% of protein in polished rice. Blast tolerant, having non-lodging culture with medium slender grain and good cooking quality. Suitable for both Rabi and early <i>kharif</i> .
ARS, Bapatla						
12	BPT 2766 vs BPT 5204	Kharif 2020 (3 rd year)	6107	5546	10.2	Tolerant to blast and BPH, non-lodging, straw glume and fine grain quality. 150-155 days duration, suitable to single cropped reas.
13	BPT 2841 vs BPT 5204 &	Kharif 2020 (2 nd year)	5466 12	5229& 4882	4.5 & 12	Black pericarp colored genotype with 130-135 days Buram black duration. Medium slender grain with straw glume and excellent cooking quality. Unlike other desi black rice varieties, it possess intermediate amylase content, having hence cooks soft and flaky and is suitable for raw rice. Moderately resistant to Blast & BPH.
14	BPT 2846 vs BPT 5204	Kharif 2020 (2 nd year)	6172	5551	11.2	It has 140-145 days duration. Medium slender grain with straw glume and good cooking quality. Besides high yield potential, it is moderately resistant to Blast and BPH.

15	BPT 2824 vs. BPT 5204	Kharif 2020 (1 st year)	5887	5375	9.5	It has 140-145 days duration. Medium slender grain with straw glume and good looking quality. Besides high yield potential, it is moderately resistant to Blast and BPH.
ARS, Machilipatnam						
16	MCM 109 vs MCM 100	Kharif (2 nd year)	5618	5325	5.65	Salinity tolerant, medium rice culture (130 days during duration kharif and 120 days during rabi) with BPH, blast tolerance, having one week seed dormancy. Medium slender fine grain, straw glume grain type and low grain shattering, non-lodging.
ARS, Utukuru						
17	UTR 181 vs BPT 5204	Kharif 2020	6582	6107	7.77	Fine grain, high yielding, non-lodging, blast and BPH tolerant.
FINGER MILLET (RAGI)						
ARS, Vizianagaram						
1	VR 1099 vs Sri Chaitanya	Kharif 2020	2789	2457	13.5	—
FOX TAIL MILLET (KORRA)						
RARS, Nandyal						
1	SiA 3159 Vs.	Kharif 2020 SiA 3156 (C)	2195	1870	17.65	High yielding with medium duration
PULSES						
REDGRAM						
RARS, Lam						
1	LRG 223 Vs. LRG 52	Kharif 2020 (3 rd year)	1309	1231	6.3	Wilt resistant, Bold seeded
GREENGRAM						
RARS, Lam						
1	LGG 630 Vs. LGG 460	Rabi 2020-'21 (3 rd year)	1164	1025	13.5	Resistant to MYMV and Bud blight
BLACGRAM						
RARS, Lam						
1	LBG 904 Vs. LBG 752	Rabi 2020-'21	1641	1421	15.5	Resistant to MYMV
2	LBG 932 Vs. LBG 752	Rabi 2020-'21	1608	1390	15.7	Resistant to MYMV

RARS, Tirupati						
1	TBG-129 Vs. LBG-752/PU-31/TBG-104	Rabi 2020-'21	1509	1347	12.03	High yielding, matures in 85-90 days, YMV resistant, hiny and bold seed.
BENGALGRAM						
RARS, Nandyal (rabi)						
1	NBeG 776	Rabi 2020-'21 (3 rd year)	1997	1732	15.4	High yielding Desi line and tolerant to wilt, suitable for mechanical harvesting
2	NBeG 779	Rabi 2020-'21 (2 nd year)	2011	1735	16.0	A high yielding Desi chickpea line; suitable for mechanical harvesting
3	NBeG 440	Rabi 2020-'21 (2 nd year)	1777	1585	12.1	A high yielding bold seeded Kabuli chickpea line
4	NBeG 833	Rabi 2020-'21 (2 nd year)	2100	1950	7.7	A high yielding extra-large seeded Kabuli line
OILSEEDS						
GROUNDNUT						
RARS, Tirupati						
1	TCGS 1522 Vs. K6 (C)	Kharif 2020	2131	1839	15.8	Drought tolerant, high WUE, white testa, early maturing genotype.
SESAME						
ARS, Yelamanchili (rabi-summer)						
1	YLM-142 Vs. YLM-66	Rabi-Summer (2 nd year)	1158	965	20	Brown seed sesame culture
2	YLM-146 Vs. YLM-66	Rabi-Summer (2 nd year)	1212	965	28	Brown seed sesame culture
COMMERCIAL CROPS & OTHERS						
COTTON						
RARS, Nandyal						
1	NDLA-3116-4 Vs. Yaganti (C)	Kharif 2020	2011	1514	33	This variety has recorded higher SCY than check with early duration, dwarf stature and also useful for low input management. Suitable for mechanical cotton picking. Tolerant to sucking pest and drought.
SUGARCANE						
RARS, Anakapalle						
1	2010A229 Vs. 87A298	2020-'21	125 t ha ⁻¹	119 t ha ⁻¹	5.00	Yellow Leaf Disease (YLD) tolerance

Table 20. Particulars of Other Varietal / Yield Trials in Different Crops during 2020-'21

S. No.	Trial	No of Entries	Promising Entries	Grain Yield (Kg ha ⁻¹)	Local Check	Yield Yield (Kg ha ⁻¹)	% Increase over Check
CEREALS & MILLETS							
RICE							
ADVANCED YIELD TRIALS (AYT)							
RARS, Maruteru							
1	AYT -Late (Kharif 2020)	14	MTU2263-7-2-1-2-1 MTU2404-94-1-2-1	6818 6681	MTU1061	5363	27.1 24.6
2	AYT- Medium (Kharif 2020)	16	MTU2659-72-1-1, MTU2657-51-2-2	6470 6391	MTU1075	5657	14.4 12.9
3	AYT- Early (Kharif 2020)	14	MTU2645-39-4-1-1 MTU2651-24-1-1	7016 6892	MTU1121	5370	30.6 28.3
4	AYT-SG* (Kharif 2020)	14	MTU2400-36-1-2 (Kharif 2020)	7023 6238	MTU1190	5290	32.7 17.9
5	AYT-SDW** (Kharif 2020)	8	MTU2481-14-1-1	4793	MTU1140	3937	21.7
6	AYT-Early (Rabi 2020-21)	14	MTU2645-9-2-1 MTU2576-61-1-2	8782 8702	MTU1121	6373	37.8 36.5
*SG -Slender Grain, **SDW- Semi Deep Water							
ARS, Nellore							
1	AYT (Development of medium duration rice varieties)	13+3	NLR 20084 x NLR 33359/NLR34449- 5902-13-2-1	6012	NLR 34449	4809	25.01
ARS, Bapatla							
1	AYT-Late	13	BPT 3133 BPT 3129 BPT 3111	6289 6356 6289	BPT 5204	5398	16.5 17.7 16.5
2	AYT-Medium	16	BPT 3085 BPT 3086 BPT 3072	6604 6140 6033	MTU 3291	5182	27.4 18.5 16.4
ARS, Machilipatnam							
1	AYT salinity kharif (pH 8.27, 6.56 ds/m)	18	MCM 142-1-1-1-1	4736	MCM 100	3125	51.55
2	AYT salinity rabi (pH 7.72 and EC 5.13 ds/m.)	14	IR10382-B- B-2-3	5228	FL 478	4120	26.89

ARS, Utukur							
1	Early	18	NLR 3620	6323	NLR 34449	2660	137.71
2	Mid- late	15	MTU2223-29-2-1-1	7093	NDLR-7	3743	89.50
3	Late	15	RGL 7017	8289	BPT 5204	3389	144.58
4	Slender Grain	26	NLR 3637	7302	NDLR-7	3029	141.06
MULTILOCATION TRIALS (MLT)							
RARS, Maruteru							
1	Early	16	MTU2691-24-1-1	7496	MTU1121	6388	17.3
2	Medium	15	MTU2613-29-1-1-1 MTU2541-23-1-2-1	8217 7971	MTU1075	7063	16.312.8
3	Late	14	MTU2293-8-2-1 MTU2137-1-2-6-1	6452 6238	MTU1061	5315	21.417.4
4	MLT-Salinity (Normal)	13	MTU2278-84-1-2-1 DST 37—24-1-1	6266 5776	MTU1061	5251	19.3 9.9
5	MLT-Salinity (High EC 6.50)	6	MTU 2278-84-1-2-1 DST37-24-1-1	4631 4582	MTU1061	3881	19.318.1
6	MLT-SG* (Medium- Late)	23	MTU2263-7-2-2-1 MTU2371-127-1-1-2	7653 7171	MTU1262	6300	21.513.8
7	MLT-SDW** -Complete Submergence	10	MTU2433-1-3-1	4490	MTU1140	4340	3.5
8	MLT-SDW** -Normal	12	MTU2433-1-3-1	5524	MTU1075	4893	12.9
ARS, Nellore							
1	Early (Rabi)	18	CE 566(572)	6057	NLR 34449	4605	31.95
2	Mid (Rabi)	15	MTU 2622-4-1(625)	7113	NLR 4001	5053	40.76
3	IME SG (Rabi)	9	NLR 3650 (440)	5346	BPT 5204	4918	8.7
4	Late SG(Kharif)	28	MTU 2347-129-1-6 (SG 444)	6594	NLR 4001	6004	9.8
5	Late (Kharif)	15	MTU 2263-7-42(l652)	6662	NLR 4001	6004	10.95
ARS, Ragolu (kharif 2020)							
1	MLT- Late	15	L 654 L 662 L 647	6520 6490 6350	RGL 11414	6150	5.7 5.2 3.2
2	MLT-Medium	15	M 625 M 623 M 616	7367 7133 6960	RGL 2538	6667	9.5 6.5 4.2
3	MLT- Early	19	E 578 E 577 E 582	7055 7026 6821	RGL 1880	4538	35.7 35.4 33.5

4	MLT-SG*-Early & Mid Early	22	SG 452 SG 446 SG 454	7360 7255 7160	BPT 5204	6120	16.8 15.2 14.5
5	MLT-SG*- Medium & Late	14	SG 4618 SG 458 SG 466	6800 6333 6133	BPT 5204	5133	24.5 18.9 16.3
ARS, Bapatla (kharif 2020)							
1	Early	26	MLT-E 561 MLT-E-543 MLT-E-547	6332 6262 6224	MLT-E 564	5046	25.5 24.1 23.3
2	Mid	19	MLT-M-605 MLT-M-607 MLT-M-601	6654 6627 6401	BPT3291	5010	32.8 32.3 27.8
3	Late	21	MLT-L-643 MLT-L-634 MLT-L-640	6711 6649 6565	BPT5204	5176	29.7 28.5 26.8
4	Slender grain- ML	24	MLT-Sg-405 MLT-Sg-406 MLT-Sg-418	6580 6367 6346	BPT5204	5192	26.7 22.6 22.2
5	Slender grain- EME	15	MLT-Sg-420 MLT-Sg-432 MLT-Sg-424	6318 6237 6155	BPT5204	5150	22.7 21.1 19.5
ARS, Machilipatnam (kharif 2020)							
1	MLT of Saline Tolerant	19	OYT 104	7836	MCM 100	5649	38.7
2	MLT-Early	24	MTU 2691-24-1-1	7939	MTU 1010	1914	314.8
3	MLT - Late	21	UTR 181	6229	MTU 1061	4235	47.1
4	MLT of Slender Grain (SG)-Early	21	RGL 7018	4087	BPT 5204	3584	14.0
5	MLT of SG- Mid late	24	MTU 2513-24-2-2	4345	BPT 5204	3668	18.5
RARS, Anakapalle (kharif 2020)							
1	MLT (Medium)	13	BPT 3072	6708	MTU 1121	6058	10.72 %
2	MLT (Late)	13	RGL 7022	6640	RGL 2537	5875	35.84%
3	MLT (Slender Grain)	26	MTU 2374-129-1-6	7000	BPT 5204	3946	77.39%.
RARS, Nandyal							
1	Early	18	MTU 2645-83-4-1	6472	NDLR 8	5360	20.77
2	Medium	15	MTU 2613-29-1-1-1	6653	NDLR 7	4749	40.09

3	Long	16	RGL 7016	7528	BPT 5204	4972	51.40
4	SG (E & ME)	9	MTU 2576-61-1-2	5333	NDLR 8	5278	1.04
5	SG (M & L)	30	JMP 86	6165	NDLR 7	5417	13.8
OBSERVATION YIELD TRIALS (OYT)							
ARS, Bapatla							
1	OYT-Late	39	BPT 3299 BPT 3298 BPT 3270 BPT 3283	6694 6612 6612 6605	BPT 5204	5255	27.4 25.8 25.8 25.7
2	OYT- Medium	37	BPT 3241 BPT 3240 BPT 3226	7170 6728 6682	BPT 3291	5034	42.4 33.7 32.7
ARS, Machilipatnam							
1	OYT salinity <i>kharif</i> (pH 8.07, C4.3ds/m)	24	MCM 149-3-1-1-1-1	5382	MCM 100	4467	20.48
2	OYT salinity <i>rabi</i> (pH 7.73, EC 5.02 ds/m)	14	MCM253-6-2-2	6753	MCM 109	4684	44.17
ARS, Ragolu							
1	Observational Yield Trial (<i>Kharif</i> 2020)	9	MTURM412-27-1-2-1 MTURM412-12-1-1-1	6463 6413	MTU 1223	5661	12.411.7
ARS, Nellore							
1	OYT (Development of medium duration rice varieties)	35+3	NLR 3291 x MTU 1010-5926-8-1-1-1	6734	NLR 34449	5421	24.22
PRELIMINARY YIELD TRIALS (PYT)							
ARS, Bapatla							
1	PYT- Late	24	BPT 3149 BPT 3166 BPTa 3152	6636 6536 6535	BPT 5204	5398	22.9 21.1 21.1
2	PYT- Medium	22	BPT 3183 BPT 3210 BPT 3201	6871 6712 6544	BPT 3291	5034	36.5 33.3 30.0
ARS, Machilipatnam							
1	PYT salinity <i>kharif</i> (pH 8.28 EC 3.7 ds/m)	25	MCM 208-14-1-1	5127	MCM 100	4006	27.98

2	PYT salinity <i>rabi</i> (pH7.27 EC5.72ds/m)	11	MCM159-1-2-2	5431	MCM 109	4489	20.98
ARS, Nellore							
1	PYT <i>rabi</i> (Development of medium duration rice varieties)	19+3	NLR 34449 x ADT 43-5880-2-1-3-2	6073	NLR 34449	4698	29.26
PRELIMINARY VARIETAL TRIALS (PVT)							
ARS, Nellore							
1	PVT (Development of short duration rice varieties)	11+3	5913-4-2-1	5871	NLR 3354	4282	37.2
1	PVT (Development of long duration rice varieties)	25+3	5892-1-4-3-1-1	6956	NLR 33892	5632	23.50
OBSERVATIONAL VARIETAL TRIALS (OVT)							
ARS, Nellore							
(Development of short duration rice varieties)							
1	OVT-I	54+2	5917-6-8-2-1	6142	NLR 3354	4728	29.9
2	OVT-II	42+1	5910-3-1-1-1	6716	NLR 40024	4580	46.6
(Development of long duration rice varieties)							
1	OVT-I	60+2	5927-7-4-1-1-1	6407	NLR 4001	4618	37.7
2	OVT-II	51+2	5903-11-1-2-1	6868	NLR 4001	4618	38.73
ADVANCED VARIETAL TRIALS (AVT)							
ARS, Nellore							
(Development of short duration rice varieties)							
1	AVT	11+3	5882-4-1-1	6260	NLR 34449	19.02	-
(Development of long duration rice varieties)							
1	AVT	8+3	NLR 3644	6598	NLR 33892	5467	20.68
MAIZE							
MULTILOCATION TRIALS (MLT)							
1	<i>Kharif</i> Maize	12	PDMH 19053	6005	DHM 117 P 3396	65445973	-0.54
2	<i>Rabi</i> Maize	12	CAH 1829	10583	PAC 751	11031	—

			CAH1817	10208	NK 6240 DHM 117	9042 8490 24.65	17.04 12.89 20.23
SORGHUM							
OBSERVATIONAL YIELD TRIALS (OYT)							
RARS, Nandyal							
1	OYT	31 10	NJ 2699 (White) NJ 2715 (Yellow)	55934495	NTJ 5N 15	42693514	3128
PRELIMINARY YIELD TRIALS (PYT)							
RARS, Nandyal							
1	PYT	06	NJ 2683	5655	NTJ 5	4102	38
MULTILOCATION TRIALS (MLT)							
ARS, Perumallapalle							
1	Sorghum Kharif, 2020	12	NJ 2667	4382	NTJ 5	3121	40.40
ARS, Podalakur							
1	Sorghum Kharif, 2020	12	NJ 2667	3852	NTJ 5	3457	10.25
BAJRA							
ARS, Perumallapalle							
1	OYT Summer, 2020-21	14	PPBV 9	2208	ABV 04	1155	91.16
RAGI							
ARS, Vizianagaram							
1	OYT	28+3	VR 1192 VR 1188 VR 1185	4614 4420 3795	VR 929 VR 929 VL 352	3572 3572 2876	29.17 23.74 31.95
2	PYT	19+4	VR 1163 VR 1171 VR 1176	4391 3846 3495	VR 929 VR 929 VL 352	3500 3500 3077	25.46 9.89 13.58
3	AYT	15+3	VR 1152 VR 1149	4098 3879	VR 929 VR 929	3087 3087	32.75 25.66
4	AVT	13+2	VR 1112 FMV 1137	41.67 39.09	Sri Chaitanya	34.13	18.1 12.7
5	MLT	15	PPR 1152 PPR 1096	3994 3800	VR 929	3586	11.38 5.97
ARS, Perumallapalle							
1	OYT Kharif, 2020	22	PPR 1189	4058	Tirumala	2960	37.09
2	PYT Kharif, 2020	18	PPR 1140	5254	Vakula	2849	84.41

3	AVT Rabi, 2020-21	12	PPR 1189	4499	Tirumala	3271	37.54
4	OYT for heat tolerance Summer, 2021	25	PPR 1216	4585	Tirumala	3688	24.32
5	MLT	14	PPR 1096	4575	Srichaitanya	2999	52.55
ARS, Utukur							
1	MLT	14	PPR 1152	3596	Vakula	1290	178.76
RARS, Chintapalle							
1	MLT	14	PPR 1152	4853	VR 929	3859	20.5
FOXTAIL MILLET (KORRA)							
RARS, Nandyal (Kharif 2020)							
1	AVT	18	SiA 3159 SiA 4210 SiA 4148 SiA 4213	4093 3519 2828 2500	SiA 3156	2222	84.20 58.37 27.27 12.51
2	IVT	15	SiA 4232 SiA 4236	3970 2667	SiA 3156	2222	78.67 20.03
3	OYT	14	SiA 4243 SiA 4244 SiA 4245	4361 4222 3870	SiA 3156	2222	96.26 90.01 74.17
4	MLT (Mid)	10	SiA 4201	1722	Suryanandi	1444	19.25
BROWNTOP MILLET (ANDUKORRA)							
ARS, Vizianagaram							
1	IET	11+1	VBTO05 VBTO14	1217 1185	GPUBT6 GPUBT6	1032 1032	17.93 14.83
ARS, Perumallapalle							
1	OYT PYT	12 7	PPBT 1 PPBT 3	1933 2436	GPUBT 6 GPUBT 6	1300 1707	48.69 42.71
LITTLE MILLET (SAMA)							
ARS, Vizianagaram							
1	Evaluation trial Kharif	24+3	VS38 VS33 VS46	2721 2635 2117	DHLM-36-3 DHLM-36-3 BL6	2145 2145 1533	26.85 22.84 38.10
2	Multilocation trial Kharif	10+2+1	VS15 VS13	1974	OLM203	1146	72.25
RARS, Nandyal							
1	Multi location trial-Mid Kharif	11	LMNDL - 5	2370	OLM -203	1519	56.02
ARS, Perumallapalle (Kharif 2020)							
1	OYT Kharif, 2020	15	PPS 33	2820	OLM 203	1534	83.83

2	PYT Rabi, 2020-21	8	PPS 8	2415	OLM 203	1867	29.35
BARNYARD MILLET (OODA)							
ARS, Vizianagaram							
1	IET Kharif	22+1	VMBC 335 VMBC 336	2872 2657	DHBM-93-3	2264	26.86 17.36
RARS, Nandyal							
1	Mid MLT- Kharif	7	BMNDL – 1	2679	BMNDLC- 1	1765	51.78
PROSO MILLET (VARIGA)							
ARS, Vizianagaram							
1	Evaluation Kharif	19+1	VP 021 VP 002 VP 008	2185 2011 1968	TNAU 202 TNAU 202 TNAU 202	1544 1544 1544	41.52 30.25 27.46
2	MLT Kharif	6+2+1	LPM 004	1842	TNAU 202	1600	15.13
RARS, Nandyal							
1	MLT (Mid) Kharif	-	PMNDL-1	1627	TNAU-202	1237	31.53
RARS, Lam							
1	OYT Kharif	13	LPM 30 LPM 34	2103 2089	Nandyal local(c)	1748	20.30 19.50
2	PYT Kharif	10	LPM 14 LPM 19	2064 2030	Nandyal local(c)	1781	15.88 13.78
3	AYT Kharif	8	LPM 04 LPM 02	2095 1986	Nandyal local(c)	1741	20.33 14.07
ARS, Podalakur							
1	MLT Kharif	8	LPM-002	1488	TNAU 202	1099	26.14
PULSES							
REDGRAM							
RARS, Lam							
1	OYT Kharif	21+1	LRG 621 LRG 616	2373 2103	LRG 52	2040	16.3 3.1
2	PYT Kharif	19+1	LRG 508 LRG 503 LRG 519	2535 2469 2406	LRG 52	2207 2207	14.9 11.9 9.0
3	AYT Kharif	12+1	LRG 499 LRG 486	2261 2186	LRG 52	1957	15.5 11.7
4	IVT (Medium) Kharif	20	TDRG 19 LRG 471 PT 2017-4	2620 2495 2358	ICPL 87119	1747	33.3 29.9 25.9

ARS, Amadalavalasa							
1	MLT Kharif	15	LRG 229	2135	LRG-105	1671	21.7
ARS, Utukur							
1	MLT Kharif	17	LRG 105	1874	LRG-52	1504	24.6
ARS, Podalakur							
1	MLT Kharif	17	LRG 223	1874	Maruti	1292	31.1
RARS, Lam							
1	MLT Kharif	15	LRG 223	2697	LRG 52	2313	16.6
			LRG 467	2648			14.5
			LRG 224	2638			14.1
GREENGRAM							
MULTILOCATION TRIALS (MLT)							
ARS, Ragolu (Rice Fallow)							
1	MLT Rabi 2020-'21	12	GG 1GG 6	11231076	LGG 460	731	34.932.1
RARS, Lam							
1	MLT Rabi 2020-'21	10+2	LGG 604	1441	LGG 460	1240	16.2
			LGG 628	1392		1240	12.3
			LGG 657	1375		1240	10.9
RARS, Tirupati							
1	MLT Rabi 2020-'21	12	LGG-657	1766	IPM-2-14	1144	54
ARS, Utukur							
1	MLT Rabi 2020-'21	12	LGG 628	860	IPM-2-14	322	163.98
ARS, Ghantasala							
1	MLT Rabi 2020-'21	10	GGG 4	1501	LGG 460	1511	0
ARS, Podalakur							
1	MLT Rabi 2020-'21	12	LGG 657	424	LGG 460	327	22.87
RARS, Nandyal							
1	MLT Rabi 2020-'21	12	LGG-604	1016	LGG-460	632	60.57
OBSERVATIONAL YIELD TRIALS (OYT)							
RARS, Lam							
1	OYT Rabi	21+1	LGG 717	1292	LGG 460	1010	27.9
			LGG 716 & 719	1278			26.5
			LGG 714	1233			22.1
ARS, Ghantasala							
1	OYT Rabi	20	GGG 105 GGG 103	1721 1614	LGG 460	1292	33.20 24.92

ARS, Amadalavalasa							
1	OYT Rabi	18	AGG 13	1185	IPM 2-14	403	194
PRELIMINARY YIELD TRIALS (PYT)							
RARS, Lam							
1	PYT Rabi	16+1	LGG 706 LGG 694 LGG 711	1354 1288 1278	LGG 460	1024	32.2 25.8 24.8
ARS, Ghantasala							
1	PYT Rabi	15	GGG 58 GGG 88	1404 1393	LGG 460	1072	30.97 29.94
ADVANCED VARIETAL TRIALS (AVT)							
RARS, Lam							
1	AVT Rabi	8+1	LGG 630	1293	VBN 4	1243	3.9
ADVANCED YIELD TRIALS (AYT)							
RARS, Lam							
1	AYT Rabi	6+2	LGG 667 LGG 678	1365 1323	LGG 460	1198 1198	13.9 10.4
ARS, Ghantasala							
1	AYT Rabi	11	GGG 47 GGG 37	1425 1340	LGG 460	1195	19.25 12.13
BLACKGRAM							
OBSERVATIONAL YIELD TRIALS (OYT)							
RARS, Lam							
1	OYT Rabi	21+1	LBG 1045 LBG 1044 LBG 1043	1552 1430 1355	LBG 787	1055 1055 1055	47.1 35.5 28.4
ARS, Ghantasala							
2	OYT Rabi	25	GBG 263 GBG 264 GBG 251	1885 1858 1847	LBG 752	1385	36.10 34.15 33.36
ARS, Podalakur							
1	OYT Rabi	39	PBG 320	260	LBG 787	194	34.0
ARS, Amadalavalasa							
2	OYT Rabi	22	ABG 7	1020	LBG-752	757	35
MULTI LOCATION TRIALS (MLT) (Rabi 2020-'21)							
1	ARS, Ragolu (Rice fallow)	16	BG 10 BG 16	1181 1161	LBG 787	876	25.8 24.5
2	ARS, Podalakur	16	PBG 276	1067	TBG 104	956	11.6
3	ARS, Amadala- valasa	16	PBG 276	1070	LBG-787	726	47

4	RARS, Lam	16	LBG 944 LBG 946	1096 1094	TBG 104	1035 1035	5.9 5.7
5	RARS, Tirupati	16	TBG-141	1515	TBG-104	1275	19
6	ARS, Utukur	16	GBG 92	1658	PU 31	955	73.61
7	ARS, Ghantasala	12	PBG 276	1893	TBG 104	1911	0
8	RARS, Nandyal	16	TBG-141	746	LBG 787	699	6.72
PRELIMINARY YIELD TRIALS (PYT) (Rabi 2020-'21)							
RARS, Lam							
1	PYT Rabi	17+2	LBG 1006 LBG 1009 LBG 1022	1396 1292 1180	LBG 752	1035	34.9 24.8 14.0
ARS, Ghantasala							
1	PYT	22	GBG 210 GBG 234 GBG 242	1624 1588 1503	LBG 752	1150	41.22 38.09 30.70
ADVANCED YIELD TRIALS (AYT) (Rabi 2020-'21)							
RARS, Lam							
1	AYT	14+2	LBG 1003 LBG 1001 LBG 989	1486 1458 1441	GBG 1	863 863 863	72.2 68.9 66.9
ARS, Ghantasala							
1	AYT	11	GBG 164 GBG 190 GBG 137	1349 1302 1281	LBG 752	1224	10.21 6.37 4.66
ARS, Podalakur							
1	AYT	6	PBG 276	215	TBG 104	185	16.2
ADVANCE VARIETAL TRIALS (AVT)							
RARS, Tirupati							
1	AVT Rabi	11	TBG-138	2120	LBG-752	1437	47
INITIAL VARIETAL TRIALS (IVT)							
RARS, Tirupati							
1	IVT Rabi	18	TBG-129	2453	LBG-752	1947	26
BENGAL GRAM							
OBSERVATIONAL YIELD TRIALS (OYT)							
RARS, Nandyal							
1	OYT Rabi	142	NBeG 1823	2851	NBeG 49 JG 11	1711 1447	39.9 49.2
INITIAL YIELD TRIALS (IYT)							
RARS, Nandyal							
1	IYT Desi Rabi	15	NBeG 1487	2185	JG 11	1980	10.35

2	IYT (Kabuli) <i>Rabi</i>	12	NBeG 1516	1418	Vihar	1226	15.66
ADVANCED YIELD TRIALS (AYT)							
RARS, Nandyal							
1	AYT I- Desi <i>Rabi</i>	14	NBeG 1423 NBeG 1469 NBeG 1420	1876 1805 1790	NBeG 49	1549	21.1 16.5 15.6
2	AYT II- Desi <i>Rabi</i>	10	NBeG 1327	1786	NBeG 49 JG 11	1607 1458	10.0
ADVANCED VARIETAL TRIALS (AVT)							
RARS, Lam							
1	AVT I <i>Rabi</i>	17+2	C 20-151 C 20-152 C 20-156	3037 2897 2407	NBeG 3	1805	40.6 37.7 25.0
2	AVT II <i>Rabi</i>	14+2	C 20 101 C 20 102 C 20 103	2808 2527 2206	NBeG 3	1033	63.2 59.1 53.2
MULTILOCATION TRIALS (MLT)							
RARS, Nandyal							
1	MLT (Desi) <i>Rabi</i>	7	NBeG 1146	2031	JG11	1706	19.1
2	MLT (Kabuli) <i>Rabi</i>	4	NBeG 1010	1421	NBeG 119	1310	8.5
RARS, Lam							
1	MLT <i>Rabi</i>	7	NBeG 699 NBeG 1146 NBeG 1129	2535 2347 2167	NBeG 452	1455	42.6 38.0 32.9
INITIAL VARIETAL TRIALS (IVT)							
RARS, Lam							
1	IVT	21+1	C 20-188 C 20-161	2535 2482	NBeG 3	900	64.5 63.7
HORSE GRAM							
MULTILOCATION TRIAL (MLT)							
RARS, TIRUPATI							
1	MLT Late <i>karif</i>	8	CRHG-4	1079	CRIDA- 1-18-R	1093	-1.2
OILSEEDS							
GROUNDNUT							
ADVANCED VARIETAL TRIALS (AVT)							
ARS, Kadiri							
1	AVT <i>Rabi</i> , 2020-21	11	K 2302	3264	Kadiri Amaravthi	2986	9

2	AVT Kharif, 2020	11	K 2368 K 2370 K 2361 K 2348	3143 2778 2759 2620	Kadiri Amaravthi	2229 2229 2229 2229	41 25 24 18
RARS, Tirupati							
1	AVT – I Rabi, 20-21	14	TCGS 2060	2490	TAG 24	1922	29.5
2	AVT – I (Bold)	10	TCGS 2277	2775	Bheema	2401	15.5
ADVANCED YIELD TRIALS (AYT)							
RARS, Tirupati							
Development & Identification of varieties suitable for <i>kharif</i>							
1	AYTII Kharif	6 + 3	TCGS2019	1908	Dharani	1396	37
2	AYT I Kharif	16 + 3	TCGS2233	2370	Dharani	1795	32
Development & Identification of varieties suitable for early <i>kharif</i> and <i>rabi</i>							
1	AYT – I (Early Kharif)	22	TCGS2038	1789	Dharani	768	29.5
INITIAL EVALUATION TRIALS (IET)							
Development & Identification of varieties suitable for <i>kharif</i>							
1	IET Kharif	18 + 3	TCGS2301	2629	Dharani	2056	28
Development & Identification of varieties suitable for early <i>kharif</i> and <i>rabi</i>							
1	IET Rabi, 20-21	15	TCGS 2332	3167	TAG 24	2356	34.4
Development of high yielding quality ground nuts for exportable purpose							
1	IET (Bold)	18	TCGS 2317	2804	Bheema	2241	25.1
MULTI LOCATION TRIALS (MLT)							
RARS, Tirupati							
1	MLT	20	TCGS-1707	3525	Harithandra	3002	17
ARS, Utukur							
1	MLT	20	TCGS 1862	2720	K-6	1735	56.77
ARS, Vizianagaram							
1	MLT	16	TCGS 1694 K 2313	2315 2036	Dharani	1894	22.23 7.50
ARS, Yelamanchili							
1	MLT	17	YLGN-4	11.84	K-6	6.62	44.1
ARS, Amadalavalasa							
1	MLT	20	TCGS 1862	21.85	K-9	17.77	23
ARS, Kadiri							
1	MLT	16	TCGS 1862	2440	Kadiri 9	1935	26

SUNFLOWER							
Performance of promising hybrids under yield trials during <i>kharif</i> and <i>rabi</i> , 2020-21							
RARS, Nandyal							
1	AHT II (K20)	8	SH 2531 SH 2603	886 866	KBSH44	786	13 10
2	IHT (K 20)	11	SH 2674	878	NDSH 1012	684	28
MULTILOCATION TRIALS (MLT)							
RARS, Nandyal							
1	MLT	10	SH 2509 SH 2384	2106 2073	NDSH 1012	1773	19 17
ARS, Utukur							
1	MLT	13	SH 2509	1887	NDSH1012	891	111.78
ARS, Kadiri							
1	MLT	11	SH 2515	3006	NDSH1012	2291	31
SESAME							
MULTILOCATION TRIALS (MLT) (<i>Rabi</i> & Summer 2020-'21)							
ARS, Yelamanchili							
1	White seeded	5	YLMW 151 YLMW 156	8.217.51	TKG-22	6.50	27.0 18.0
RARS, Tirupati							
1	White seeded	8	YLM-151	1471	Swetha Til	1218	20.66
ARS, Amadalavalasa							
1	White seeded	8	YLMW 151	12.98	Hima	9.47	37.0
COMMERCIAL CROPS							
COTTON							
MULTILOCATION TRIALS (MLT)							
RARS, Lam							
1	MLT	12 (9+3)	L 1536	1335	NDLH1938	924	44.5
RARS, Nandyal							
1	MLT - 11	—	L 1595	527	Srirama	175	201.1
OBSERVATIONAL YIELD TRIALS (OYT)							
RARS, Lam							
1	OYT	12	L2240 L2238 L2235	2653 2627 2567	NDL1938	1809	46.5 45.24 41.9
RARS, Nandyal							
1	OYT(Gh)-16	—	NDLH-2092-3	668	Srirama	414	61.3
2	OYT(Ga)-45	—	NDLA-3167-2	722	Yaganti	298	42.2

PRELIMINARY YIELD TRIALS (PYT)							
RARS, Lam							
1	PYT	7	L2038	2832	NDLH 1938	1738	62.9
			L2066	2770			59.3
			L2220	2680			54.2
ADVANCED YIELD TRIALS (AYT)							
RARS, Lam							
1	AYT	9	L 2062	2669	NDLH 1938	1835	45.4
			L2063	2532			37.9
			L2060	2540			38.4
PRELIMINARY VARIETAL TRIALS (PVT)							
RARS, Lam							
1	PVT (AICCIP)	9	LHDP 5	2563	L604	2011	27.4
RARS, Nandyal							
1	PVT(Gh)-11	—	NDLH-2087-1	852	Srirama	684	24.5
2	PVT(Ga)-13	—	NDLA-3147-1	747	Yaganti	417	79.1
ADVANCED VARIETAL TRIALS (AVT)							
RARS, Nandyal							
1	AVT (Gh)-16	—	NDLH-2071-2	1081	Srirama	670	61.3
2	AVT (Ga)-17	—	NDLA-3104-4	966	Yaganti	596	62.0
INITIAL HYBRID TRIAL (IHT)							
RARS, Nandyal							
1	IHT -17	—	NDLHH - 559	948	NDLHH-240	822	15.3
ADVANCED HYBRID TRIALS (AHT)							
RARS, Nandyal							
1	AHT - 17	—	NDLHH - 525	1323	NDLHH-240	856	54.5
SUGARCANE (Yield in t/ha)							
(MAIN YIELD TRIAL)							
RARS, Anakapalle							
1	Main Yield Trial (Early)- II Plant crop	9	2015A 199	130.33	87A298	118.67	8.9
			2015A 183	126.67			6.3
2	Main Yield trial (Mid late) II Plant Crop	8	2015A 228	123.56	2000A225	116.99	5.3
			2007A81	122.54			4.5
			2015A 230	122.25			4.3
3	Main Yield trial (Midlate) Ratoon	6	2015A233	112.15	83V15	75.41	32.8
			2015A 230	97.95			23.1

ARS, Perumallapalle							
1	Main Yield Trial (Early) Plant crop II	8	2015 T 235	138.2	2003 V 46 (Check)	125.2	10.4
2	Main Yield Trial (Mid late) Plant crop I	6	2016 T 284	162.4	Co 86032 (Check)	119.0	36.4
SRS, Vuyyuru							
1	MYT (Early) First plant	8 + 2	2016 V 144	136.20	Co C01-061	121.53	12.07
2	MYT (Early) Second plant	8+3	2015 V 32	127.08	Co C01-061	120.05	5.86
3	MYT(Early) Ratoon	8 + 3	2015 V 32	124.87	2003 V 46	121.88	2.45
4	MYT(Mid late) First plant	5 + 2	2016 V 119	127.34	83 V 15	116.67	9.15
5	MYT(Mid late) Second plant	3 + 2	2015 V 52	123.15	83 V 15	120.06	2.57
6	MYT(Mid late) Ratoon	3 + 2	2015 V 149	106.48	Co 86249	99.77	6.73
STATION TRIAL							
RARS, Anakapalle							
1	Station Trial I Plant	5	2012A 319	119.58	87 A 298	116.08	9.54
2	Station Trial II Plant	6	2015A 311 resistant to YLD	132	87 A 298	128.30	3.00
ADVANCED VARIETAL TRIALS (AVT)							
RARS, Anakapalle							
1	Advanced Varietal Trial (Early) I Plant	7	CoA17321	119.1	CoA92081	119.8	16.2% high CCS yield than check
2	Advanced Varietal Trial (Early) II plant	7	CoA 16321 CoC 16337	127.65 126.52	CoC01061	111.79	12.4 11.6
MULTILOCATION TRIALS (MLT)							
RARS, Anakapalle							
1	Early	5	CoA17321	119.05	CoA 92081	119.76	7 % high sucrose than check

2	Mid late II Plant crop	6	2009A 252 2011A67	110.53 104.63	83V15	7.85	0
3	Mid late Ratoon	6	2009A 252 2011A67	83.18 79.87	2000A225	66.56	0
ARS, Perumallapalle							
1	Mid late	8	2009 A 252	102.9	83 V 15 (Check)	75.5	36.3
SRS, Vuyyuru							
1	MLT(Early) Second plant	11 + 3	2010 V 32	139.93	CoC01-061	122.22	14.49
2	MLT (Early) Ratoon	11 + 3	2009 A 107	99.31	87 A 298	92.01	7.93
3	MLT (Midlate) Ratoon	8 + 2	2009 A 252	90.62	Co86249	84.72	6.96
PRELIMINARY YIELD TRIALS (PYT)							
ARS, Perumallapalle							
1	PYT	32	2017 T100	142.0	2003 V 46 (Check)	101.9	39.4
SRS, Vuyyuru							
1	PYT(Plant crop)	18+2	2018 V 57	128.75	87 A 298	119.69	7.59
2	PYT (Ratoon)	16 + 2	2017 V 17	123.59	87 A 298	97.19	27.16
INITIAL VARIETAL TRIALS (IVT)							
SRS, Vuyyuru							
1	IVT (Early)	3 + 3	2012 V 67	139.49	CoC01-061	130.32	7.04
ADVANCED VARIETAL TRIALS (AVT)							
SRS, Vuyyuru							
1	AVT(Early) First plant	3 + 3	CoC17-336	129.48	CoA92081	124.85	3.71
2	AVT(Early) First plant	4+3	CoC16-337	131.48	Co or03-151	128.09	2.65
3	AVT (Early) Ratoon	4 + 3	CoC 16-336	125.31	Co0703-151	115.12	8.85
4	AVT (Mid late) Second plant	5 + 3	2010 V 146	135.19	CoV92102	128.09	5.54
5	AVT (Mid late) Second plant	5 + 3	CoC16-338	102.16	Co86249	100.31	1.84
TRIAL ON WATER LOGGING							
SRS, Vuyyuru							
1	Water logged trial	11 + 2	2015 V 32	102.08	2003 V 46	90.62	12.65

MESTA							
ARS, Amadalavalasa							
Performance of promising cultures in different yield trials							
1	Roselle IYT	20	AHS-378 AHS-369	37.41 35.35	AMV-5	28.02	33.51 26.15
2	Roselle PYT	8	AHS-352 AHS-349	25.02 22.77	AMV-5	17.19	45.54 32.46
3	Roselle AYT	10	AHS-340	20.10	AMV-5	16.05	25.23
4	Roselle AVT-II	5	AHS-307	31.07	HS-4288	27.98	11.04
5	AVT-II (calyx)	5	HSLC-1	30.93	AMV-5	26.61	16.23
6	Kenaf IET	7	JRK-2019-3	28.41	HC-583	27.89	1.86
7	Kenaf AVT-I	8	JRK-2017-2 JRK-2017-1	28.11 27.13	HC-583	20.26	38.74 33.90
8	Kenaf AVT-II	5	JRK-2016-05 JRK-2016-02	21.92 21.25	HC-583	17.54	24.97 21.15
TOBACCO							
RARS, Nandyal							
1	OFT <i>kharif</i>	-	NBD289	2094	—	1855	12.8
OTHER TRIALS							
RARS, Nandyal							
1	AVT-II	4+2(C)	ABD 189 NyBD 61	2412 2378	Nandyal Pogaku 1	1849	30.4 28.6
2	BYT	5+2(C)	ABD 145 ABD169 ABD 174	2130 2105	Nandyal Pogaku 1	1890	12.6 11.3 11.001

iv) Crop Improvement Research in Different Crops

CEREALS & MILLETS

RICE

- Research on rice is carried out at Nellore, Bapatla, Nandyal, Ragolu, Machilipatnam, and Utukur Research Stations with RARS, Maruteru as the lead centre.

RARS, Maruteru

- In deriving genetic coefficients of popular rice cultivars of Andhra Pradesh for ORYZA model, eight released varieties and two minikit

cultures were evaluated at RARS, Maruteru. The results revealed that BPT 2766 (6468 kg/ha) followed by BPT 2782 (6436 kg/ha) and BPT 2776 (6319 kg/ha) were the top yielders. Maximum straw yield was recorded in BPT 2270 (8111 kg/ha). BPT 2782 manifested maximum harvest index (47.5) followed by BPT 2766 (45.7) and BPT 2776 (44.1).

ARS, Ragolu

- Breeding material (F3-F6) comprising segregating progenies of 32 crosses were studied and selection was done based on yield potential, good grain quality, resistance to

gallmidge biotype 4 and BPH resistance during *kharif*, 2020.

ARS, Jangamaheswarapuram

- In advanced varietal trial, ten entries were tested against one check, out of which JMP 13 (6993 kg/ha), JMP 6 (6927 kg/ha), JMP 14 (6727 kg/ha) and JMP 7 (6768 kg/ha) recorded significantly superior yield over the check BPT 5204 (5424 kg/ha).
- JMP-132 developed from the station has completed first year of minikit testing for the year 2020-21 in 13 districts of Andhra Pradesh.

MAIZE

ARS, Peddapuram

- In the coordinated trials during *kharif* 2020, out of 13 entries tested in AVT I Medium, LMH 4419 (8358 kg/ha) found superior in grain yield over the check, CMH 8292 (7333 kg/ha).
- In AVT II Medium, out of 7 entries tested, OHT 18607 (10082 kg/ha) yielded superior over the check, DHM121 (9313 kg/ha). In AVT I Late, SYN916801 (9546 kg/ha) performed superior in grain yield over the check, NK6240 (8754 kg/ha) among 8 entries tested. In NIVT late, PM201082 (11166 kg/ha) performed superior in grain yield over the check DHM117 (9876 kg/ha) among 50 entries tested. In NIVT Medium Set I, IU8229 (9247 kg/ha) performed superior in grain yield over the check Bio8544 (8404 kg/ha) among 50 entries tested. In NIVT Med Set II, HM20165 (8037 kg/ha) was found superior in grain yield over the check CMH8-292 (5653 kg/ha) out of 30 entries tested.
- 70 new cross combinations were generated during *kharif* 2020 and 267 during *rabi* 2020-21 along with 320 test crosses involving 80

inbred lines and 4 testers.

- A total of 250 inbred lines (S_1 -148, S_2 -82, S_3 -20) during *kharif* 2020 and 217 inbred lines (S_0 -50, S_2 -147, S_4 -20) during *rabi* 2020-21 were studied. DUS characterization of 79 inbred lines of maize was completed.

ARS, Vijayarai

- Under VH3A202 group received from CIMMYT- India, the entry VH3A202-52 (6267 Kg/ha); under VH4A204 group, the entry VH4A204-22 (6413 Kg/ha) and under VH4B204 group, the entry VH4B204-16 (6800 Kg/ha) recorded highest kernel yields.

ARS, Amadalavalasa

- Among 11 entries evaluated in Multi Location Trial of Maize, the entries PDMH 1810 (24 q ha⁻¹) and PDMH-1817 (23.27 q ha⁻¹) have recorded higher grain yield compared to check, P 3396 (20.28 q ha⁻¹).

SORGHUM

RARS, Nandyal

- In sorghum Multilocation trial conducted during *rabi* 2020-21, 12 entries were tested along with local and national checks. The entry, NJ 2663 (GY- 4733 kg/ha) recorded significantly higher yield over the national check, CSV 29 R (GY- 4383 kg/ha) and local check NTJ-5 (GY - 2808 kg/ha).

PEARL MILLET (BAJRA)

ARS, Anantapuramu

- Among the 15 hybrids tested in Initial Hybrid Trial (Medium), entry IHT 210 recorded 3789 kg/ ha grain yield followed by IHT 209 (3508 kg/ ha) and IHT 204 (3448 kg/ ha).
- Among the 16 hybrids tested in Initial Hybrid Trial (Late), the entry no. IHT 306 recorded 4081 kg/ ha grain yield followed by IHT 314 (3467 kg/ ha) and IHT 308 (3441 kg/ha).

ARS, Perumallapalle

- Seven entries (PPBV 3, PPBV 4, PPBV 5, PPBV 6, PPBV 8, PPBV 9 and PPBV 10) were promoted to MLT based on their superior performance over check variety.

FINGER MILLET (RAGI)

ARS, Vizianagaram

- Fifteen entries were tested including check (VR 929) during *kharif*, 2020 in Finger millet Multi Location Yield Trial. Among long duration entries, PPR 1152 (39.9 q/ha) followed by PPR 1096 (38.0 q/ha) recorded numerically higher grain yields than the checks, VR 929 (35.8 q/ha) and best check, Sri Chaitanya (34.59 q/ha). While among early duration group, VR 1117 (89 days to maturity, 33.15 q/ha) significantly outyielded the early check, Vakula (91 days to maturity, 19.93 q/ha).

ARS, Perumallapalle

- Six entries viz., PPR 1096, PPR 1094, PPR 1163, PPR 1152, PPR 1140 and PPR 1189 were promoted to MLT as their performance was superior compared to other entries.

ARS, Peddapuram

- Ten promising entries of finger millet were evaluated in Advanced Yield Trial for yield and lodging resistance in which PR 1734 (3617 kg/ha) performed significantly superior over the check PR 1045 (1488 kg/ha).
- In the preliminary yield trial eight promising entries were tested in which PR 1843 (3055 kg/ha) got significantly superior yield over best check PR 1045 (2522 kg/ha).

FOXTAIL MILLET (KORRA)

ARS, Vizianagaram

- In evaluation of *korra* under Multi Location Trial (7 entries + 1 check), highest grain yield

was recorded with SiA 4203 (34.9 q ha⁻¹) and was superior to the check, SiA 3156 (33.5 q ha⁻¹).

BROWNTOP MILLET (ANDUKORRA)

ARS, Perumallapalle

- Three high yielding entries (PPBT 1, PPBT 3 and PPBT 4) were promoted to MLT.
- Thirty seven brown top millet germplasm lines were collected and evaluated. Among them, IC613558 (20.4 q/ha) has recorded the highest grain yield.

LITTLE MILLET (SAMA)

ARS, Perumallapalle

- Three entries (PPS 8, PPS 24 and PPS 33) were promoted to MLT for their higher yield over check variety.

PULSES

REDGRAM

RARS, Tirupati

- The entries TRG-152, TRG-147, TRG-158, and TRG-118 (in AVT and IVT) and LRG-105 (in MLT) were found better when the crop suffered severely due to excess moisture conditions coupled with severe SMD.

BLACKGRAM

RARS, Tirupati

- Blackgram entry, TBG-141 was proposed to AICRP testing for all zones. This entry has high yield coupled with YMV tolerance and recorded 2285 kg/ha with 38% higher yield than the check variety in MLT.
- TBG-138 was proposed to MLT for *rabi*, 2020-21 which recorded the highest yield in the AVT and is also resistant to YMV.

ARS, Ragolu

- Out of 15 blackgram cultures screened for cold tolerance under rice fallow situation, the

entry TBG 129 has recorded higher seed yield of 698 kg ha⁻¹ followed by ABF BG 4 (659 kg ha⁻¹) and they were found to be significantly superior over the Check variety LBG 787 (517 kg ha⁻¹).

ARS, Podalakur

- PBG- 278, high yielding, photo insensitive YMV resistant entry which recorded 38% of higher yield than Check LBG 752 is proposed for evaluation during MLT *rabi* 2021-22.

OILSEEDS

GROUNDNUT

ARS, Kadiri

- The groundnut pre-release variety K1609 with an average yield potential of 25 q/ha was given for first year minikit testing during *khari*f 2020.

SUNFLOWER

RARS, Nandyal

- In Multi location testing during *rabi* 2020-21, SH 2509 (2106 kg/ha) and SH 2384 (2073 kg/ha) recorded higher seed yield with 19% and 17% over the check, NDSH 1012 (1773 kg/ha), respectively.

SESAME

RARS, Tirupati

- Among three hundred and fifty six germplasm lines evaluated during *rabi*/summer 2020-21, GT- 10 recorded highest seed yield of 18.42 g followed by TBS 11 (16.80 g), VS 18-005 (16.21 g), Swetha til (16 g) and TKG 22(16 g) and the cultures are maintained for further use.

ARS, Utukur

- Out of 4 entries tested in Advanced Yield Trial for high yielding sesame varieties suitable for

Southern zone of Andhra Pradesh, UTS 204 (1486 kg ha⁻¹) recorded significantly higher seed yield with 44.6% increase over the check, YLM 66 (1028 kg ha⁻¹).

NIGER

RARS, Chintapalle

- In Niger IVT, twelve test entries were tested against the check KGN-2. Among which, IVT-1 (971 kg/ha); IVT-9 (961 kg/ha); IVT-5 (949 kg/ha); IVT-12 (932 kg/ha); IVT-7 (930 kg/ha) recorded significant and superior seed yield over the check KGN -2 (778 kg/ha).
- During *rabi*-2020 nine AVT test entries are tested against the check KGN-2. Among which AVT-20-1 recorded significant highest seed yield of 781 kg/ha while the check KGN-2 recorded 646.6 kg/ha.
- During *rabi* 2020, total of 1590 germplasm lines collected from NBPGR were multiplied and evaluated at RARS, Chintapalle. Among 1590 germplasm lines the genotype entry no 1142 recorded highest seed yield of 52 g/plot followed by entry no.28 recorded 38 g per plot. The multiplied material has been distributed to the different component centres of network project for their evaluation in the year 2021.
- The pooled data of 3 years on the influence of bee pollinators on niger productivity revealed that all the bee pollinators are top workers, maximum foraging speed of bees was observed at 11.00am. More number of capsule per plant (57.7) and highest yield (4.81 q/ha) were observed in Open Pollination treatment followed by Crop caged with European Bees recorded an yield of 4.20q/ha and lowest yield (1.62 q/ha) was observed in Crop caged without bees.

COMMERCIAL CROPS

COTTON

RARS, Lam

- In the project 'Development of high yielding cotton varieties with resistance to American boll worm', trait integration for Bt is going on for 12 elite lines. The back cross material is in BC3F1.

SUGARCANE

ARS, Perumallapalle

- An early sugarcane clone 2015 T 235 was proposed for the AICRP (Sugarcane) Zonal Varietal Trial. It has a yield potential of 143.8 t/ha with sucrose of 19.3% and sugar yield of 19.53 t/ha. It is moderately resistant to red rot. It has jaggery yield of 124 kg per ton of cane.

2. CROP PRODUCTION AND PROTECTION

CEREALS & MILLETS

RICE

(i) Crop Production

RARS, Maruteru

- Study on yield maximization of rice in Godavari zone during *kharif*, 2020 revealed that highest grain (6550 kg/ha) and straw (8646 kg/ha) yield was recorded with application of fertilizers as per Nutriexpert (118N - 27P - 52K). Whereas RDF (90-60-40) recorded significantly lower grain (5525 kg/ha) and straw (7293 kg/ha) yields. However, during *rabi* 2020-21, highest grain yield of 7903 kg/ha was recorded with 125% RDF (180-90-60) and straw yield was found highest (10600 kg/ha) with 100% RDF + FYM@ 10 t/ha.
- Zn fortification in rice indicated that soil application of ZnSO₄ along with two foliar sprays at 21 and 40 days after planting

recorded maximum grain yield of 5473 kg/ha which was significantly higher than control.

- Evaluation of the effects of nano particulate delivery of zinc on the productivity of rice in black soils and zinc bio-fortification indicated that RDF+Foliar application of nanoscale ZnO @ 2 g/10L at 21 & 60 DAT recorded maximum grain yield than control. The zinc content in grain and straw was also found maximum with RDF+ foliar application of nanoscale ZnO @ 2g/10L at 21 & 60 DAT.
- Among the varieties tested under low light stress, IET 28283 (5180 kg ha⁻¹) and Swarnaprabha (5180 kg ha⁻¹) could be selected as low light tolerant genotypes
- Among the genotypes tested for physiological efficiency, in *kharif* 2020 higher yield was recorded in MTU 1172 (6351 kg/ha), MTU 1064 (6217 kg/ha) and MTU 1190 (6070 kg/ha). In *rabi* 2020-21, higher yield was recorded in MTU 1153 (7210 kg/ha) and MTU 1121 (7080 kg/ha).

ARS, Nellore

- In rice fallows, highest seed yield of 424 kg/ha was recorded with greengram which was on par with sesamum (411 kg/ha) followed by blackgram (341 kg/ha) and the lowest yield was recorded with cowpea (246 kg/ha). Similarly highest net returns (Rs 11420/-) and B:C ratio (1.51) were recorded with greengram followed by sesamum (Net returns – Rs 36990/- & B:C ratio of 1.28).
- Pooled mean for *rabi*, 2019 & 2020 revealed that highest grain yield (5145 kg/ha) was recorded with NLR 34449 followed by MTU 1010 (4756 kg/ha). Among the irrigation treatments highest grain yield was recorded with recommended depth of irrigation (5544 kg/ha) followed by withholding irrigation at tillering (5199 kg/ha), withholding irrigation at

grain filling (4735 kg/ha). The lowest yield was recorded where irrigation was withheld at grain filling and tillering stages (4323 kg/ha).

ARS, Ragolu

- In a trial on validation of green seeker in rice, it was found that among growth parameters, plant height and panicle length was the highest in RGL 11414. Among N levels, total and productive tillers were highest with N applied with green seeker at NDVI of 0.8. Grain yield was significantly highest with RGL 11414 (5424 kg/ha) and among N levels with blanket RDN @120 kg N /ha and it was on par with N applied with green seeker at NDVI of 0.70 and 0.75. The interaction for grain yield was significant and was highest with RGL 11414 at NDVI of 0.75 (6582 kg/ha).

ARS, Bapatla

- Phosphorus application through DAP @ 60 kg/ha as basal and 25 kg P_2O_5 ha⁻¹ at maximum tillering stage recorded significantly higher grain yield (5877 & 5855 kg ha⁻¹) and straw yield (7582 & 7649 kg ha⁻¹). The lowest grain yield (5225 & 5248 kg/ha) and straw yield (6535 & 6576 kg/ha) was recorded in application of phosphorus through SSP @ 60 kg/ha as basal application.
- The highest grain yield (5519 & 5800 kg/ha) was recorded with soil application of $ZnSO_4$ @ 50kg ha⁻¹+foliar application of zinc at grain filling stage @ 1% over control treatment and it was on par with all other treatments. At 60 days, 120 days and 180 days after harvest data revealed that soil application of $ZnSO_4$ @ 50kg ha⁻¹ + foliar application of Zinc at grain filling stage @ 0.5% recorded significantly highest zinc content in single polished and double polished rice followed by soil application of $ZnSO_4$ @ 50kg ha⁻¹ + foliar application of zinc at grain filling stage @ 1%.

ARS, Jamamaheswarapuram

- Among the nine alternate crops to paddy under non availability of NSP right canal water for irrigation, groundnut (37.42 q ha⁻¹) performed better followed by sorghum (36.50 q ha⁻¹) whereas the highest values of BC ratio was recorded with sorghum (2.03) followed by sesamum (1.10).

ARS, Utukur

- Effect of bio-fertilizers in conjunction with fertilizers on growth and yield of rice concluded that by using biofertilizers viz., Azospirillum, PSB and KRB @ 5 kg ha⁻¹ chemical fertilizers can be reduced to the tune of 25 per cent as the pooled analysis of three years grain yield was recorded at par in the treatments of 100% RDF, 100% RDF + Bio-fertilizers, 75% RDF + Bio-fertilizers, adopting STCR equation + Bio-fertilizers as 5174, 5167, 4946 and 4917 kg ha⁻¹, respectively.

RARS, Chintapalle

- Three basmati rice varieties were tested with four planting dates. Among the three varieties tested, Pusa Basmati 1 recorded higher grain yield (35.0 q ha⁻¹) under 2nd FN of July sown when compared to other dates of planting.

(ii) Crop Protection

Entomology

RARS, Maruteru

- During *rabi* 2020-21, Triflumezopyrim @ 0.48 ml/l + Isoprothiolone @ 1.5 ml/l and Triflumezopyrim @ 0.48 ml/l + Tricyclazole @ 0.60 g/l are the best combinations against BPH and blast in rice based on per cent reduction in BPH population & blast severity.
- The incidence of leaf folder during *rabi* 2020-21 escaped in early planting, observed below ETL in normal planting and above ETL in late planting. Incidence of stem borer was

observed above ETL in early planting and below ETL in normal and late plantings. The BPH incidence was observed high in early planting than in normal and late planting.

- Pesticide compatibility Trial conducted during *kharif* 2020 revealed that pymetrozine alone, triflumezopyrim alone as well as their combination with azoxystrobin and azoxystrobin + tebuconazole are highly effective against BPH by registering over 90% reduction in BPH population.

ARS, Nellore

- Maximum reduction (19.74%) in leaf folder incidence on rice was found with spraying of potassium silicate @ 80 mg/L at 2 wks after transplantation and at active tillering stage followed by *Beauveria bassiana* application @ 1.3×10^6 conidia /ml as compared to *B. bassiana* spraying alone (8.40% reduction in leaf folder incidence).
- Lowest mean per cent stem borer (1.19% DH) and whorl maggot (0.92% silver shoots) incidence was recorded with application of Chlorantraniliprole 0.4 G at 20 DAT + foliar application of Chlorantraniliprole 18.5 SC at 50 DAT. Lowest mean per cent leaf folder incidence (1.71 % LF) was recorded with application of Cartap hydrochloride 4 G at 20 DAT + foliar application of Chlorantraniliprole 18.5 SC at 50 DAT.

ARS, Ragolu

- A total of 229 diversified rice cultures were screened during *kharif*, 2020 against BPH. A total of 12 lines (OYT-10, OYT-19, PYT-12, AYT-7, MLT (L) 658, MLT (L) 662, MLT (SG-EME) 436, MLT (SG-ML) 463, MLT (SG-ML) 471, RGL-7009, RGL-7021 and RGL- 7029 were found resistant to BPH and RGL 2537 & RGL 2538 recorded '1' score.

ARS, Bapatla

- High incidence of leaf folder (39.54%) was recorded at 20 DAT in early planting and the incidence of BPH (14.40 / 10 hills), WBPH (13.50 / 10 hills) and GLH (11.60 / 10 hills) was more at 50 DAT, 20 DAT and 50 DAT, respectively in normal planting. Early transplanting recorded high yield of 4141 kg / ha followed by normal transplanted (3996 kg / ha) rice crop. Late transplanted crop recorded least yield of 3180 kg/ ha.

Pathology

RARS, Maruteru

- Among the new fungicides tested for sheath blight, Thifluzamide 24% SC @ 0.8 ml/l was found effective in controlling the sheath blight incidence and severity (80.70% & 21.16%) in comparison to control plot (100% & 60.68%).
- Among the genotypes identified (41 entries) based on phenotype for resistance and susceptibility, two entries i.e., DSN 62, NSN-1-265 possessed three major genes for BLB resistance (Xa4, xa13 and Xa21). It was observed that presence of Xa21 gene among the selected entries was important in conferring resistance to BLB under local conditions.

ARS, Nellore

- Four pre-release cultures, AVT-137,147,171,230 and donors JGL 36181, IBT-GM-30 TPL 63-2, KNM 7715, RPbiopath-4, HWR-10, HWR-21 were identified as resistant to leaf blast.
- Three pre-release cultures, AVT102, 123, 187 were found resistant to BLB and other 15 AVT entries were found resistant to neck blast.

ARS, Utukur

- Efficacy of eight different fungicides and combinations under field conditions for sheath rot disease revealed that foliar spray of Azoxystrobin 11 % + Tebuconazole 18.30 % SC @ 1.5 ml/l twice at the initial appearance of the symptoms and second spray at 15 days after the first spray proved effective by recording minimum Per cent Disease Index PDI of 23.11 % and grain yield of 5,430 kg/ha followed by foliar spray of Trifloxystrobin 25 % + Tebuconazole 50 % @ 0.4 ml/ with PDI of 23.33 % and grain yield of 5,308 kg/ha.

MAIZE

(i) Crop Production

ARS, Vijayarai

- In evaluation of various maize based inter and sequence crop systems, highest maize equivalent yields were observed with Maize-Maize+ cauliflower system (16283 kg/ha) followed by Maize- Maize+ black gram (16217 kg/ha), lowest maize equivalent yields were recorded with Fallow-Maize (8648kg/ha). However, highest net returns and BCR were recorded with korra- maize and blackgram –maize systems.

ARS, Garikapadu

- Results of the trial on studies on the performance of maize under different irrigation schedules and dates of sowing during *rabi* season indicated that 31st October sowing at IW/CPE ratio of 1.0 recorded significantly highest kernel yield (7896 kg ha⁻¹), followed by 30th November sowing at IW/CPE ratio 0.8 (7590 kg ha⁻¹).

ARS, Peddapuram

- Study on ‘Weed management in maize systems’ during *kharif*, 2020 revealed that application of Tembotrione 120 g/ha +

Atrazine 750 g/ha at 15 DAS or Atrazine 1000 g/ha (PE) fb Tembotrione 120 g/ha at 25 DAS can be recommended for efficient weed control and improved kernel yield with high B:C ratio in maize.

- Significantly higher growth, yield attributes, yield and quality parameters were recorded with sweet corn hybrid “Sweet-60” and it was on par with sweet corn hybrid “Madurima”. Application of 150% RDN recorded significantly higher sweet corn yield (15102 kg/ha) and it was on par with 125% RDN.

ARS, Utukur

- Maize crop raised with different treatments (T1: Grain Targeted yield of 60 q ha⁻¹ with RDF; T2: Targeted yield of 60 q ha⁻¹ with chemical fertilizers; T3: Targeted yield of 70 q ha⁻¹ with chemical fertilizers; T4: Farmer’s Practice (300:100:95); T5: Control), recorded 64.53, 63.79, 74.00, 62.35 and 10.72 q ha⁻¹, respectively. Pooled analysis data clearly brought out efficacy of STCR regression equation by recording highest grain yield in T3 treatment to the tune of 74 q ha⁻¹ besides saving the cost on fertilizers.

ARS, Reddipalle

- Maximum maize seed yield was recorded (3262 kg ha⁻¹) with 15 mm depth of irrigation compared with 10 mm depth of irrigation. Water use efficiency was higher (10.5 kg/ha- mm) with 15 mm depth of irrigation and 3 days interval of irrigation (10.9 kg/ha-mm).

(ii) Crop Protection

Entomology

ARS, Vijayarai

- Studies on different Biorational insecticides management of Fall army worm in maize during *rabi*, 2020-21 indicated that per cent infestation by fall army worm was lowest in *Nomuraea rileyi* (22.92) followed by

Metarhizium anisopilae (27.43) and *Beauveria bassiana* (29.51) with 49.07, 39.04 and 34.41 per cent reduction over control respectively. Highest yield (10319 kg/ha) was noticed in *Nomuraea rileyi* followed by *Metarhizium anisopilae* (9971 kg/ha) and *Beauveria bassiana* (9783 kg/ha).

- Screening of popular hybrids against Fall Army Worm (*Spodoptera frugiperda*) in Maize during *Kharif*, 2020-21 indicated no significant difference in per cent plant infestation by fall army worm at 20, 30, 40 and 50 days after sowing but yield variation was observed among the different hybrids. Lowest % cob infestation was noticed in DKC 9133 (39.68%) which resulted in higher yields. During *rabi*, 2020-21 lowest % cob infestation (20.08) was noticed in ADV 759 followed by NK 6607 (36.38) and CP 333 (38.08) that resulted in higher yields.

RARS, Lam

- The lowest cob damage due to fall armyworm was recorded in a treatment module containing seed treatment with cyantraniliprole 19.8 and thiamethoxam 19.8 @ 6 ml/kg seed + azadirachtin 1500 ppm @ 5 ml or NSKE @ 5% at 25DAS + poison bait (10 kg rice bran + 1kg jaggery + one litre of water + 100g thiodicarb 75 WP @ 50 kg/ha) at 35DAS + spraying of chlorantraniliprole 20% SC @ 0.4 ml/l at 50DAS.

RARS, Nandyal

- Studies on management of FAW (*Spodoptera frugiperda*) in maize during 2018-19, 2019-20 and 2020-21 with different insecticides revealed that, higher per cent reduction in leaf damage of 82.51% by FAW over the control with an yield of 7344 kg/ha was recorded with poison bait application at 20, 30, 40 and 50 DAS (50 kg rice bran + 5 kg jaggery + 500 g thiodicarb 75 SP @ 50 kg/

ha) which was on par with the spraying of insecticides viz., Spinosad 45 SC @ 175 ml/ha (77.62% pest reduction and 6852 kg/ha) and Spinetoram 11.7 SC @ 250 ml/ha (77.05 %) pest reduction and 6813 kg/ha) at 20, 35 and 50 DAS.

ARS, Utukur

- Evaluation of IPM modules for the management of fall armyworm in maize during *rabi*, 2020- 21 revealed that NSKE @ 5% and Spinetoram @0.5ml/l was found to be effective with lowest mean per cent plant infestation (6.46), mean per cent leaf damage (9.32), lowest per cent cob damage (8.33) with highest yield (8351 kg/ha) and highest CB ratio of 1: 1.33.

RARS, Tirupati

- Insecticidal management of Fall Armyworm (*Spodoptera frugiperda*) in Maize during *kharif* 2020 showed that seed treatment with Cyantraniliprole 19.8+Thiamethoxam @ 6ml/kg, NSKE @ 5% at 25DAS, poison bait at 35 DAS and Chlorantraniliprole 20 SC @ 0.4 ml/L spray at 60 DAS were recorded lowest cob damage (9.74 %) and highest cob yield 20940 kg/ plot (2.09 t/ha) compared to Untreated control (24.87% cob damage and 11240 kg /plot).

RARS, Chintapalle

- The pooled data of two years on insecticidal management of Fall Armyworm in Maize revealed that seed treatment with Cyantraniliprole + Thiamethoxam @ 6ml/kg seed + NSKE@5% + Poisonbait + foliar spray with Spinetoram @ 0.5ml/l have recorded lowest mean cob damage (7.23%) with highest cob yield (67.91q/ha) and also highest C:B ratio (1:2.44), whereas untreated control recorded highest cob damage (21.45%) and lowest yield (50.71q/ha).

RARS, Anakapalle

- Studies on effect of intercropping on incidence of fall army worm in maize revealed that intercropping with cowpea and greengram reduced the incidence of fall army worm up to 15 per cent.

Pathology

ARS, Peddapuram

- Among the 100 inbreds screened for Banded leaf and Sheath Blight resistance under artificially created epiphytotic conditions 04 entries viz., M164-19M, BML 7, VL20367, VL181513 were found to show reaction of moderately susceptible (MS) (Score: < 7.0).
- Among 166 OYT entries screened for Turcicum Leaf Blight resistance under artificially created epiphytotic conditions, 7 entries viz., PHM 42, PHM41, PHM40, PHM22, PHM86, PHM87, PHM47 were found to show resistant (R) reaction (Score: < 3.0).
- During *rabi* 2020-21, turcicum leaf blight (score 7.0) was noticed in East Godavari during cob formation to grain hardening stage. Post flowering stalk rot of maize caused by *Fusarium verticillioides* was the principal maize disease during *rabi* season in West Godavari district. Surveys of farmers' fields during *kharif* 2018, 2019 and 2020 revealed that the disease was prevalent in moderate to severe levels. Stalk rot incidence was high when plant was 50 to 65 days old, which coincides with tasselling and silking stage.

SORGHUM

(i) Crop Production

RARS, Nandyal

- In *rabi* Sorghum, seed treatment with Azospirillum @ 2 ml and PSB @ 4 ml/kg seed in addition to 100 % RDF recorded

significantly higher grain yield (3807 kg/ha), net returns (Rs.58847/ha), B:C ratio (3.09) as compared to 100 % RDF which recorded grain yield 3570 kg/ha, net returns Rs.47723/ha, B:C ratio 2.70.

(ii) Crop Protection

RARS, Nandyal

- Studies on management of Fall armyworm (FAW) (*Spodoptera frugiperda*) in sorghum with different insecticides during 2018-19, 2019-20 and 2020- 21, revealed that poison bait application at 20 DAS, 35 DAS and 50 DAS (50 kg rice bran + 5 kg jagerry + 500 g thiodicarb 75 SP @ 50 kg/ha) has recorded higher per cent reduction in plant damage (86.04%) over the control with an yield of 4940 kg/ha which was on par with spraying of insecticides viz., Spinosad 45 SC @ 175 ml/ha (84.34% and 5544 kg/ha), Rynaxypyr 18.5 SC @ 200 ml/ha (80.40 % and 5755 kg/ha) and Emamectinbenzoate 5 SG @ 200g/ha (76.23 %, 4677 kg/ha) at 20, 35 and 50 DAS.

ARS, Bapatla

- Out of 18 entries screened for resistance to pests in sorghum, the mean per cent stem borer incidence ranged between 0.00 and 6.45. The least mean per cent (0.00) stem borer incidence was recorded in IIMRH -1 and NTJ-1 and highest mean per cent stem borer incidence of 6.45 was recorded in IIMRH-6.

FINGER MILLET (*RAGI*)

(i) Crop Production

ARS, Vizianagaram

- Nutrient management in finger millet (VR 847) to study the contributory response of each nutrient showed that increased recommended dose of N, P, K fertilizers (150% RDF) had

recorded highest yields with 17.1% increase in grain yield (2970 kg/ha) over 100% RDF (2537 kg/ha) which is on par with 150% RDF + 100% P and 100% K (2852 kg/ha). Whereas higher B:C ratio (2.35:1) was observed with 150% RDF + 100% P and 100% K when compared with 150% RDF and 100% RDF (2.29:1 and 2.08:1), respectively.

- Three year mean data of the experiment on rescheduling of fertilizer doses in finger millet showed that 150% RDN+100% RDP+100% RDK recorded on par grain yield with 150% NPK and 13.7% additional grain yield over 100% NPK. The same treatment has also recorded 2.62%, 13.0% higher B:C ratio over 150% NPK and 100% NPK respectively. Hence, 150% RDN+100% RDP+100% RDK can be recommended to the farmers instead of 100% NPK or 150% NPK.

RARS, Nandyal

- Pre-emergence application of Oxadiargyl 80 WP at 200 g a.i/ha and one intercultivation at 25 - 30 DAS has resulted in effective weed control in finger millet with higher grain yield (3358 kg/ha), net returns (69263 Rs./ha) and B:C ratio (3.99). The next best higher grain yield (2882 kg/ha) was observed with two intercultivations with hand weeding at 20 and 40 DAS. The lowest grain yield (1427 kg/ha) was noticed with un-weeded check.

ARS, Peddapuram

- Response of pre-release finger millet varieties to different levels of NPK fertilizers under rainfed conditions during *kharif*, 2020 revealed that application of 100 % RDF recorded significantly higher grain yield (2878 kg/ha) and B: C ratio (1.86) which was at par with 150% RDF. Among the finger millet varieties, significantly higher grain yield of 2932 kg/ha was recorded with FMV-114.

(ii) Crop Protection

ARS, Vizianagaram

- Spraying of propiconazole at the time of flowering and after 10-15 days of 1st spray @1 ml/L resulted in lower Neck blast (7.7%) and Finger blast (7.0%) and recorded highest grain yield (1580 kg ha⁻¹) and fodder yields (4134 kg ha⁻¹).
- Spraying of Trifloxystrobin + Tebuconazole @ 0.04% at 35 DAS and *Pseudomonas fluorescens* @10g/l 20 DAS recorded the lowest incidence of blast and highest grain yield of 26.0 q ha⁻¹ as against 9.3 q/ha in control.

RARS, Anakapalle

- Studies conducted on eco-friendly management of borers in *ragi* revealed that Emamectinbenzoate (0.4 g/l) was most effective in reducing the borer incidence followed by *Metarrhizium anisopliae* (5.0 gm/l) and *Baueveria bassiana* (5.0 gm/l) which were however statistically on par with Monocrotophos 36 SL @ 1.6ml/l. The yields in all these effective treatments were on par with each other.

ARS, Perumallapalle

- Seed treatment with talc formulations of *Pseudomonas fluorescens* and *Bacillus subtilis* @10g/kg + seedling dip @ 10g/L+ foliar spray at flowering stage @10 g/l showed least leaf blast score and less incidence of neck and finger blast. The treatment showed highest cost benefit ratio of 1:1.53.

FOXTAIL MILLET (KORRA)

(i) Crop Production

RARS, Nandyal

- In intercropping studies on millets with redgram, maximum millet grain equivalent yield was recorded with Foxtail millet+

Redgram in 6:1 ratio (4498 kg ha⁻¹), higher net returns (64,441 Rs./ha) and B:C ratio (3.52). Sole crop of foxtail millet and little millet have recorded yield of 2613 kg/ha.

RARS, Tirupati

- Performance of small millets under different sowing windows revealed that there were no significant differences in grain yield among the three dates of sowing, however numerically higher grain yield was obtained with 2nd FN of June compared to 1st FN of July. Among the crops, *korra* has recorded the highest grain yield of 2547 kg ha⁻¹ and the lowest was recorded with *samalu* (733 kg ha⁻¹). Further, *korra* has recorded the highest gross returns (Rs.76413 ha⁻¹), net returns (Rs.51832 ha⁻¹) as well as benefit cost ratio (3.05). Next best crop was *andukorra* with grain yield of 1278 kg ha⁻¹, gross returns (Rs.63903 ha⁻¹), net returns (Rs.41847 ha⁻¹) and benefit cost ratio (2.90). Significantly the lowest grain yield, gross, net returns as well as B:C ratio was recorded with *samalu*.

(ii) Crop Protection

RARS, Nandyal

- Pooled data analysis of three years revealed that Hexaconazole 0.2%, continuous spray of Mancozeb (0.2%), Difenconazole 0.1% and Propiconazole 0.1% have significantly reduced the PDI of rust disease in foxtail millet and have given significantly higher yields. Cost benefit ratio is more (2.8) in continuous spray of Mancozeb 0.2% followed by Hexaconazole 0.2% (2.6), Difenconazole 0.1% and Propiconazole 0.1% (2.4).

BROWNTOP MILLET (ANDU KORRA)

Crop Production

ARS, Vizianagaram

- The result obtained from the two year study

on productivity improvement in Brown top millet through nutrient management and optimum plant density has proven that yield attributing characters, grain yield, fodder yield, plant nutrient uptake, net income and benefit cost ratio were significantly higher at 50-25-0 kg NPK/ha compared to lower NPK doses. Similarly among four different row spacings, 60cm row spacing has given superior yield attributing characters, maximum grain yield, plant nutrient uptake, net returns and benefit cost ratio. However, for getting maximum fodder yield, close row spacing of 22.5cm was found to be optimum.

PROSO MILLET (VARIGA)

ARS, J. M. Puram

- Growth and yield of proso millet varieties at different dates of sowing revealed that highest values of growth parameters like plant height, dry matter, no. of panicles plant⁻¹, no. of grains panicle⁻¹ recorded in TNPM-230 variety sown during I Week of October followed by Co-5 variety.

KODO MILLET (ARIKA)

ARS, Vizianagaram

- Studies on performance of small millets to different sowing windows revealed that, the grain yield of kodo millet (1632 kg ha⁻¹) was significantly high followed by barnyard millet (1366 kg ha⁻¹) and little millet (452 kg ha⁻¹). Among different sowing dates, July 1st fortnight sowing has resulted in highest grain yield (2243 kg ha⁻¹).

PULSES

REDGRAM

(i) Crop Production

RARS, Lam

- In evaluation of high density pigeonpea for vertisols under rainfed conditions of Krishna zone revealed that the pigeonpea cultivar

LRG-470 planted at a spacing of 90cm x 20cm with recommended dose of fertilizer recorded maximum seed yield of 2705kg ha⁻¹.

ARS, Darsi

- The results of the five years (2016-21) study on impact of *in-situ* and *ex-situ* moisture conservation measures on growth and yield of pigeonpea and castor (Plan) revealed that maximum redgram equivalent yield was recorded with supplemental irrigation (1569 kg/ha) and was superior to all the treatments tested. Sub soiling at 1.8 m and 2.7 m recorded similar redgram equivalent yields (1311 kg/ha and 1349 kg/ha) and was superior over the treatment of conservation furrow at 3.6 m interval (1073 kg/ha).

(ii) Crop Protection

Entomology

RARS, Lam

- Pod damage due to lepidopteron pod borers was lowest (6.9%) in Chlorantraniliprole (0.3ml/lit), followed by Bt kurstaki @ 2.5g /lt (9.9%) as against 37.1% in control. The highest grain yield was obtained with treatment Chlorantraniliprole (2667 kg/ha), followed by Bt kurstaki @ 2.5g /lt (2500 kg/ha). However, highest Incremental cost benefit ratio was obtained with Bt. kurstaki @ 2.5 g/lt (7.24).
- Seed treatment with thiamethoxam @ 10.0 ml/kg has recorded less jassid incidence (0.273 /leaf), followed by imidacloprid @ 8.0 ml/kg seed (0.5 /leaf). However, there were no significant differences between the treatments with regard to pod damage, no. of primary and secondary branches, no. of pods/plant, yield etc. Numerically, imidacloprid @ 8.0 ml/kg seed was found to record more yield (2356 kg/ha).

Pathology

RARS, Tirupati

- Identified pigeonpea genotypes (Inter specific entries) ICPWS1920, 1931, 1932, 1912, 1913, 1924, 1914, 1919, 1941, 1936, 1938, 1937 as resistant to sterility mosaic virus (<10% incidence) under field conditions (100% in ICP 8863).
- Identified highly tolerant pigeon pea lines (MLT-RG12, IVT-RG152 & AVT-RG148) to sterility mosaic virus under natural conditions (100% in LRG 41)
- Among cultivated pigeonpea entries, BRG3 and BRG5 recorded zero incidence of SMD, where as BRG1 and BSMR736 recorded <10% SMD incidence under natural conditions (100% in ICP8863).

ARS, Darsi

- During *kharif* 2020, survey was carried out in pigeonpea growing areas of 154 villages representing 31 mandals of Prakasam district for SMD. Highest disease incidence was recorded in the pigeonpea fields cultivating the variety LRG-41 (31.43%) followed by LRG-52 (25.83%) and PRG-176 (22.02%). No incidence was observed in the BSMR-736 pigeonpea variety.

ARS, Podalakur

- In screening of different redgram entries against pod borers during *kharif* 2020, *Helicoverpa* larval incidence per 5 plants during flowering stage ranged from 0.60 (LRG 41) to 15.3 (MLTRG 15), *Maruca* incidence ranged from 0.70 (MLTRG 4) to 14.3 (MLTRG 2) and *Spodoptera* incidence ranged from 0.0 (MLTRG 11) to 13.7 (MLTRG 2).

GREENGRAM

(i) Crop Production

RARS, Lam

- In *kharif* greengram, the maximum seed yield of 559 kg ha⁻¹ was recorded with weed free treatment which was closely followed by manual hand weeding twice at 20 and 40 DAS (544 kg/ha) which were significantly superior to that of unweeded check (385 kg ha⁻¹). Among the chemical weed control, highest grain yield of 549 kg ha⁻¹ was observed with POE application of fomesafen+fluzifop p butyl at 20 DAS and it was closely followed by other chemical treatments.

ARS, Nellore

- Greengram sown in May II FN recorded highest seed yield of 1017 kg ha⁻¹ followed by March II F.N (923 kg ha⁻¹) and April I FN (642 kg ha⁻¹) consequently.

ARS, Amadalavalasa

- Foliar spray of Urea (2%) + Salicylic acid (75 ppm) on greengram at flower initiation recorded highest seed yield of 1093.6 kg ha⁻¹ and proved superior over foliar application of 19:19:19 (2%) twice at flower initiation and 7 days after first spray (1027 kg ha⁻¹) or KNO₃ (2%) at flower bud initiation (997.8 kg ha⁻¹) compared to control (610 kg ha⁻¹).

(ii) Crop Protection

RARS, Lam

- Seed treatment with imidacloprid @ 5ml/kg + foliar spray of trifloxystrobin + tebuconazole (Nativo) @ 0.75 g/l, three sprays at 15 days interval recorded the lowest PDI (20.53) of *Cercospora* leaf spot and powdery mildew (10.70) in greengram during *kharif* 2020-21.
- The new chemicals such as diafenthiuron 50 % WP @ 1.25 g/l, spiromesfin 240% SC

@1.25 ml/l and flonicamid 50 WP @ 0.3 g/l and clothianidin 50 WDG @ 0.1 g/l were found effective against thrips upto 10 days. And, all the above newer insecticides were found superior over, spinosad 45 SC @ 0.3 ml/l and thiamethoxam 25% WG @ 0.3 g/l in reducing the thrips population in greengram.

BLACKGRAM

(i) Crop Production

RARS, Lam

- The maximum grain yield of *rabi* blackgram of 1038 kg ha⁻¹ was recorded with weed free treatment which was closely followed by manual hand weeding twice at 20 and 40 DAS which were significantly superior to that of unweeded check (679 kg ha⁻¹). Among the chemical weed control, highest grain yield of 902 kg ha⁻¹ was observed with POE application fomesafen + fluzifop p butyl at 20 DAS and it was closely followed by other chemical treatments.

(ii) Crop Protection

RARS, Lam

- Erection of yellow sticky traps or blue sticky traps at 2ft height above the crop canopy helps to protect the natural enemies especially ladybird beetles with similar efficacy of trapping of sucking pests.

ARS, Podalakur

- During *rabi* 2020-21, among Blackgram entries % YMV incidence ranged from 10.6 (LBG 623) to 0.0 (MLTBG -1, MLTBG 16, PBG 272 and PBG 278) and among Greengram entries % YMV incidence ranged from 10.6 (MLTGG -7) to 0.0 (MLTBG -3, MLTGG 5 and WGG 42).

RARS, Tirupati

- Identified five advanced blackgram entries

(TBG129, 143, 144, 135, 130-2) with zero incidence of YMV.

- Identified blackgram entries viz., LBG904, TBG129, 141, 135, 136, 104 as resistant to three isolates of YMV (East Godavari, Prakasam, Kurnool) by Agroinoculation with MYMV - A + MYMIV - A + MYMV - B constructs.

ARS, Amadalavalasa

- Management of sucking pests in blackgram through insecticides revealed that incidence of thrips was low in Fipronil 5% SC @ 2.0 ml L⁻¹ and mites in Spiromesifen 240 SC @ 1.0 ml L⁻¹. However, higher seed yield of 12.34 q ha⁻¹ was recorded in Cyatraniliprole 10% OD @ 1.0 ml L⁻¹.

BENGALGRAM

(i) Crop Production

RARS, Nandyal

- In a study on effect of land configuration and spacing on yield of chickpea varieties in vertisols under irrigated dry conditions, higher seed yield (2444 kg/ha) was observed in flat bed (30 cm x 10 cm) compared to ridge and furrow method with 90 cm x 5 cm (1934 kg/ha) and 60 cm x 10 cm (2002 kg/ha) spacings.

RARS, Lam

- Pre emergence application of pendimethalin 30% + imazethapyr 2% (Veloce 32) at 0.75 + 0.05 kg/ha gave on par bengalgram seed yield (2566 kg/ha) with that of two hand weedings (2606 kg/ha) and was also comparable with pre-emergence application of pendimethalin at 0.75 kg/ha in combination with post emergence application of sodium acifluorfen + clodinafop at 165 + 80 g/ha

(2315 kg/ha) at 20 DAS and recorded higher values of weed control efficiency (76.4, 86.2 and 81.7%, respectively).

(ii) Crop Protection

RARS, Nandyal

- Botanicals and biopesticides were tested along with insecticides for management of *H. armigera* in chickpea. Low pod damage of 5.77 per cent was recorded in chlorantraniliprole 18.5 SC @ 2.5 ml/lit. The next best treatment was home made neem 10 % (6.93 percent pod damage). Pod yield was higher in chlorantraniliprole 18.5 SC @ 2.5 ml/lit with 1387 kg/ha.

RAJMASH

RARS, Chintapalle

(i) Crop Production

- Among the different combinations of intercropping with maize, sorghum, sunflower, wheat, niger and marigold, the best border / barrier crop for reducing aphid transmission was found to be with Rajmash + Maize (6:2) which recorded lowest mosaic disease incidence and highest yield (475.5 kg /ha).

(ii) Crop Protection

- Evaluation of different IPM practices against major pests of Rajmash indicated that seed treatment with imidacloprid @ 5g/kg seed + acetamiprid @ 0.2 g/l foliar spray was found to be effective in reducing the whitefly population (4.33 insects/plant) and YMV incidence (6.87%) and recorded highest seed yield (1.28 q/ha) followed by seed treatment + Dimethaote @ 2ml/l (8.11 insects/plant and YMV 9.13%) and seed treatment + inter crop with maize at 6:1. Whereas untreated control recorded highest population (15.78 insects/plant) and YMV disease incidence (25.07%) with lowest seed yield (0.28 q/ha).

OILSEEDS

GROUNDNUT

(i) Crop Production

ARS, Kadiri

- Groundnut + foxtail millet intercropping (5:3) has recorded significantly higher Groundnut pod equivalent yield (1844 kg/ha) than the sole crop cultivation of foxtail millet (1165 kg/ha), little millet (1031 kg/ha) and brown top millet (952 kg/ha). Higher net monetary returns (Rs. 31627/ha) and benefit cost ratio (1.69) was recorded with intercropping of groundnut + foxtail millet (5:3).
- Three years pooled data (2018-2020) generated with an insight into the double cropping system in rainfed groundnut production system revealed that higher groundnut pod equivalents was recorded with groundnut –greengram cropping system followed by groundnut – korra. Higher seed/ grain yield of sequence crop was recorded with korra followed by bajra. Highest net returns were recorded with groundnut – greengram (Rs. 42,191/ha) followed by groundnut- horsegram (Rs. 33,021/ha). Hence it was concluded that groundnut – greengram cropping system followed by groundnut- horsegram was found to be identified as remunerative double cropping system under rainfed conditions.

RARS, Tirupati

- Significantly highest per hectare pod yield (3250 kg), kernel yield (2343 kg) was recorded with hand weeding twice treatment over all other weed management practices. However, it was statistically at par with pre emergence application of pre-mix herbicide of Pendimethalin + Imazethapyr fb Quizalofop which yielded per hectare pod yield (3190 kg), kernel yield (2254 kg).

- Pre emergence application of (PE) Butachlor @ 1.25 kg a.i./ha fb PoE Imazethapyr 10% SL @ 75 g a.i ha⁻¹ recorded 2766 kg/ha pod yield of groundnut with higher net returns (Rs.87058 /ha) and B:C ratio (2.05) which is on par with PE application of Pendimethalin @ 750 g a.i./ha fb PoE application of Imazethapyr 10 % SL @ 75 g a.i ha⁻¹ (2604 kg/ha), Hand weeding at 20 & 40 DAS (2580 kg/ha). The net returns (Rs.57274/ha) and B:C ratio (1.69) with two hand weedings at 20 and 40 DAS was lesser compared to herbicidal weed management practices.
- Among different strip cropping treatments, groundnut + foxtail millet in 5:4 ratio (1458 kg ha⁻¹) and 5:3 ratio (1432 kg ha⁻¹) recorded significantly higher groundnut pod equivalent yields than the Groundnut with other small millets (little millet and brown top millet) in 5:4 and 5:3 row proportions and sole crop cultivation of foxtail millet, little millet and brown top millet. Higher gross and net monetary returns per hectare were realized with groundnut + foxtail millet in 5:4 ratio (Rs.80202 and Rs.38582) and 5:3 ratio (Rs.78767 and Rs.37147), respectively.

ARS, Utukur

- The treatments receiving the biochar 5, 10 and 15 t ha⁻¹ recorded highest drymatter yield of groundnut as 6.40, 6.49 and 6.56 g pot⁻¹ which were statistically at par. Maximum ammonium absorption was noticed at 2 hrs and desorption after 01 hour. Maximum desorption was observed with 0.01 M KCl.

RARS, Chintapalle

- Evaluation of the effects of nanoparticulate delivery of zinc on the productivity of rainfed Groundnut revealed that increased pod yield upon application of RDF along with foliar application of nanoscale ZnO 150 ppm at 25 & 45 DAS has recorded highest pod yield (20.7 q ha⁻¹) and test weight (30.4 g).

ARS, Garikapadu

- Combination of drip irrigation at IW/CPE ratio of 1.0 with soil test based fertilizer application recorded significantly highest groundnut mean pod yield of 2658 kg/ha.

(ii) CropProtection

Entomology

ARS, Kadiri

- Germination per cent was decreased in Groundnut after 240 days (8 months) of storage and it ranged from 60.0 to 63.0% in all types of storage bags. Damaged pods were not observed in PICS bags even with the release of adult beetles up to 240 days. However, the pod damage was not observed in HDPE bags and PICS storage bags up to 240 days (8 months) without release of adult beetles. The lack of infection in PICS bags might be due to hermetic nature of bags (air tight) and restricted gas exchange.

RARS, Tirupati

- Management of root-feeders in groundnut based on 3 years (2018 to 2020) results revealed that seed treatment with imidacloprid 600 FS @ 2 ml + 4 ml of water/kg seed + furrow application of Carbofuran 3 G @ 33 kg/ha before sowing found to be effective in reducing the incidence of root grub (plant mortality was zero per cent) compared to untreated control with plant mortality (6.33%) and larval count (4.00 / m²).
- Results on management of wild boars in groundnut indicated that HDPE nylon net and GI wire 4 rows around the field at a distance of 15 cm width immediately after sowing found effective in reducing wild boars trespassing in groundnut field.

ARS, Reddipalli

- Feasibility of automated drip irrigation to

groundnut was tested by running a software programme. It was very successful to impose the treatments while scheduling different depths of irrigation at different intervals. Groundnut recorded higher pod yield of 2964 kg/ha with drip irrigation 10 mm once in three days from 20 – 80 days after sowing(DAS) and 15 mm from 80 – 110 DAS followed by 15 mm depth of irrigation once in three days (2309 kg/ha). Higher water use efficiency of 8.26 kg/ha mm was recorded with 10 mm depth of irrigation once in three days. While, it was lower with 4 mm daily irrigation to groundnut (4.5 kg/ha mm).

Pathology

ARS, Kadiri

- Validation of management modules against soil borne diseases for four years indicated, significantly low incidence of dry root rot (4.4 %) and stem rot (5.7 %) and significantly high pod (1613 kg/ha), haulm yield (2330 kg/ha) and high ICBR of 3.9 by following 1. Deep summer ploughing with mould board plough 2. Soil application of Trichoderma aspirillum @ 4 kg/ ha enriched in 250 kg FYM/ha 3. Seed treatment with Tebuconazole 2DS @ 1.5 g/ kg seed followed by seed treatment with PGPR @ 625 g/ ha of seed 4. Soil application of Trichoderma aspirillum @ 4 kg/ ha enriched in 250 kg FYM/ha at 35 and 60 DAS.

RARS, Tirupati

- In the screening of 176 advanced station genotypes against foliar diseases of groundnut the genotypes viz., TCGS 1709, 1711, 1744, 1789, 1845, 1858, 1862, 1864, 1877, 1901, 2139, 2158, 2251 have shown tolerance to early leaf spot, late leaf spot and rust of groundnut. Entry 1862 was registered with NBPGR under germplasm registration as resistance source for late leaf spot and stem

rot of groundnut

- Among the 96 advanced station genotypes screened in sick plots against stem rot and dryroot rot of groundnut, the genotypes viz., TCGS 1789, 1855, 1862, 1864 have shown tolerance to stem rot while genotypes viz., TCGS 1789, 1915, 1862, 2155, 2188 have shown tolerance to dry root disease.

SUNFLOWER

(i) Crop Production

RARS, Nandyal

- Validation of response of sunflower to varying planting geometry and fertilizer levels under different land configurations under rainfed conditions revealed that ridge and furrow planting at 60 cm x 30 cm with 125 % RDF (75 N, 75 P₂O₅, 37.5 K₂O kg/ha) has higher yield (959 kg/ha) and profit (net returns Rs. 11016/ha) followed by Broad bed and and furrow with paired row planting at 45 cm x 30 cm with 125 % RDF (75 N, 75 P₂O₅, 37.5 K₂O kg/ha) with 906 kg/ha and Rs 8125 /ha seed yield and net returns, respectively.

ARS, Reddipalli

- Results of experiments conducted in alfisols of Ananthapuram district during *rabi* season for identification of suitable crop and schedule of irrigation revealed that irrigation scheduling at IW/CPE ratio of 1.0 recorded significantly superior seed yield irrespective of crops. Among crops tested, significantly superior seed yield was recorded with sunflower (858 kg/ ha) over other crops. Sunflower equivalent yield was more with sunflower followed by mustard, sesame and safflower. Sunflower recorded higher gross returns (Rs. 46160/ha), net returns (Rs. 37660/ha) and BCR of 4.40. Mustard recorded gross return of Rs. 32,603/ha, net returns (Rs. 24103/ha) and BCR of 2.84.

(ii) Crop Protection

RARS, Nandyal

- Seed treatment with carbendazim 12% + mancozeb 63% wp @ 2g/kg seed followed by two foliar sprays with Trifloxystrobin 25%+ tebuconazole 50% (Nativo 75WG) @ 0.25g/l) resulted in better management of *Alternaria* leaf blight in sunflower with the lowest disease incidence of 37.5% and higher yield of 1382 kg/ha. Seed treatment with carbendazim 12% + mancozeb 63% WP (SAAF 75 WP) @ 2g/kg seed followed by two foliar sprays with difenoconazole 25% + propiconazole 25% (TASPA 500EC) @ 0.25 ml/l has also recorded low disease incidence of 40.95% and higher yield of 1363 kg/ha. Control has recorded high disease incidence of 53.38% and low yield of 1202 kg/ha. B:C ratio of above recommendations were 1.85 and 1.82 and the control has B:C ratio of 1.78.
- Seed yield losses due to leaf curl virus were 81.53% when the crop was infected at 30 days after sowing and 13.19% when the crop was 80 days old.

SESAME

(i) Crop Production

ARS, Yellamanchili

- Evaluation of post emergence herbicides for weed management in sesamum revealed that hand weeding at 20 and 30 DAS recorded highest grain yield (794 kg/ha) followed by mechanical weeding at 30 DAS (657 kg/ha). Whereas in terms of economics the highest B:C ratio was recorded with Quizalofop ethyl 5% @ 50 g/ha with 3.30.
- Influence of wider spacing on growth and yield of sesame indicated that spacing of 40 cm x 15 cm resulted in highest yield of 565 kg/ha and was found to be on par with 30 cm x 15 cm treatment (515 kg/ha). Among

the nutrient levels, 200% of RDF resulted in highest yield (488 kg/ha) followed by 150% RDF (452 kg/ha). Higher return per rupee investment was encountered in the treatment combination of 40 cm x 15 cm and 150% RDF.

RARS, Tirupati

- Among the chemical weed management practices in sesame, post- emergence application of quizalofop-ethyl 50 g/ha (2ml/lit) at 20 days after sowing effectively controlled the grasses and resulted in higher yield without any phytotoxicity on the sesame. Post- emergence application of sodium acifluorfen 16.5% SL+ clodinafop-propargyl 8% EC (premix) @ 100 g a.i/ha (408 ml/ha) at 20 DAS exerted phytotoxicity and resulted in the lower yield. The highest seed yield of sesame (295 kg ha⁻¹) was observed with ridges and furrow with crop residue mulch on alternate furrows. While the lowest yield (197 kg ha⁻¹) was observed with flatbed (Control) during *kharif*, 2020.
- Application of elemental sulphur resulted in higher yield compared to that of gypsum application in sesame based on the three years of experimentation. With regard to the sulphur levels, sesame responded significantly from 0 to 25 kg S ha⁻¹ with higher productivity (851 kg ha⁻¹ to 1072 kg ha⁻¹).

ARS, Ragolu

- In rice-sesame system, seed yield of sesame was significantly highest with conventional tillage (458 kg ha⁻¹) and among subplots it was highest with 100% RDF (325 kg ha⁻¹) but was on par with 75% RDF (310 kg ha⁻¹).

ARS, Nellore

- Evaluation of high yielding varieties of sesame at different sowing dates during summer (Early *kharif*, 2019) revealed that sowing of

sesamum during May II F.N recorded significantly highest seed yield (375 kg ha⁻¹), followed by April II (366 kg ha⁻¹) & May I F.N (363 kg ha⁻¹) sowings. Among the varieties tested, YLM 66 recorded significantly highest grain yield of 403 kg ha⁻¹.

(ii) Crop Protection

ARS, Yellamanchili

- Screening of sesame germplasm against stem and root rot under sick plot conditions revealed that the disease severity of stem and root rot ranged between 12.6% (YLM-146) to 51.6 % (SKL-4) and the susceptible check VRI-1 recorded the disease severity of 62%.
- Screening for resistance against major diseases showed that the germplasm lines viz., PT- 10, PT-2, OSC-75, RT-168, GT-2, GT-3 and IC-260760 recorded the lowest Phyllody incidence and EC-377169, IC-541229, IC-312267, OSC-75, PT-10, VZM-6, VZM-7, VSP-6, VSP-15 and VSP-19 recorded lowest Alternaria leaf spot incidence.
- Sweet flag (5g/kg) and neem (5g/kg) resulted in significant reduction in storage pest in sesame with nearly 70 per cent reduction over control. The chemical check, Deltamethrin 2.8EC @0.04 ml/kg was the most superior in management of storage pest of sesame with nearly 90 per cent reduction over control.

RARS, Anakapalle

- In screening of promising lines of sesame for resistance against pests, the germplasm lines viz., EC-370686, EC-355653, SKL-14, MLTS-4, MLTS-6, YLMW- 148, YLMW-154 and Gouri indicated better tolerance to sucking pests and thus can be used in breeding programmes for resistance to sucking pests.

ARS, Utukur

- Seed treatment with Tebuconazole @ 1.0 g/kg seed + soil application of Trichoderma @2.0 kg/ acre at the time of sowing recorded the lowest percent disease incidence of 15.21 % stem and root rot in sesamum with highest seed yield of 742 kg/ha and cost benefit ratio of 1 : 3.78 followed by Seed treatment with Carbendazim @ 1.0 g/kg of seed + soil application of Trichoderma @2.0 kg/acre with PDI of 19.04 %, yield of 720 kg/ha and Cost benefit ratio of 1 : 3.64.

CASTOR**Crop Production****ARS, Anantapuramu**

- Among different castor based intercropping systems evaluated, castor + cowpea recorded higher seed yield (1138 kg/ha) which was significant over the other treatments followed by the sole castor (875 kg/ha) and castor + foxtail millet (919 kg/ha), respectively.

ARS, Utukur

- In castor based intercropping system, sole castor sown at 90 cm x 45 cm recorded taller plants, more number of primary, secondary branches and capsules per plant. Higher castor equivalent yield (2267 kg ha⁻¹) was obtained with castor + foxtail millet intercropping system in 2:4 ratio followed by castor + greengram intercropping system (2:4). Higher land equivalent ratio of 1.60 was obtained with castor + greengram intercropping system (2:4) followed by castor + foxtail millet (2:4) with LER of 1.29.

MUSTARD**Crop Production****RARS, Nandyal**

- Experiment conducted for selection of suitable variety of mustard and different

irrigation intervals in Scarce Rainfall Zone of Andhra Pradesh indicated that significantly superior seed yield (421kg/ha) was recorded with mustard variety M- 25 than M-28 variety (341kg/ ha). Irrespective of the variety, three days irrigation interval registered significantly higher seed yield of 398 kg/ ha compared to irrigation interval of 7, 10 and 12 days. There is no difference in mustard seed yield between varieties when irrigated at 7 or 10 days of interval. Maximum gross returns (Rs. 21050/ha) and net returns (Rs. 12550/ha), and B: C ratio (1.47) was obtained with M-25 variety. Among irrigation intervals, three days interval treatment recorded higher gross returns (Rs. 19900/ha) net returns (Rs. 11400/ha) and B:C (1.34).

COMMERCIAL CROPS**COTTON****(i) Crop Production****RARS, Lam**

- Studies conducted on long-term fertilization in cotton grown in Vertisols after 29 years proved that integrated application of recommended dose of N- P₂O₅ -K₂O (150-60-60 kg ha⁻¹) fertilizers along with FYM @10 t ha⁻¹ recorded highest productivity of seed cotton yield (2265 kg ha⁻¹) with an yield enhancement of 65.8, 17.9, 6.5 and 19.4 per cent, respectively over control at 100, 150 and 200 per cent NPK.

(ii) Crop Protection**RARS, Lam**

- The green boll locule damage (%) was lowest in cypermethrin 25EC, bifenthrin 10 % EC and profenophos 40 EC and superior to rest of the treatments. Highest yield was obtained in cypermethrin 25 EC, profenophos 40 EC and bifenthrin 10 % EC.

- The highest seed cotton yield of 26.75 q/ha was recorded with Kresoxim methyl 44.3% SC @1ml/l by suppressing the progress of *Corynespora* leaf spot during *kharif*, 2020-21 followed by propiconazole 25% EC @ 1ml/l (26.49 q/ha), azoxystrobin 18.2% w/w + difenconazole 11.5% w/w SC @ 1ml/l (26.46 q/ha) and propineb 70% WP @ 2.5 g/l (26.39 q/ha) as against control (19.51 q/ha).

RARS, Nandyal

- In evaluation of new chemicals/ scheduled sprays against pink bollworm, the mean lowest green boll damage, open boll damage and number of pink bollworm larvae per 25 green bolls i.e. 33.56%, 10.66% and 6.67, respectively (boll basis) was recorded when pheromone traps (4/acre) along with sprays of neem oil 1500 ppm @ 5 ml/lit of water, Chlorantraniliprole 18.5 SC @ 0.3ml/lit of water followed by Bifenthrin 10% EC @ 1ml/lit of water sprayed at weekly intervals.

SUGARCANE

(i) Crop Production

RARS, Anakapalle

- In a trial on agronomic evaluation of new promising sugarcane genotypes under irrigated conditions, early maturing sugarcane genotypes 2010A 229 registered higher cane yield (89.1 t/ha) than 2009A107 (84.66 t/ha), 2003A255 (82.6 t/ha) and found on par with 2006 A 223 (85.8 t/ha). Among different nitrogen levels, 150% recommended dose of nitrogen along with FYM @ 25 t/ha (89.3 t/ha) registered significantly higher cane yield as compared to 125% recommended dose of nitrogen (84.0 t/ha) or 100% recommended dose of nitrogen along with FYM @ 25 t/ha.
- In studies on management of late initiated ratoons, working with trash shredder + spraying of Gibberellic acid @ 100 ppm at

one week after ratooning registered significantly higher ratoon cane yield (70.2 t/ha) followed by working with trash shredder (69.8 t/ha) or stubble shaving + spraying Gibberellic acid @ 100 ppm at one week after ratooning (68.4 t/ha) or stubble shaving + lime water spray @ 2.0% within one week after ratooning (66.2 t/ha) compared to other treatmental plots. Control plot registered the lowest cane yield of 58.1 t/ha.

- In a trial on identification of suitable alternate cropping systems for sugarcane under irrigated condition, the results indicated that cane yield was the highest with sole Sugarcane (72.90 t/ha). Greengram-Rice-Maize recorded the next highest cane equivalent yield of 67.35 t/ha.
- Among 15 sugarcane clones tested under waterlogged condition during the grand growth stage (rainy season), sugarcane clones 2015A 230 (83.32 t/ha), 2015A 93 (83.32 t/ha), 2015A 152 (84.19 t/ha) and 2015A 199 (81.59 t/ha) recorded comparatively less per cent dead canes and higher cane yield over other clones. The standards 87A 298 and 83V 15 recorded a cane yield of 72.91 t/ha and 77.25 t/ha, respectively.
- Spraying of Benzalkonium chloride (2000 ppm) + Sodium Meta silicate (1.0%) and spraying of Zinc sulphate @ 2000 ppm + Manganous sulphate @ 2000 ppm on freshly harvested canes recorded higher sucrose per cent of 21.16 and 21.11, respectively over other treatments. These treatments also recorded less per cent dextran (6.15 & 7.45) and per cent reducing sugars (0.19 & 0.20), respectively over other treatments.

ARS, Perumallapalle

- Foliar spray of nano iron oxide @ 1000 ppm along with 100% RDF was found to be optimum dose for obtaining higher cane yields

in sugarcane followed by nano zinc oxide @ 400 ppm with 100% RDF.

- Sugarcane entries viz., 2013 T 16, 2013 T 71, 2014 T 124 and 2013 T 132 were found to be suitable for delayed harvest.
- Sugarcane entry, 2014 T 65 showed tolerance for post harvest deterioration.
- Sugarcane entries, 2015 T 189 and 2015 T 235 were found to be suitable for quality jaggery preparation.

Sugarcane Research Station, Vuyyur

- The mean cumulative data on influence of liquid bio-fertilizers (LBF) alone and in combination with FYM and application at various dates of plantings for four consecutive seasons from 2017-2020 inferred that sugarcane yield was found to be highest with 100% RDF + LBF as basal & at 45 DAP + FYM @ 10t ha⁻¹ in both plant and ratoon crops. Hence, application of bio-fertilizers along with organic matter can be recommended in sugarcane to realize higher yields.

(ii) Crop Protection

Entomology

RARS, Anakapalle

- In studies of fall army worm in sugarcane, fall army worm gravid female was observed to be laying eggs with fecundity of 65-800 eggs. Incubation, total larval period and pupal periods were observed to be from 2-3, 14-16 and 8-9 days, respectively. The total life cycle of male and female was observed to be 30-35 and 32-37 days, respectively.

ARS, Perumallapalle

- The lowest incidence of early shoot borer (6.33%) was recorded in Trash mulching+ earthing up + Detrashing at 20 days interval from 100 DAP. The next lowest was 8.19%

in T₃ (Trash mulching+ earthing up +Detrashing at 100 DAP). In untreated control, 28.10% incidence was recorded. In Trash mulching+ earthing up, granular application of Fipronil/Chlorantraniliprole treatments, 20-21% incidence of ESB was recorded.

Pathology

RARS, Anakapalle

- Out of 56 entries screened for red rot resistance in plug method of inoculation, 25 genotypes viz., CoV 18356, CoV 18357, Co Or 18346, CoA 17321, CoA 17323, CoA 17324, CoC 17336, CoOr 15346, CoA 16321, CoV 16357, 2017A 196, 2017A 205, 2017A 253, 2017A 268, 2017A 340, 2017A 405, 2017A 408, 2017A 68, 2017A 73, 2017A 553, 2016A 232, 2016A 165, 2016A 276, 2016A 286, 2016A 369 and 2016A 743 exhibited resistant reaction to pathotypes (Cf 419, Cf 671 and Cf 997) of red rot fungus.
- Out of 55 genotypes screened against YLD, 26 entries (CoV 18356, CoV 18357, Co Or 18346, CoA 17321, CoA 17323, CoC 16336, CoC 16337, CoC 16339, CoV 16356, CoC 15339, CoOr 15346, 2017A 36, 2017A 103, 2017A 205, 2017A 253, 2017A 340, 2017A 405, 2017A 497, 2017A 73, 2017A 187, 2017A 313, 2017A 351, 2017A 517, 2017A 553, and 2016A 165) were found to be disease free under natural conditions.
- Sett treatment followed by foliar spray with carbendazim @ 0.05% was found effective for the management of top rot disease of sugarcane. The disease incidence was found to be highly influenced by no. of rainy days, morning RH and minimum temperature.

ARS, Perumallapalle

- Sugarcane entries 2016T56, 2016T310, 2016T304, 2016T325, 2016T168, 2016T19,

2016T48 2016T266, 2016T171, 2015T50, 2016T291 were found to be resistant to smut.

Sugarcane Research Station, Vuyyur

- Evaluation of native potential antagonists to manage red rot disease under field conditions for three consecutive seasons revealed that the per cent disease intensity of red rot in sugarcane was drastically reduced with soil application of two native potential antagonists viz., *Trichoderma longibrachiatum* (obtained from rhizosphere of sugarcane) @ 4 kg/ac and *Pseudomonas* sp (obtained from internal stalk tissues of sugarcane) @ 4 kg/ac either alone or in combination.

MESTA

ARS, Amdalavalasa

(i) Crop Production

- Combined application of 5 t/ha of FYM, lime @ 25% lime requirement along with 100% NPK on soil test and targeted yield basis recorded higher fibre yield of mesta (34.35 q/ha) compared to control (6.27 q/ha). Similar increase in Mesta seed yield was also recorded (12.16 q/ha in treatment plot against 0.74 q/ha in control).
- Mesta + Maize (2:1) intercropping system (47.36 q/ha) recorded highest mesta equivalent yield (48.34 q/ha) compared to sole mesta crop (22.93 q/ha).
- Pre-emergence application of pretilachlor 50% EC @ 1.8 l/ha at 5-48 hours after sowing and one hand weeding at 15 days after emergence in Mesta recorded higher weed control efficiency (84.9%) and fibre yield (20.78 q/ha). Among post emergence herbicides, application of Quizalofopethyl 5%EC @ 60g a.i./ha + Ethoxysulfuron 15% WDG @ 50g a.i./ha at 15 DAE + one hand weeding recorded weed control efficiency of 81% and 17.58 q/ha of fibre yield.

(ii) Crop Protection

- Influence of organic manures on incidence of mesta pests revealed that mealy bug incidence was low both in Bio-char@5t/ha and Poultry manure @3t/ha. Highest fibre yield of 22.37 and 22.26 q/ha was observed in recommended dose of fertilizers treatment (60-30-30 kg NPK/ha) and Poultry manure @3t/ha, respectively and were on par with each other.

C. DISCIPLINE ORIENTED RESEARCH

1. Dryland Agriculture

ARS, Anantapuramu

- In an experiment on growth and yield of dryland crops as influenced by subsoiling, higher redgram equivalent yield (REY) was recorded with subsoiling @ 1m distance (560 kg/ha), which was significantly superior to subsoiling @ 2m distance and no subsoiling (control). Among different rainfed crops tested, Redgram crop recorded significantly higher REY (820 kg/ha). Higher net returns (Rs. 41,470/ha) and B:C ratio (3.55) was realized with Redgram in subsoiling @ 1m distance.
- The performance of groundnut, pearl millet and horsegram under delayed sowings due to late onset of monsoon with adoption of real time drought management practices (deep ploughing with chisel plough at every 1mt, adoption of dead furrows and protective irrigation at critical stages with farm pond water, in red soils of Ananthapur) recorded higher soil moisture and relative water content as compared to control in all tested crops. Real time drought management recorded higher pod yield in Groundnut (385 kg/ha), higher seed yield in pearl millet (864 kg/ha) and horsegram (756 kg/ha). However, when compared to all tested crops, horsegram crop registered higher net returns (Rs. 12,410/ha)

and benefit cost ratio (2.05) with real time drought management treatment.

- Rainbow cropping/mechanized strip cropping system according to crop height in ascending order with Redgram (1.8m), Castor (1.8m), Sorghum (2.8m), Bajra (2.4m), Foxtail millet (2.4m), Horsegram (2.4m), Groundnut (2.4m) were sown with mechanized equipment. Higher Groundnut equivalent yield was recorded (2075 kg/ac) in farmer's method and navadhanya paddathi has recorded groundnut equivalent yields of 1185 kg/ha during *kharif* 2020.
- The crop residue incorporation along with microbial consortia (RDF + 5 t/ha FYM) significantly influenced the fertility status of rainfed alfisols over three years of incorporation of crop residues. Physical properties of soil i.e pore space (50 % to 66.8%) and water holding increased (33 % to 51%) increased in addition to yield improvement of foxtail millet (3183 kg/ha), redgram (1334 kg/ha) bajra (3696 kg/ha) and groundnut (1809 kg/ha).

RARS, Tirupati

- Among different contingent crops sown during II fortnight of August (sown on 26-08-2020), castor recorded highest net returns of Rs.50,100/- followed by field bean with net returns of Rs.48,270/-. However highest B:C ratio recorded with field bean (3.04) fb castor (2.7). Among different contingent crops sown during I fortnight of September (sown on 09-09-2020) castor recorded highest net returns (Rs 93,150/ha) and B:C ratio (4.3) fb field bean (Rs 53,910/ha).

2. Cropping Systems

RARS, Maruteru

- Studies on identification of cropping systems module revealed that, system net returns were

highest with rice-sweet corn cropping system (Rs. 2,31,707/- per ha) followed by rice-green gram (Rs. 78,810/- per ha). Rice-black gram cropping system was having an advantage for soil health module as well as family nutrition module. In case of income enhancement module, rice-sweet corn was more remunerative than any other module. Rice-fodder jowar was the best cropping system module to meet the livestock nutrition requirement.

RARS, Chintapalle

- Evaluation of rice-based cropping systems for higher productivity with non-traditional crops in HAT zone revealed that groundnut (61.6 q ha⁻¹), maize (42.0 q ha⁻¹) and finger millet (41.9 q ha⁻¹) crops recorded more system productivity than the remaining crops.

ARS, Darsi

- Among the suitable millet-pulse based cropping sequence for rainfed regions, the highest system productivity in terms of redgram equivalent yield was recorded with korra-green gram (2067 kg ha⁻¹) and pearl millet-cowpea (1766 kg ha⁻¹) sequence under rainfed conditions compared to sole redgram (891 kg ha⁻¹).

3. Integrated Farming Systems

RARS, Maruteru

- Studies on Development of region-specific IFS model was started during *kharif*, 2018 in an area of 1.5 acres at RARS, Maruteru and various components of IFS are distributed like crop component 45%, Horticulture 29%, Poultry 1%, Dairy 4%, Fish component 14% and Miscellaneous area for threshing floor etc., 7 per cent. Production and income generated from each component of IFS unit year wise and from 2019 onwards value addition was included for *kharif* produce of



Integrated Farming System at RARS, Maruteru

rice variety BPT 5204 grown under organic production system. During the year 2018 an amount of Rs. 57,897/-, in 2019 Rs. 57,519 and during 2020 Rs. 1,30,524/- with a total of Rs. 2,45,940/- was realized from various components of wetland IFS unit grown in 1.5 acres. Among all the components in IFS unit, dairy component share was 44% and Horticulture and Fish component share was 13% each. Value addition itself contributes 12% of overall profit. This clearly shows that in wet land IFS model unit dairy, fishery and horticulture make 70% of the overall profits and these three components integration becomes more viable and sustainable. Without much effort, value addition like selling of milled rice was much more economical and ensures additional profits.

ARS, Vizianagaram

- On-farm evaluation of farming system modules for improving profitability and livelihood of small and marginal farmers conducted at 12 locations during 2020-2021 revealed that, gross income in all farming systems increased when compared to only cropping system. Gross income increased in

crop – poultry farming system due to different modules from Rs. 68,584/household to Rs.1,08,052/household with B: C ratio 2.24 and Gross income increased in crop – dairy farming system due to different modules from Rs. 79,440/household to Rs. 1,17,143/household with B: C ratio 2.30. Gross income increased in crop – dairy -poultry farming system due to different modules from Rs.83,478/household to Rs.1,42,146 / household with B: C ratio 2.48.

- Experiments on diversification of existing farming systems under marginal household conditions conducted at 24 locations during 2020- 2021 revealed that net benefit due to cropping system diversification, livestock diversification and product diversification were Rs.23,024, Rs.36,540 and Rs. 6,080 with intervention cost of Rs. 3,750, Rs. 5,000, and Rs. 500 respectively. The total system gross income increased due to different diversification from Rs.2,39,982 to Rs. 3,05,626 with total intervention cost of Rs.9,250. The total man days for family of wife & husband increased from 334 to 392 and 58 man day additional employment

generated.

ARS, Anantapuramu

- Strengthening traditional IFS for marginal, small and medium farm holdings under crop + small ruminants-based farming system in rainfed situation revealed that, improved practice (improved fodder sorghum + rearing of ram lambs with grazing + concentrate feeding @ 125 g/day for 4 months) recorded higher green fodder yield, final weight of ram lamb and net returns compared to farmers practice with respect to marginal and small farmer categories. On an average additional net returns were Rs.1735, 1805 and 2670 per ha with respect to marginal, small and medium farmers, respectively.
- On-farm demonstration on strengthening traditional IFS for marginal, small and medium farm holdings under crop + small ruminants-based farming system in partially irrigated situation results revealed that, with respect to marginal and small farmers improved practice (Groundnut var. Dharani + rearing of 2 ram lambs with grazing + GN haulm 300 g + grain feeding 100 g/day + licking of mineral block) has recorded higher net returns of Rs. 81,878 and 84,238/ha respectively, and in case of medium farmers improved practice (Groundnut var. Kadiri Harithandhra + rearing of 5 ram lambs with grazing + GN haulm 300 g + grain feeding 100 g/day + licking of mineral block) resulted in higher net returns of Rs.1,01,554/ha compared to farmers practice.

4. Organic Farming

Rice

RARS, Nandyal

- In organic farming research in rice grown in vertisols under K.C. Canal ayacut, grain yield of organic practice was 4865 kg ha⁻¹ which

was 16% less compared with the inorganic rice cultivation method (5,832 kg ha⁻¹). Organic carbon increased from 0.43 to 0.59% in organic and 0.27 to 0.36% in inorganic practices. Higher net returns (Rs 76,080/ha) were recorded in inorganic compared to organic rice (Rs 65733/ha).

RARS, Maruteru

- After 13 years of experimentation during *kharif* 2020, application of organic package of practices recorded maximum grain yield of 5,920 kg/ha and straw yield 6,852 kg/ha, than inorganic package of practices (grain yield 4,925 kg/ha and straw yield 5,910 kg/ha) with MTU 1262 variety. However, during *rabi* 2020-21, inorganic treatment plot recorded higher grain yield (6,126 kg/ha) and straw yield (9,366 kg/ha) compared to organic treatment plot (grain yield 5,255 kg/ha and straw yield 8,486 kg/ha).

ARS, Ragolu

- In a trial on organic rice, grain yield of 6384 kg/ha was recorded with application of NPK @ 120-60-50 kg/ha + ZnSO₄ @ 50 kg/ha with the variety Sridhruthi (MTU 1121), whereas organic production practices gave 5685 kg/ha and green manuring + application of NPK @ 80-60-50kg/ha (INM approach) recorded 5709 kg/ha and all the treatments were at higher compared to control (No fertilizer or manurial application) which recorded the lowest yield of 4731 kg/ha.

ARS, Bapatla

- Significant difference was observed in grain yield and straw yield of rice in inorganic and organic treated plots. The highest grain (4861kg ha⁻¹) and straw yield (5882kg ha⁻¹) was observed in inorganic treatment and lowest yields were recorded in organic treated plots.

ARS, Garikapadu

- During *kharif* 2020, inorganic treatment in rice recorded highest yield attributes and grain yield (6,540 kg/ha) compared to organic treatments (5,460 kg/ha). Whereas, organic package recorded higher net returns by Rs.2185/ha compared to inorganic package due to higher remunerative price. The cost benefit ratio of organic package was found to be higher with 2.5 when compared to inorganic package (2.2).

Finger Millet

ARS, Vizianagaram

- The performance of organic finger millet in comparison with conventional method of cultivation inferred that after 7 years of experimentation, the grain yields and straw yields in inorganic treatment plot (2694 kg/ha) were significantly on par with organic treated plot (2577 kg/ha) with B:C ratio of 1.65:1 in organic plot and 2.20:1 in inorganic plot.

ARS, Perumallapalle

- Organic farming of finger millet recorded on par grain yield after six years with 100% RDF (31.9 q/ha) and organic manures (29.1 q/ha) during *kharif*, 2020. When compared to initial soil fertility status 2.24 and 6.27% of depletion in available N, 12.08 and 14.43% of depletion in available potassium were recorded with organic manures and 100% RDF, respectively. Organic carbon was increased from 0.41 to 0.49% with organic manures and 0.41 to 0.47% with 100% RDF.

Little Millet (*Sama*)

ARS, Vizianagaram

- After 6 years of the experiment, the grain yields of littlemillet in organic treatment plot (833 kg/ha) recorded a significant increase

of 9.46% over inorganic treatment plot (761 kg/ha) with B:C ratio of 1.34 in organic plot and 1.81 in inorganic plot. The soil available N, Fe and Mn have shown significant increase in the organic plot compared to the inorganic plot, whereas the soil available P_2O_5 , K_2O , Zn and Cu have shown an increase in the organic plot but it was not statistically significant.

Groundnut

ARS, Anantapuramu

- Long term study on organic farming for 19 years in rainfed Groundnut at ARS Anantapur from 2002 – 2020 revealed that pod yield ranged from 233 – 2140 kg/ha under organic farming and 146 – 1591 kg/ha under inorganic farming. During 2019-20, rainfall of 623.0 mm was received during the crop growth period. The highest pod yield was recorded in inorganic farming (624 kg/ha) compared to organic farming (417 kg/ha). The organic carbon recorded was 0.51% in organic whereas in inorganic it was indicating the organic carbon build up is slowly growing.

Sesame

ARS, Yellamanchili

- Studies on organic farming practices in sesame revealed that organic plot recorded lower growth parameters (plant height -93.5 cm, no.of branches per plant-4.1, no. of capsules per plant- 71.4) as compared to inorganic treatment. Seed yield of organic treatment was 545 kg/ha which was 18.29% lesser as compared to 667 kg/ha (inorganic).

Sugercane

ARS, Perumallapalle

- No significant difference was observed in cane yield after 8 years with application of 100% RDF (125 t/ha) and organic manure

(121 t/ha). When compared to initial soil fertility status (2012), 15.57% and 10.82% build up of available N were recorded with organic manures and 100% RDF, respectively. Organic carbon increased from 0.34 to 0.49% with organic manures and 0.34 to 0.47% with 100% RDF.

RARS, Anakapalle

- Studies on Organic farming research in sugarcane revealed that cane and sugar yields got stabilized in organic farming after five years of experimentation and recorded comparable yields as that of inorganic farming from 6th year onwards. While, during ninth year, additional cane and sugar yields to the extent of 5 and 6 %, respectively were obtained in organic farming with superior quality over inorganic farming. Soil organic carbon status showed a gradual increase and organic farming had higher soil organic carbon per cent than inorganic.

5. Natural Farming

- In the state of Andhra Pradesh, a network project on influence of natural farming on soil properties, crop protection and production of quality produce in different cropping systems was initiated in Acharya N.G. Ranga Agricultural University. The project was initiated during 2018-19 and three treatments were imposed viz., T1: Integrated Crop Management (ICM) as per ANGRAU recommendation, T2: Sahaja mariyu Sendriya Vyavasaya Vidhanalu (SSVV) as per DOA, T3 : Subash Palekar Natural Farming method (SPNF/NF) (as per the book “Pettubadileni Prakrithi Vyavasayam Cheyadam Ela by Subhash Palekar Krishi).

RARS, Maruteru – Rice

- Studies on network experiment on Natural Farming in Rice revealed that, higher grain

yield (6540 kg ha⁻¹ in *kharif*, 2020 with MTU 1075 was recorded in ICM plot which is 9.78% higher than Sahaja mariyu sendriya vyavasaya vidhanalu of DOA and 8.62% higher than Palekar method of natural farming.

ARS, Nellore – Rice

- Pooled results of *rabi* 2018, 2019 & 2020 revealed that, highest grain yield was obtained with ICM practice (7379 kg/ha) followed by SPNF (3479 kg/ha) and Sahajamariyu Sendriya Vyavasaya Vidhanalu (SSVV) (3306 Kg/ha) which were in turn on par with each other. There was 55.9% yield reduction in SSVV and 54.7% yield reduction in SPNF concept when compared with ANGRAU - ICM practice. Highest B:C ratio of 1.54 was recorded with ICM practice followed by SPNF (1.51). (Sale price of inorganic rice grain: Rs 15 /kg, Organic: Rs. 30/kg).

RARS, Lam – Cotton + Redgram (7:1) and Redgram + Greengram

- In the natural farming on cotton (NDLH 1938), ICM package (2251 kg ha⁻¹) resulted in an increase of 32% kapas yield over Palekar package (1534 kg ha⁻¹) and 35 % over Department of Agriculture practice (1456 kg ha⁻¹).
- During 2020-21, yield of redgram was higher in ICM plot (1545 kg ha⁻¹) than SSVV (1313 kg ha⁻¹) and SPNF (1188 kg ha⁻¹). The grain yield of intercrop greengram was damaged due to continuous S-W monsoon rains. The lowest cost of cultivation was observed in ICM treatment (Rs.70428/-) followed by SPNF (Rs.79,140/-) and SSVV (Rs. 1,36,845/-). The gross returns, net returns and B:C ratio were more with ICM (Rs.1,15,875/-, Rs.69,887/- and 1.52) than SSVV (Rs.98,475/-, Rs.17477/- and 0.22) and SPNF (Rs.89,100/-, Rs.35,482/- and 0.66).

RARS, Tirupati – Groundnut + Redgram (7:1)

- During *kharif* 2020, highest pod yield of groundnut (1922 kg/ha) was recorded with ICM which was on par with SSVV treatment (1913 kg/ha). Both were significantly superior over Palekar concept (1694 kg/ha).
- The highest zinc content [38.67 ppm] was recorded in ICM followed by SSVV [30.36ppm] and lowest zinc content [27.26] was recorded in Palekar concept. Oil % and Protein % was not significantly different among the three treatments.

RARS, Anakapalle - Sugarcane

- Among the three methods of cultivation, higher tiller population, stalk population, yield attributes and yield were higher with ICM (80.7 t ha⁻¹) followed by SSVV (68.2 t ha⁻¹), while the lowest cane yield (40.0 t ha⁻¹) was recorded with SPNF.
- Soil beneficial microbial population (Azotobactor and Azospirillum) at different growth stages was higher in SSVV followed by ICM whereas phosphorus solubilizers population was higher in ZBNF plots.



Integrated Crop Management (ICM)

Sahaja mariyu Sendriya Vyavasaya Vidhanalu (SSVV)

Subash Palekar Natural Farming method (SPNF)

RARS, Chintapalle - Maize-Rajmash cropping system

- During *kharif* 2020, ICM had recorded 38.9% and 24.4% higher maize yields over SSVV and SPNF practices respectively, after raising preceding exhaust crop (maize). Yield

recorded in ICM, SSVV and SPNF package were 53.5, 32.4 and 40.1 q ha⁻¹, respectively.

- After harvesting of Maize crop, soil properties like available N (226 kg ha⁻¹), avail P (14.2 kg ha⁻¹) and available K (229 kg ha⁻¹) recorded lowest in ICM compared to organic

(SSVV) farming and SPNF. Water holding capacity was highest in SPNF (40.1%) and organic (SSVV) (39.8%). At the time of harvest, *Rhizobium* population increased in SPNF (4×10^6 CFU) and organic (SSVV) (8×10^6 CFU) compared to initial soil samples data at the time of sowing.

- Per cent infestation of cobs by fall armyworm in ICM, SSVV and SPNF packages were 12.67, 21.59 and 28.06, respectively. Cost Benefit Ratio (CBR) recorded in ICM, SSVV and SPNF package were 1:1.82, 1:1.47 and 1:1.18, respectively.
- Rajmash recorded 57.5% higher yields and B:C ratio (1.05) with ICM compared to SSVV and 66.2% more than natural farming practice.

RARS, Nandyal – Foxtail millet-bengalgram sequence

- Higher foxtail millet grain yield (977 kg/ha) was recorded in Integrated Crop Management when compared to SSVV of Department of Agriculture (732 kg/ha) and (SPNF) Palekar method (624 kg/ha). Chickpea grain yield (2140 kg/ha) was also higher in Integrated Crop Management when

compared to SSVV of Department of Agriculture (1812 kg/ha) and Palekar (SPNF) method (1598 kg/ha). Higher net returns (Rs 61,402/ha) and BCR (1.93) were recorded in Integrated Crop Management when compared to DOA (Rs.27,352/ha and BCR of 1.30) and Palekar method (Rs 23,208/ha and BCR of 1.29).

6. Saline Water Management

Saline Water Scheme, Bapatla

- Among different plantations studied, casuarina was found to be tolerant at high soil salinity (15.0 dS m^{-1}) and subabul in alkaline soils (pH 9.0).
- Foliar application of proline (0.6g/l) at vegetative growth phase of sorghum in saline soils increased the grain yield by 15.0% (3380 kg ha^{-1}) as compared to control (2925 kg ha^{-1}).
- Yield reduction (21.0%) was observed in chilli with use of saline irrigation water at water salinity of 4.0 dS m^{-1} and it was further reduced to 34.6 and 57.0% at water salinity of 6.0 and 8.0 dS m^{-1} , respectively. The highest yield of 28.6 t ha^{-1} (green pods) was recorded with good quality water ($0.6 \text{ EC}_{\text{iw}}$).

Table 21. Soil Testing and soil Health Cards Distribution During 2020-'21

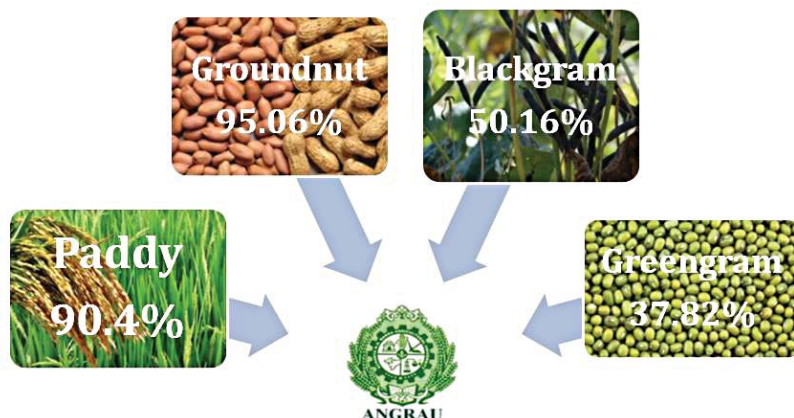
S. No.	Particulars of analysis	No. of samples analyzed					Total
		RARS Tirupati	RARS, Anaka-palle	RARS Lam	ARS, Utukur	ARS Ananthapur	
1.	Micronutrient analysis in soils of AP	1300	107	-	50	68	525
2.	Samples received from farmers on their own	124	30	187	310	116	767
3.	Samples received from other departments / research stations of ANGRAU	1700	97	630	-	604	031
	Total no. of samples tested in 2020-21	3124	234	817	360	788	5323

7. Spread of ANGRAU Varieties

Coverage of ANGRAU varieties in the state of Andhra Pradesh during the year 2020-21 as per the data of Commissionerate and Department of Agriculture, Government of Andhra Pradesh is as follows.

PADDY

Out of all paddy varieties grown in the state of AP, ANGRAU released varieties occupy 90.04% of total rice area. The spread of ANGRAU varieties in other states is also significant, in addition to spread of ANGRAU Mega Variety BPT 5204 in other countries.



% area in Andhra Pradesh (2020-21) with ANGRAU released varieties

ANGRAU released Variety	Total Extent in AP (ha)	% Area in AP
PADDY		
BPT 5204	494693	18.46
MTU 1121	472337	17.62
MTU 7029	321572	12.00
MTU 1061	213000	7.95
NLR 34449	183504	6.85
MTU 1010	96755	3.61
RGL 2537	84409	3.15
MTU 3626	76628	2.86
MTU 1064	75627	2.82
NDLR-7	39515	1.47
MTU 1156	34106	1.27
NLR 3354	33626	1.25
NLR 145	20747	0.77
MTU 1153	16966	0.63
BPT 3291	16259	0.61
NLR 33892	13743	0.51

ANGRAU released Variety	Total Extent in AP (ha)	% Area in AP
BPT 2270	12739	0.48
MTU 1262	12275	0.46
BPT 2231	12114	0.45
BPT 2846	11744	0.44
NLR 9674	9770	0.36
Other ANGRAU Varieties	161284	6.02
TOTAL	2413414	90.04
BLACKGRAM		
LBG-752	114891	30.80
TBG 104	41292	11.07
LBG 645	9715	2.60
LBG 451	7571	2.03
LBG 648	6619	1.77
LBG 746	3340	0.90
LBG 787	3008	0.81
GBG-1	679	0.18
TOTAL	187117	50.16
GREENGRAM		
LGG 460	27069	29.62
LGG 462	4543	4.97
LGG 407	2950	3.23
TOTAL	34562	37.82
GROUNDNUT		
K-6	785387	90.15
Narayani	36094	4.14
K-9	3802	0.44
Kadiri-1812	1265	0.15
Dharani	1004	0.12
Jyothi	394	0.05
K-7 (Bold)	164	0.02
TOTAL	8,28,154	95.06

The crop improvement program on pulses is very strong in ANGRAU, and the ANGRAU released Blackgram, Greengram and Redgram varieties are spread over all states in India.

- About 50.16% of Blackgram area in AP is occupied with ANGRAU released varieties, and the most popular LBG-752 occupies 30.8% of the total area.
- About 37.82% of Greengram area in AP is with ANGRAU released varieties, and the most popular LGG 460 occupies 29.62% of the total area.
- ANGRAU released Redgram varieties, LRG-41 and LRG-52 that are very popular among redgram farmers of the state.



Groundnut

The crop improvement program on Groundnut at Agricultural Research Station, Kadiri of Ananthapuramu district is very strong in ANGRAU, and the ANGRAU released K-6 is spread over all states in India.

8. Seed Production in ANGRAU

A quantity of 21021.1 quintals of breeder seed was produced during 2020-21. Among the various crops, large quantity of groundnut breeder seed 16,773 quintals was produced covering the major varieties viz., Kadiri Lepakshi, K6, Dharani,

Narayani, Kadiri Harithandra, Kadiri Amaravati and K9 during 2020-21. A sizeable quantity of breeder seed (2947.8 q) of rice particularly in 12 varieties viz., BPT 5204, MTU 1061, MTU 1010, MTU 7029, MTU 1121, MTU 1156, MTU 1075, MTU 1153, NLR 34449, BPT 3291, RGL 2537 and NDLR 7 was also produced during 2020-21. In addition, 18467.9, 400.68 and 3376.01 quintals of foundation, certified and truthful label seed was produced in different crops during the year 2020-21. A total of **43,265.3** quintals of all classes of seed was produced by ANGRAU under quality seed production programme during 2020-21.

Table 22. Seed Production Programme in ANGRAU during 2020-21

S No.	Crop(s)	Breeder seed (quintals)	Foundation Seed (quintals)	Certofoed Seed (quintals)	TL Seed (quintals)
1.	Rice	2947.79	16445.0	202.0	20.0
2.	Sorghum	0	0	0	701
3.	Ragi	18.92	49.10	0	8.5
4.	Bajra	0.40	3.0	0	0
5.	Foxtail millet	365.0	118.0	0	657.0
6.	Redgram	37.25	923.27	0	261.23
7.	Greengram	18.00	209.76	0	8.04
8.	Blackgram	136.5	440.3	198.68	105.0
9.	Bengalgram	722.0	0	0	750.0
10.	Cowpea	0	6.95	0	0
11.	Horsegram	0	7.5	0	25.14
12.	Groundnut	16773.0	191.47	0	612.0
13.	Sunflower	0	0	0	10.0
14.	Safflower	0	0	0	10.0
15.	Sesamum	2.35	10.75	0	208.1
16.	Niger	0	4.7	0	0
17.	Mesta	0	9.0	0	0
18.	Sunhemp	0	9.10	0	0
	Total	21021.21	18467.9	400.68	3376.01

9. Biotechnology

- Cloned and sequenced full length genomes of MYMV-A from blackgram, MYMV-A and MYMIV-A from greengram, HgYMV-A and HgYMV B from horsegram, and HgYMV from pigeonpea.
- Sequence analysis shows that of MYMV-B of greengram isolate (Tirupati) share 73.0% identity at nucleotide level with blackgram isolate of MYMV-B (Tirupati- KF947526) and 94-96.5% homology with greengram isolates.
- Both the species of begomo viruses were distributed through out AP in *rabi* and summer seasons when tested by PCR. However, MYMIV is more predominant than MYMV.

10. Nanotechnology**RARS, Tirupati**

- Application (foliar spray) of nanoscale oxide of zinc @ 150-200 ppm (twice at 25 & 40 DAS) significantly increased the yield of groundnut to the tune of 9-12% compared to zinc sulphate foliar application @2000 ppm (twice- at 30 & 60 DAS).
- Foliar application of nanoscale calcium oxide @ 200 - 400 ppm (twice- at 30 & 60 DAS) during the crop period significantly increased the pod yield of groundnut to the tune of 9-10% compared to the soil application of gypsum @ 500 kg /ha.

11. Biofertilizers

Agricultural Research Station, Amaravathi

- Developed KRB bio fertilizer to utilize the soil potash efficiently and reduce the costs on potassium fertilizers

- Developed PPFM inoculant for use in climate resilient agriculture.
- Application of biofertilizers along with organic amendments enhanced the yield of chickpea on par with 100% RDF.

Table 23. Details of Biofertilizers Production in ANGRAU during 2020-'21

S. No.	Name of the Unit	Installed Capacity per Annum (MTs)	Powder biofertilizers Production (MTs)	Liquid biofertilizers Production (MTs)	Bio fertilizers Produced
1.	ARS, Amaravathi	350	22.13	25.48	<i>Azospirillum</i> , <i>Azotobacter</i> , <i>Rhizobium</i> , PSB, VAM
2.	RARS, Anakapalle	80	0.50	6.50	<i>Azospirillum</i> , <i>Azotobacter</i> , <i>Rhizobium</i> and PSB
3.	RARS, Tirupati	200	45.0	—	<i>Azospirillum</i> , <i>Azotobacter</i> , <i>Rhizobium</i> and PSB
4.	ARS, Utukur, Kadapa	80	5.58	—	<i>Rhizobium</i> , PSB, KSB, <i>Azospirillum</i>
	Total	710	73.21	31.98	

PSB - Phosphorous Solubilizing Bacteria; VAM – Vesicular arbuscular Mycorrhizae;
KSB - Potash Solubilizing bacteria

12. Biological Control

RARS, Anakapalle

- Large scale demonstrations were conducted on management of maize fall army worm in Srikakulam, Vizianagaram and Visakhapatnam districts in 20 ha with a package of field release (two times) of *Trichogramma chilonis* @ 20,000 egg parasitoids per acre per release at weekly interval from 7 days after seedling emergence followed by spraying of *Bacillus thuringiensis* @ 2 ml/lit or *Metarhizium anisopliae* @ 5 g/lit 2-3 times from 20 days after seedling emergence effectively reduced Fall army worm damage and resulted in

increased kernel yield (26.8 -27.8%).

- Sugarcane sett treatment at planting and spraying of endophytic entomopathogenic fungi *Metarhizium anisopliae* (Ma4) and *Beauveria bassiana* (Bb23) @ 5 g/l three times at 14 days interval from 28 DAP was effective in the management of sugarcane early shoot borer and internode borer with higher cane yield (52.2-62.7%) .
- Spraying of Bt @ 2 ml/lit two times at flowering and pod formation stage effectively controlled *Maruca* pod borer in greengram and gave higher grain yields (74.75%).
- Large scale demonstrations conducted in

orchards of coconut (15 ha) in Srikakulam, Vizianagram and Visakhapatnam districts for the management of Coconut Rugose spiralling whitefly by sparying entomopathogenic fungi, *Isaria fumosorosea* @ 5 g/lit , two times at

15 day interval and release of parasite, *Encarsia guadeloupae* was found effective in reducing rugose whitely in coconut orchards.

Table 24. Production of Biocontrol agents in ANGRAU during 2020-'21

Particulars	Qty. produced
RARS, Anakapalle	
<i>Trichogramma chilonis</i> as Trichocards	2000 No.
<i>Trichogramma japonicum</i> as Trichocards	500 No.
Temperature tolerant <i>Trichogramma chilonis</i>	130 No.
<i>Trichogramma pretiosum</i>	50 No.
<i>Metarhizium anisopliae</i> (NBAIR- Ma35)	60 Kg
<i>Metarhizium anisopliae</i> (NBAIR Ma4)	10 Kg
<i>Isaria fumosorosea</i> (NBAIR- Pfu5)	41 Kg
<i>Beauveria bassiana</i> (NBAIR-Bb45)	2 Kg
<i>Metarhizium rileyi</i> (AKPNr1)	4 Kg
SRS, Vuyyur	
<i>Trichogramma chilonis</i> as Trichocards	250 cards
<i>Trichogramma japonicum</i> as Trichocards	28 cards

13. Vertebrate Pest Management

AINP on Vertebrate Pest Management, RARS, Maruteru

- Godavari delta of Andhra Pradesh has witnessed the minor rodent outbreak during 2020- 2021. Heavy rains received during the season have favoured the abnormal breeding of bandicoots with 8-12% tiller damage to rice crop in farmers' fields.
- Bromadiolone 0.005% applied as liquid baits have recorded higher intake and control success over the market available ready to use rodenticide formulations. The rodent control success was 92.4% as against 22.4% in regular broken rice based bait.
- Trap Barrier System (TBS) was effective against lesser bandicoots in rice nurseries and main field as well. The trap catches were 58 from nurseries and 156 from main field at research station. TBS has offered 100% protection against bandicoots in nursery as well as in main field. Ten (10) FLDs were organized on TBS in Godavari delta by extension units.
- Bear dress acoustic was found highly effective in scaring the macaques from crop fields with revisiting periods of more than a week. Nylon netting upto 7ft height around the maize crop has resulted 70% protection against macaques, whereas low cost solar fencing (Rs. 20,000/- per 5.0 acres) has

offered upto 90% protection against bonnet macaques in maize, cotton, rice, red gram and banana crops.

14. Pesticide Residue Studies

AINP on Pesticide Residues (Voluntary Centre), RARS, Tirupati

- Developed multi-residue analysis protocols for 6 pesticides including methamidophos, acephate, chlorpyrifos, profenophos, tebuconazole and cypermethrin in GCMS/MS at retention time of 4.614, 5.78, 9.932, 11.672, 13.448 and 16.842 min, respectively. The compounds were further identified based on m/z. Linearity was calculated by 5 different concentrations and R² values ranged between 98.86 to 99.99 per cent for these compounds. Recovery per cent was calculated in okra and green chill matrix which lied between 95.05 to 108.24 per cent for different pesticides. 79.70 to 109.1 per cent, respectively. In the development of multi-residue analysis protocols with Ultra HPLC four compounds viz., acetamiprid, imidacloprid, thiamethoxam and carbendazim were identified at retention time of 8.815, 6.815, 5.203 and 4.035min, respectively in ammonium formate buffer system at low pressure gradient. The linearity was analysed with 0.1, 0.25, 0.5, 0.75 and 1.0ppm and recoveries was made at 0.5 and 0.75ppm. the recovery for thiamethoxam was 100.41 and acetamiprid was 83.88 per cent in okra matrix.
- Developed multi-residue analysis protocols in tandem Gas chromatography mass spectrophotometry (GCMS/MS) for 13 organophosphate compounds. The compounds were further confirmed with their mass/ charge.
- Soil samples from Eluru region were analyzed for the pesticide residues in view of

mysterious disease noticed in Eluru, West Godavari. Organophosphate insecticides viz., monocrotophos, chlorpyrifos, quinalphos, acephate, methamidophos, phorate, dichlorvas, dimethoate, triazophos, phosalone, phosphamidon, profenophos were analyzed in GCMS. The residue of quinalphos was detected in only one sample i.e., sample No.12 (0.02 mg/kg), whereas there is no maximum residue limit in soil for quinalphos. Other insecticides were below the limit of quantification.

15. Honey Bees & Pollinators

AICRP on Honey Bee & Pollinators, ARS, Vijayarai

- Among the stingless bee hive boxes fabricated and evaluated, 18x24x17 cm size boxes have highest brood rearing (1092 cm³). Highest honey pots were recorded in 37x10x10 cm (446.25 cm³) bee hive box during March, 2021, followed by January, 2021 (384.00 cm³) in 18x24x17 cm bee hive box. Highest pollen pots were recorded in 37x10x10 cm bee hive box during March, 2021 (446.25 cm³). Highest incoming forages with nectar loads were recorded in 37x10x10 cm bee hive box at 1.00 pm (8.57/2 min) whereas, highest pollen loads recorded during January, 2021 (5.14/2 min cm) in 32x12x12 cm bee hive box.
- After being fed with yeast (41.8 %) dehusked parched gram (4.2 %), skimmed milk powder (4.00 %) in 50% sugar syrup to *A. cerana* colonies (5 colonies) substantial increase in egg laying (340 cm³) was recorded during August & September months. Honey stores were also recorded (60 cm² average) along with stored pollen substitute in these colonies. It could prevent swarming and absconding of *A. cerana* colonies in apiary during pollen death period (August to September, 2020)

- In an evaluation for types of materials used for nest construction by different pollinators viz., *Saccharum* sp, *Ipomea* sp. and castor sticks, highest per cent of nest construction was recorded in *Saccharum* sticks by *Megachili* sp during February, 2021 (5.28 %) followed by January, 2021 (4.35 %).

16. Storage Pest Management

Post Harvest Technology Centre, Bapatla

- The total life cycle of warehouse moth, *Ephestia cautella* was found varying from 24 to 40 days on dehulled foxtail millet. Among the ecofriendly methods tested for its management, the total emergence of moths was negligible in the treatments of Parad @ 4 tablets/kg (6.33 Nos.) followed by camphor @ 2 g/kg (36 Nos.) and cloves 10 g/kg (37 Nos.) at 120 days after release of the insects.
- Among the botanical fumigants against stored grain insect pests, essential oils of eucalyptus and orange registered very good fumigant action at all the doses tested against lesser grain borer in sorghum and at 1.5 mL/wooden cube against red flour beetle in rice. Thus, use of fumigant botanical oils without direct mixing to grain may be economical for protecting from storage insect pests.

17. Agroforestry

ARS, Kavali

- Effect of different plant spacings on growth and yield of red sanders (*Pterocarpus santalinus* Linn. F.) revealed that spacing of 3m x 2m recorded higher plant height of 4.10m and was on a par with 3mx3m and 5mx3m spacing and these were significantly superior to rest of the treatments.
- Performance of acid lime varieties in lateritic soils of Andhra Pradesh indicated that the variety Petlur Selection-1 recorded the highest plant

height of 3.15 m followed by variety Balaji (2.01 m) and both were significantly superior to variety Pramalini.

18. Agrometeorology

RARS, Tirupati

- In studies on Crop weather disease relationship of blackgram, sowing of blackgram during 1st FN of October gave highest yield and TBG-104 and GBG-1 performed good compared to other varieties.
- The max. temperature of 28-29°C, min. temperature of 19-19.5°C with diurnal variation of 7-9°C and RH of 61-62% with difference RH of 21-27% between morning and afternoon coupled with 20 to 50 mm rainfall favoured the whitefly incidence whereas maximum temperature of 30-31°C, minimum temperature of 17-18°C with diurnal variation of 12-13°C and afternoon RH of 43-47% coupled with difference RH of 40-41% between morning and afternoon favoured the peak incidence of pest causing YMV.

RARS, Lam

- In accordance to the value added weather forecast received from IMD, prepared the agro advisories and disseminated to the farmer groups and RBKs in the blocks. Further, during *kharif* (175), *rabi* (130), winter (85) and summer (114) agromet advisory bulletins were prepared and disseminated.
- Value added forecast received from IMD to the AMF unit, Lam was validated month wise & season wise with regard to rainfall forecast and that the correctness of forecast issued for Guntur district was 85, 82, 78 and 83 during *kharif*, *rabi*, winter and summer respectively and the usability

was 8, 10, 13 and 11 but skill score of forecast issued was 89, 84, 80 and 85, respectively.

19. Agro Economic Research

RARS, Lam

- The problems were identified in relation to production due to Covid-19 lockdown viz., increase in labour wage rate (66.82%) followed by less labour availability (37.50%) and delay in farm activities due to restriction of movements (34.09%). In case of marketing, majority of farmers faced constraints viz., lack of transportation facilities which forced them to sell crop produce for lesser price and sometimes milk-based products were damaged due to limited hours of selling (64.77%) followed by 5-10 % reduction in the prices for all the products that are transacted at farm gates due to non-availability of transportation (54.54%) and non-availability of market yards and restricted movements lead to high dependency of farmers on middleman for marketing worsened the situation of farmers (43.18%).
- Total cost of cultivation of ZBNF paddy was 40% less than the traditional practice and 46% less than organic paddy. The return on rupee of investment of organic paddy was 0.82, ZBNF paddy was 0.67 when compared to traditional farmer practice of 0.66.

RARS, Anakapalle

- Costs of cultivation (per acre) for important crops in North Coastal Zone were worked out for the year 2020-21. In sugarcane, under irrigated conditions, in plant crop, total cost of cultivation was Rs. 1,07,051 (out of which, Rs 74,875 was operating cost). Benefit Cost Ratio (BCR) for operating cost was 0.99 and for total cost was 0.77. While, in ratoon crop, the total cost of cultivation was Rs. 79,166 (out of which Rs. 54,988 was operating cost).

BCR for operating cost was 1.35 and for total cost BCR was 0.94. In rainfed sugarcane, in plant crop, total cost of cultivation was Rs.73,371 (out of which Rs. 53,183 was operating cost). BCR for operating cost was 1.01 and for total cost it was 0.78. While, in ratoon crop, the total cost of cultivation was Rs. 51,385 (out of which Rs. 35,545 was operating cost). BCR for operating cost was 1.29 and for total cost was 0.94.

- Cost of cultivation in Paddy under different systems of cultivation was estimated. In Transplanted system, total cost of cultivation was Rs. 60,364 (out of which operating cost was Rs. 36,925). BCR on operating cost was 1.16 and for total cost was 0.71. In Direct sown condition total cost of cultivation was Rs. 48,995 (out of which operating cost was Rs. 29,540). BCR on operating cost was 1.37 and for total cost, it was 0.82. In Drum Seeder sowing, total cost of cultivation was Rs. 52,077 (out of which operating cost was Rs. 30,279). BCR on operating cost was 1.52 and for total cost was 0.88. In MSRI method of cultivation, total cost of cultivation was Rs. 61,360 (out of which operating cost was Rs. 33,233). BCR on operating cost was 1.42 and for total cost was 0.77. In Maize, total cost of cultivation was Rs. 45,567 (out of which Rs. 28,750 was operating cost). BCR on operating cost was 1.75 and for total cost was 1.11. In ragi, total cost of cultivation was Rs. 27,405 (out of which Rs. 19,800 was operating cost). BCR for operating cost was 1.31 and for total cost was 0.98.
- Among the pulses, in blackgram, total cost of cultivation was Rs. 6,250 (out of which Rs. 4,350 was operating cost). BCR on operating cost was 2.95 and for total cost BCR was 2.05. In greengram, total cost of cultivation was Rs. 6,100 (out of which Rs.4,100 was operating cost). BCR on operating cost was

Intelligence Centre with an accuracy of 86-94% and the Reliance Foundation is disseminating the same to 40 lakh farmers. The forecasted price bulletins were uploaded in the ANGRAU website and the information was shared by the toll free call centers.

21. Extension Research

RARS, Tirupati

ANGRAU Poshan Incubator

- Established ANGRAU Agri Innovations and Entrepreneurship Development Cell (ANGRAU AIED CELL) at RARS, Tirupati and branded as “ANGRAU Poshan Incubator” and started implementation from June 2019.
- A total of 7 startups under pre-seed stage funding for 1st cohort and 1 startup under seed stage funding for 1st cohort were selected and Rs. 17.0 lakhs funding was provided to launch their innovations.
- A total of 30 Incubates were selected for Agripreneurship Orientation Programme (SANKALP 2020) & 13 Incubates were selected for Agripreneurship Incubation Programme (SAMRIDDHI 2020) under 2nd cohort. After providing thorough training course of two months / 60 hrs and scrutiny of all the Innovative ideas and startups, 18 Incubates under SANKALP 2020 and 7 Incubates under SAMRIDDHI 2020 were selected for funding support.

RARS, Anakapalle

- Study on socio-economic impact of FPOs indicated that membership in Producer Organization has direct and positive impact on social and economic empowerment of producer-members. It was observed that improvement in participation in extension program followed by innovativeness and networking among farmers by themselves

over non-members with 85.00 per cent, 81.67 per cent and 80.33 per cent, respectively. Economic growth of producer –members was enhanced after joining the Producer Organization due to increase in income, savings and employment opportunities. The major constraints faced by the sample respondents which affect the performance of the FPO were lack of coordination, volunteerism and external linkages.

RARS, Lam

- Study on impact of Covid 19 on farming operations perceived by the farmers revealed that majority of the farmers observed loss of income (88.34%), new social and behavioural norms (social distancing, wearing masks, maintaining hygiene) (81.67%), non-availability of labour (supply/demand) (80.00%), marketing of produce and increased expenditure on agriculture (66.67%). Major constraints expressed by the farmers during covid 19 were labour unavailability (80.00%), input availability (63.33%), increased labour cost (58.33%), increased cost of cultivation and unable to attend field operations timely (55.00%).
- Impact of ANGRAU technologies adopted by farmers in Cotton in Guntur district revealed that majority of the farmers were adopting sowing method (86.67%), Water management (71.67%) and spacing (68.33%). But they were not adopting P management (91.67%), N management (90.00%), micronutrient management (86.67%), K management (83.33%) and drought/ heavy rain management (80.00%). Reasons for non adoption were in anticipation of higher yields (88.33%), lack of demonstrations on recent technologies (86.67%), consulting private dealers (85.00%) and lack of knowledge and awareness on new technologies (80.00%).

D. AGRICULTURAL ENGINEERING

1. *Post Harvest Engineering and Technology*

RARS, Anakapalle

- Established Modern Jaggery Plant of capacity 1 TCD of jaggery at RARS, Anakapalle and inauguration of plant was done on 29-11-2021.
- Designed vertical scrapped surface heat exchanger, granulator and sieve for continuous production of granular jaggery. Fabrication of scrapped surface heat exchanger, granulator and sieve was completed and installed in the modern jaggery plant for continuous production of granular jaggery.
- Developed process technology for production of lemon and ginger flavoured sugarcane juice powder using maltodextrin as drying agent. The sugarcane juice powder samples were kept for storage studies under accelerated conditions.
- Design and development of centrifugal clarifier for quality jaggery production using centrifugal clarifier, sugarcane juice at 70° C was clarified, using filter pore size of 10µm and centrifugation time of 10 minutes recorded a clarification efficiency of 75%. The jaggery obtained using clarified juice appeared brighter in color with less impurities compared to jaggery prepared using without clarification.
- Feasibility studies of biodegradable packaging material for storage of solid jaggery were conducted during 2020-21. The jaggery samples were packed in LDPE and biodegradable packaging material and kept for storage studies under refrigerated (4°C) and ambient temperature (25°C). Jaggery stored under refrigerated temperature packed in LDPE and Biodegradable packaging material was found to be better in terms of color, sucrose%. No microbial load was observed up to 6 months in both the packaging materials under refrigerated storage (4°C).
- The self propelled earthing up device and mini tractor attached with earthing up device was developed and evaluated at RARS farm, Anakapalle. It was observed that the performance of mini tractor drawn earthing-up device was found to be good as compared to self propelled earthing up device as more draft power was required to operate self-propelled earthing-up device for earthing-up operation in sugarcane crop. The minitractor attached with earthing-up device could save 71% of time and 64% of cost of cultivation.
- Intercultivation operation was done in sugarcane crop at 150 cm spacing in dual row planting method using power weeders, minitractor with rotavator, chemical weeding and compared to manual weeding. There is a saving of 71% in cost of operation in the treatment using rotavator with mini tractor followed by weeding with greaves weeder (64%) compared to manual weeding.
- There was saving of 98% in time using rotavator run by mini tractor for weeding compared to manual weeding. It was observed that yield recorded was high in the treatment where weeding was done by mini tractor with rotavator.
- A patent on “Machinery and process of manufacturing cane jaggery in crystal form” was granted by Patent Office, Chennai vide Patent No.361025.

RARS, Tirupati

- The groundnut pods (Dharani Variety) stored in different packaging materials for 6 months at room temperature revealed that the bruchid infestation, percentage of damaged pods, decrease in pod weight were less in triple

- layer package (Two layers of 300 gauge HDPE with outer Polypropylene layer).
- The total number of microorganisms was less in triple layer packing of groundnut pods, redgram and blackgram seed and bajra and bajra flour. Bruchid infestation, number of damaged pods and seeds, germination percentage and weight loss were not affected in triple layer packaging. Rancidity levels and moisture loss in bajra and flour samples were less in triple layer packing.
 - Roasting of the foxtail millet and barnyard millet at 100°C for 10 minutes indicated no significant loss of nutritive components such as Tyrosine, antioxidant activity. Antinutritional factors such as total polyphenols (18 %) and tannins (19 % and 6%) registered moderate increase. Significant reduction in acid value (39-50 % and 45-61%) has been observed.
 - Laboratory protocols have been developed to examine the quality standards of organic and non-organic agricultural products based on antioxidant profiles.
 - Developed protocols to determine the glycemic index of various agril. products. A patent on “An in-vitro method for determination of glycemic index and kit there of” has been filed and allotted Application # 202141030841 by the Patent Office, Chennai

2. Farm Mechanization

AICRP on Farm Implements and Machinery Scheme, Bapatla

- Post Harvest Technology Centre, Bapatla**
- Performance evaluation studies conducted for the foxtail, barnyard, kodo, little and brown top millets with TNAU single-chamber and double-chamber, CIAE millet mill and UAS Raichur de-huller revealed that CIAE millet mill was found suitable for all millets with dehulling efficiency varying from 77.40% to 94.65% and broken percentage varying from 0.65% to 4.25%.
 - Preparedation of valuable by- products from mango waste - A pilot plant has been set up for oil extraction with mango nut in solvent method. Found to be more stable than many other vegetable oils rich in unsaturated fatty acids.
 - Rapid testing kits have been developed to instantly diagnose aflatoxins in various agricultural products. Farmers themselves can be able to diagnose the aflatoxins in their field within a period of fifteen minutes.
 - Designed harvester of chillies in single row. It also collects the harvested chillies in bags placed at rear end of the tractor. High clearance tractor is required to run the machine. Field capacity is 0.3 - 0.5 ha/h. Performance evaluation and rectifying the defects is in progress.
 - Developed site specific chemical applicator. No wastage of liquid and less volume application of liquid compare to prevailing sprayer system as it avoids spray application on non-targeted location (between plants). Reduces the environmental pollution. Saving of water consumption up to 60 to 70%. Could be used for any field crops which are widely spaced.
 - Developed Microcontroller Based Precision Paddy Planter. Precise seed spacing and sowing at the right time. Decreased seed and fertilizer wastage and breakage. Optimizing seed metering by reducing the consequences of wheel slip. Number of seeds per hill is 2 to 3. Spacing between hill to hill is 19 to 21 cm (can be modified as per the requirement). Draft force requirement is 123 kg. Wheel slip is 4%. Fuel consumption is 3 l/h. The field efficiency of the planter varies from 93.3% to 96% as changing the

speed of operation from 1.5 to 2.5 kmph. The cost of operation of the machine is 761.57 per h.

- Feasibility testing of manual transplanter under field conditions was done. Planting distance is adjustable as per speed of operation. It is walking backward operating type. It never sinks, never destroy the paddy field. The manual rice transplanter, works perfectly without any trouble so ideal for small farmers, small fields and hilly areas
- Testing of power weeder under field condition was done. Engine power is 7 HP (Diesel). Fuel Consumption is 0.75 - 1 Lt/hr. Tilling depth is 120 to 360 mm. Blade Type is “S” shape. It can be easily connected with Ridger, Plough, Paddy Wheel, Potato digger. Can be used as multifunctional machine for tillering, intercultural operations as well as sowing.

RARS, Tirupati

- The Multi task tool bar was developed, which can be used for sowing, intercultural operations and spraying with single equipment. This can also be used as cart in off season and to transport inputs and farm produce from farm house to market and market to Farm. The cost of the implement (Multi task tool bar) is Rs.1.0 Lakh.
- Control track system of planting is modified to make multiple intercultural operations through available cultivator (or) seed-drill (or) rotovator etc. which can minimize the labour dependency. The same track can be used for operating tractor mounted spraying.

ARS, Anantapuramu

- During *kharif* 2020, the water availability, estimation of water loss in micro watersheds and farm ponds was studied. Runoff for one-hectare catchment area was 536 m³ with maximum rainfall event of 71.2 mm. Most of

the runoff is wasted as overflow from the farm pond due to insufficient storage capacity (200 m³) than the estimated runoff (600 m³ by considering 20% free board). The lining material of Cement + Sand (1:6) reduced the seepage loss from the farm pond.

- During 2020, design and development of dike arrangement for small tractor was done. Subsoiling @ 1 m distance + Wheel type Diker recorded higher Groundnut pod yield (510 kg ha⁻¹) followed by subsoiling @ 2 m distance + Wheel type Diker (475 kg ha⁻¹) whereas, control plot recorded 375 kg/ha of Groundnut pod yield.

Centre for A. P. Sensors and Smart Applications Research in Agriculture (APSARA), RARS, Lam

- At APSARA Centre, research on drone applications in important crops such as paddy (Direct Seeded Rice, DSR & Transplanted Rice, TPR), sugarcane, groundnut, maize, sorghum, blackgram, redgram, bengalgram were carried out during the year 2020-'21 and Standard Operating Procedures (SOPs) for Agricultural Drone Spraying were developed. The following are the salient results.
- Agricultural Drones for the purpose of dispensing Fertilizers/Seeds: Nine kilograms/ Flight Drone with customized speed and time of covering the area.
- Agricultural Drones for the purpose of spraying: Ten Litre/Flight Drone with a capacity to cover 1 acre in six minutes (net time) and with a spray fluid/volume of 10 L/ acre.

E. COMMUNITY SCIENCE

The research results of different projects in various departments of Community Science are detailed below.

1. *Human Development and Family Studies*

Project Title: “Educating farm families and field functionaries by using developed mobile app- AALAMBANA”

- The project aims to assess the knowledge levels of rural mothers and field functionaries with the developed APP. The results help in creating awareness on nutrition and health care, stimulation, developmental mile stones, parenting styles and life skills components. Further, the APP helps in improving the health and nutritional status of rural farm families.

2. *Food Science and Nutrition*

“Development and evaluation of value added millet based nutri-bar”.

- Seven types of nutribars, prepared using millets in combination with other functional ingredients were highly acceptable in terms of sensory properties.
- The bars could be stored well for one month without change in sensory properties when packed in polypropylene pouches. These bars are ideal for use as snacks for pregnant women, lactating mothers and children of different age groups to overcome their nutritional deficiencies.
- Fortification of nutribars with minerals like iron and calcium can be attempted so as to make these bars as sources of wholesome nutrients.

V. EXTENSION

Agricultural Extension is one of the major mandates of ANGRAU in disseminating proven technologies to farmers. Dissemination of day-to-day crop production and crop protection management practices is being carried out through the extension wing in ANGRAU. The Extension wing also takes the responsibility of educating rural people in agriculture and allied sectors through various outreach methods including frontline demonstrations, on-farm trials and other variety of extension services. Besides, Extension wing also assists the Development Departments of State and Central Governments. Given below is the organogram with different functionaries under Extension wing of ANGRAU (Fig 09).

A. EXTENSION UNITS

The research results are being disseminated through the wide spread extension units of the University comprising of 13 Krishi Vigyan Kendras (KVKs) and 13 District Agricultural Advisory and Transfer of Technology Centres (DAATTCs) and one each of Agricultural Information and Communication Centre (AI&CC), Electronic Wing (EW) and Farmers Call Centre. Besides, the Extension Units in RARSs also function as effective lab to land agents.

1. *Krishi Vigyan Kendras (KVKs)*

Altogether, there are 13 KVKs under ANGRAU located in 13 districts of Andhra Pradesh. Towards achieving the goal of doubling the farm income by 2022 as a mark of celebrations of 75 years of Independence, ANGRAU has been playing an epi-centric role of ensuring livelihood security in rural areas through Vocational Training in agriculture and allied sectors. The KVKs are being assigned with the task of “Technology-Assessment and Refinement” under real-time farm situations. Application of ICTs by KVKs has been able to provide tangible and substantial

benefits in providing timely information on weather, markets and offering solutions on day-to-day problems faced by farmers.

2. *District Agricultural Advisory and Transfer of Technology Centres (DAATTCs)*

A total of thirteen (13) DAATTCs are housed in ARSs or KVK premises *w.e.f.* 09.11.2017 for achieving synergy between KVK & DAATTC in discharging their duties.

The details of DAATTCs & KVKs, district wise are given in Annexure VIII.

3. *Agricultural Information & Communication Centre (AI&CC)*

The AI&CC documents and transfers the developed technologies through various means such as publications and media combinations. The Electronic Wing and the FCC that were earlier functioning separately under the Director of Extension, were now merged with AI&CC since 29.12.2017 for effective Transfer of Technology (TOT) through print and electronic media.

4. *Farmers Call Centre (FCC)*

The FCC was established during 2003 through the integration of “Information and Communication Technology” (ICT) and “Agricultural Technology” (AT) with an objective to disseminate information in all aspects in agriculture, horticulture and allied sectors. The Centre works with a toll-free number, 1800-425-0430 at Lam, Guntur and is accessible to the farmers for two-way communication. The farmers’ queries as well as solutions offered by the Scientists are also being published regularly in “Vyavasayam”, “Padipantalu” and other monthly magazines.

During 2020-‘21, at total of 3176 queries were received from all over AP and solutions for the same were offered by the Faculty.

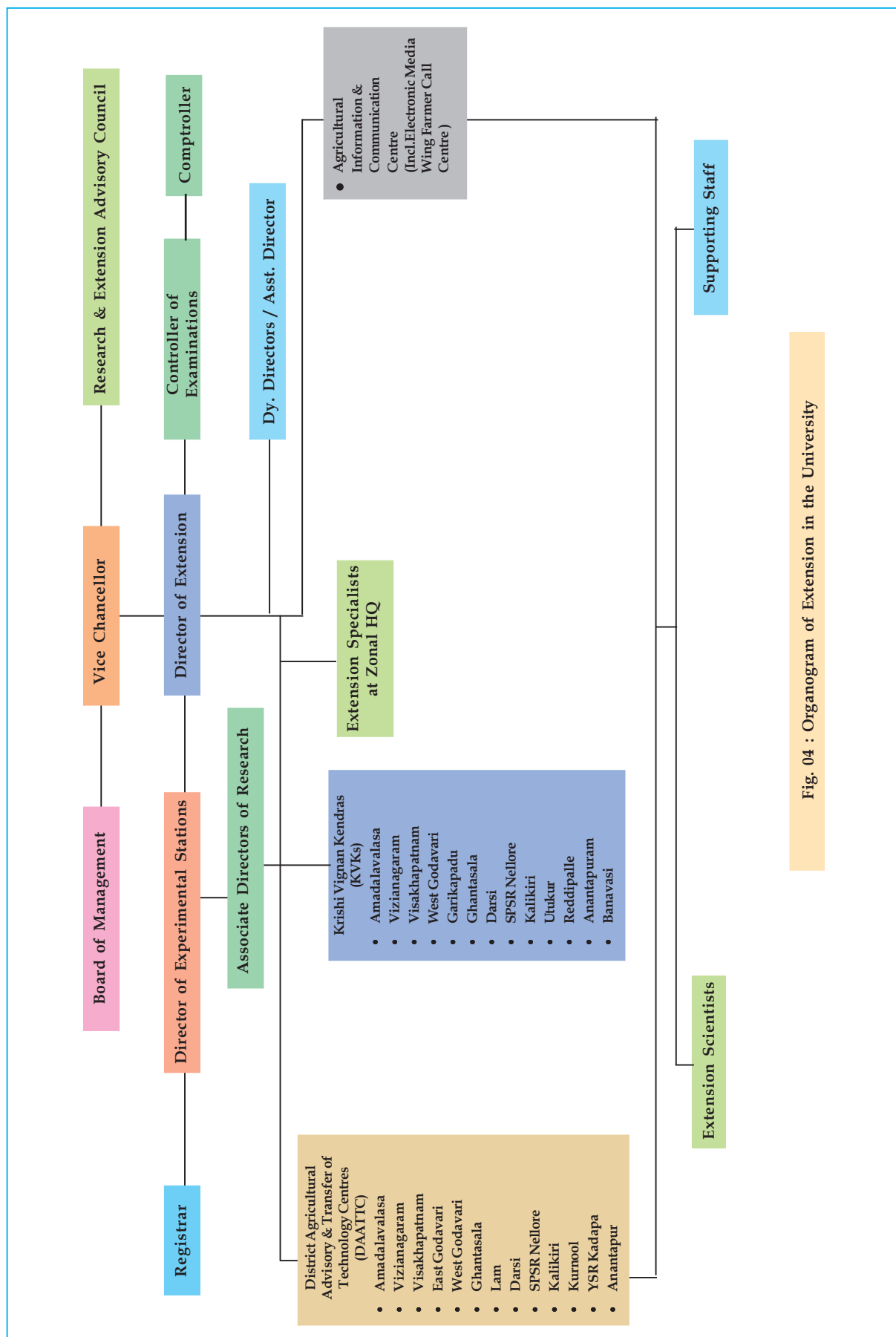


Fig. 04 : Organogram of Extension in the University

B. EXTENSION ACTIVITIES

1. Technology Assessment and Refinement (TAR)

Assessment/evaluation of proven technologies under farmers' field conditions is a crucial step in delivering successful technologies to farmers. Since, not all the proven technologies at research stations evolved by agricultural scientists work successfully under farmers' field situations, it is imperative that the proven technologies need to be evaluated at real-time situations before advocating them as blanket recommendations. In this direction, "On-experimental Station / research-adaptive research-extension" is a continuous process that helps to generate practicable, successful and sustainable technologies to farmers. Besides technological developments, refinement of already proven technologies that are being adapted at farmers level is another important area where a proven technology will be refined suiting to local needs or based on the situation in demand for the up-surging problems. In fact, these aspects like "technology development" and "technology refinement" are a continuous process that helps generate profitable technologies. Both these two are crucial steps between research and extension for developing location specific sustainable and profitable technologies. Both the DAATTCs and KVKs have enhanced extension reach through TAR.

Minikits

During the year 2020-'21, the 13 DAATTCs have tested 40 minikit cultures of 10 crops such as rice (19), finger millet (1), foxtail millet (1), redgram (1), blackgram (5), greengram (2), bengal gram (3), groundnut (4), sesame (2), and cotton (2). These minikits were evaluated in 1324 locations, both during *kharif* (631 locations) and *rabi* (693

locations).

On-Farm Trials (OFTs):

For a technology to be proven as economically viable, technically feasible and sustainable, On-Farm evaluation is a pre-requisite. In this context, OFTs across the State assume significance. During 2020-'21, a total of 203 technologies (152 technologies by KVKs in 749 locations & 51 technologies by DAATTCs in 152 locations) in Field crops, Horticultural Crops, Animal Husbandry and Fisheries, and Community Science were evaluated. Major thematic areas in which OFTs were conducted & evaluated include a) Varietal Evaluation (60 technologies); IPM (48 technologies); Weed Management (17 technologies); and Drudgery reduction (12 technologies).

Front Line Demonstrations (FLDs):

The KVKs, DAATTCs and Extension Specialists in RARS are entrusted with FLDs both during *kharif* and *rabi* seasons across the State with an objective of demonstrating improved technologies at farmers' fields, popularizing them for effective management of resources, and to build synergy among all stakeholders. These FLDs act as direct interface between researchers and farmers. Along with FLDs, training programmes and field days were also organized to enable rapid dissemination of improved technologies. During 2020-'21, a total of 231 FLDs were organized by KVKs in 629 ha, involving 1916 farmers. The DAATTCs organized 46 FLDs in 91.02 ha involving 206 farmers. These FLDs were organized in cereals & millets (rice, jowar, pearl millet, finger millet); pulses (redgram, greengram, chickpea), oilseeds (groundnut, castor), horticultural crops (vegetables, fruits, flowers), plantation crops,

fodder crops, animal husbandry, aquaculture, community science etc.

2. Diagnostic Field Visits

Diagnostic field visits are conducted every season in a year by the scientists of KVKs, DAATTCs and ARSs along with Officers of Department of Agriculture to diagnose the field problems and to advocate farmers in crop production and protection. For making these diagnostic surveys more effective, capacity building programmes are also being organized regularly to the Scientists working in the ToT centres on latest technological developments, survey and

surveillance procedures and diagnosis of pests and diseases. During 2020-'21, a total of 1932 diagnostic surveys were undertaken in different districts of AP. Of these, the DAATTCs and research stations were involved in 834 surveys, whereas the KVKs have conducted 1098 diagnostic surveys. During the surveys, different problems were identified in various crops and suitable remedial measures were suggested. The following are the details of biotic and abiotic stresses identified in various crops in AP during 2020-'21 (Table 25).

Table 25. Details of Biotic and Abiotic Stresses Noticed during Diagnostic Surveys

Crop	Biotic / Abiotic Stresses
Rice	Weed problem, Iron deficiency in nurseries, Poor germination, Potash deficiency, Zinc deficiency, Leaf Blast, Neck blast, Sheath blight, False smut, BPH, GLH, Leaffolder, Inundation due to heavy rains & submergence in low lying areas, Rodent damage, Stem rot, Stem borer, Bacterial Leaf Blight, Kresek phase of BLB, Bacterial Leaf Streak, Thrips, Salinity problem, WBPH, Hispa, Grain discoloration, Leaf mite, Panicle mite, Gall midge, Off types, Sulphide injury, Nematodes, Cut worm, Plant hoppers, Mealy bugs, Lodging, and Sheath Rot
Maize & Fodder Maize	Fall army worm, Stem borer, Leaf blight and banded blight, Aphids, Rust, Root rot, Wilt, Potash deficiency, Cob borer, Pink borer, Turcicum blight, Spiralling white fly
Jowar & Fodder Jowar	Fall army worm
Foxtail millet	Broad leaf weeds
Ragi	Blast, Stem borer
Blackgram & Greengram	YMV, Maruca pod borer, Cuscuta, White fly, Powdery mildew, Leaf crinkle, Bud necrosis/Leaf curl, <i>Corynespora</i> leaf spot, Rust, Aphids, Spodoptera, Micronutrient deficiency, Helicoverpa, Viral diseases, Leaf spots, Spotted pod borer, Iron deficiency, Weeds, Flea beetles, Thrips, Stem canker, Nitrogen & Potassium deficiency, Root rot
Redgram	Pod fly, Wilt, Pod borers, (Spotted pod borer, Maruca pod borer, Gram pod borer, Spodoptera) Sterility mosaic virus, Jewel beetle grub, Leaf webber, Mite

Bengalgram	Dry root rot, Gram pod borer (<i>Helicoverpa armigera</i>), Root rot, Wilt, Beet army worm (<i>Spodoptera exigua</i>), Rust, Grey mold/blight
Cowpea	Aphids, Flea beetle, White flies, Leaf curl virus, Spodoptera, Leaf webber, Jassids
Groundnut	Collar rot, <i>Spodoptera</i> , Tikka leaf spots, PSND, PBND, Wilt, Weed menace, Leaf folder, Jassids, Red hairy caterpillar, Thrips, Dry root rot, Root grub, Potassium deficiency, Thrips, More pops and fewer pods, Nematodes, Parthenium, and Stem rot, Crown root rot, Aphids, Leaf eating caterpillars, Borers, Leaf miner, Leaf hoppers, White grubs, <i>Helicoverpa</i> , Collar rot, Iron deficiency, Mites, Leaf webber, Leaf hoppers
Sesame	Wilt, and Powdery mildew, Sucking pests, Leaf eating caterpillar, Pod/Capsule borer
Sunflower	<i>Helicoverpa</i> , Necrosis, Leaf eating caterpillar
Castor	Powdery mildew, Semi looper, Spodoptera, Grey mold, Wilt
Cotton	Boll rot & stem rot, Pink boll worm, Magnesium & Boron deficiency, Micronutrient deficiency, Wilt, Sucking pests (Jassids, Thrips, White flies, Mealy bugs, Aphids, Leaf hoppers), Grey mold, Bacterial blight, Powdery mildew, Flower drop, Viral diseases, Leaf spots, Root rot, <i>Alternaria</i> leaf spot, Stem weevil, Bark eating caterpillar
Sugarcane	Weed problem, Early shoot borer (ESB) Internode Borer, Shoot borer, Scale insect, Root grub, Iron deficiency, Yellow Leaf Disease (YLD), Whip Smut, Top rot, Mealy bugs, Yellow & Red mites, Red rot, Ring spot, Termites, White fly, Rust
Onion	Thrips, Leaf blotch/Purple blotch, Jassids, aphids and white flies, Fruit borer, Leaf spot, Bulb rot, Leaf blight
Bhendi	Pod borer, Powdery mildew, Yellow vein mosaic, Wilt, Fruit and shoot borer
Chillies	Thrips, Damping off, Die back & Fruit rot, Viral diseases, Micronutrient deficiencies, Leaf spots, Leaf curl, Mites, flower midge, Sucking pests, Fruit borer, <i>Cercospora</i> leaf spot, Bacterial leaf spot, Flower drop, Zinc deficiency, Powdery mildew, Gemini virus, White flies, Root rot, Wilt, Stem rot, Anthracnose, Choanephora blight, Pod borers
Tomato	Tomato leaf miner (<i>Tuta absoluta</i>), Serpentine leaf miner, Fusarium wilt, Powdery mildew, Thrips, Damping off, Sucking pests, Leaf spots, white fly, Boron deficiency. Bacterial leaf spot, Early blight, Late blight, Fruit fly, Bud necrosis virus, Fruit malformation, Slugs, Flower drop, Fruit borers, Calcium deficiency, <i>Spodoptera exigua</i> , <i>Helicoverpa armigera</i> , Leaf curl, Fruit rot, Micronutrient deficiency, Pin worm, Dry root rot
Brinjal	Shoot & Fruit borer, Epilacna beetle, Wilt, Sucking pests, Whiteflies, Pin worm, Dry root rot, Little leaf, Early blight, Mites
Coccinia	Sucking pests
Cauliflower and Cabbage	Spodoptera, Diamond back moth
Beans	Aphids, Thrips, Wilt (Dolichos bean)

Ridge gourd, bottle gourds, bitter gourds	Leaf minor, fruit fly, white fly, mite, Mosaic
Drumstick	Wilt
Curry leaf	Leaf eating caterpillar
Potato	Mites, Late blight, Leaf cutters
Cucurbits	Fruit fly, Cucumber mosaic virus, Nematodes
Melons	Sucking pests (Musk melon), Fruit cracks (Musk melon), Downy mildew (Musk melon), Fruit rot (Pumpkin), Mosaic/viral disease (water melon)
Acid Lime/ Citrus	Canker, Leaf miner, Micronutrient deficiencies, Root rot, Gummosis, Wilt, Mites
Oilpalm	Boron deficiency, Rugose spiraling whitefly, Bud rot/Fruit rot, Magnesium deficiency
Papaya	Mosaic, Ring spot, Black spot, Viral diseases, Micronutrient deficiencies, Flower drop, Boron deficiency, Sucking pests
Pomegranate	Bacterial blight, Leaf spots & flower drop, Thrips, Dry root rot
Sweet Orange	Micronutrient deficiency, Dieback
Sapota	Mealy bug
Cashew	Root and Shoot Borer, Blight, Tea mosquito bug, Fruit drop
Mango	Fruit fly & borer, Micronutrient deficiency, Irregular bearing, Leaf hoppers, Fruit drop, Leaf webber, Thrips, Bark borer, Powdery mildew, Blossom blight, Anthracnose, Gummosis, Fruit rot, Dry root rot, Mealy bug, Potassium deficiency, Zinc deficiency, Die back, Salt injury, Parthenium, Galls, Hoppers
Coconut	Rugose spiraling whitefly, Red palm weevil, Black headed caterpillar, Eriophyid mite, Stem bleeding, Ganoderma, Boron deficiency, Potassium deficiency
Banana	Sigatoka leaf spot, Spiraling white fly, Rhizome rot, Micronutrient deficiency, Thrips, Tikka leaf spot, Bract mosaic, Spodoptera, Leaf blotch, Nematodes, Potash and Zinc deficiency
Guava	Fruit sucking moth, Nutrient deficiency, Potash deficiency, Mealy bug, Fruit borer, Nematodes, Fruit fly, Wilt, Root knot nematode
Cacao	Leaf eating caterpillar
Custard Apple	Potassium deficiency
Turmeric	Rhizome fly, Rhizome rot, Leaf spots, Leaf blotch, Iron deficiency, Post emergence weeds.
Coriander	Powdery mildew
	Grass hoppers
Chrysanthemum	Off season flowering, Leaf spot, Red mite, Weeds

Marigold	<i>Spodoptera</i> , Slugs, Flower borer
Rose	Dropping of petals
Tuberose	Nematodes, Blast
Eucalyptus	Galls on leaves
Mesta	Mealy bugs, Stem rot
Aquaculture	
Fish & Prawn	<i>Haemorrhagic septicemia</i> (Catla, Rohu and Pangasius), Bacterial Gill Disease (Catla & Rohu), Argulosis (Catla & Rohu), Myxobolus infection (Catla & Rohu), Depletion of oxygen & ammonia toxicity, Indiscriminate use of pesticides & antibiotics, White gut syndrome (prawn), EMS or RMS (prawn), Black gill disease (prawn), Dissolved oxygen depletion (prawn), Ammonia & Nitrite toxicity (prawn)
Animal Husbandry, Dairying & Fisheries	
Cattle/Bufferaloes	Downer cow syndrome, Bloat, Milk fever, Lumpy skin disease (LSD), Repeat breeding syndrome, Foot and Mouth Disease (FMD) & post effects of FMD, Diarrhoea and muscle weakness, Hypocalcemia, Pseudocow pox, Udder edema, Blood in milk, Laminitis, Hypothermia, Maggot wound, Poor productive and reproductive rate, Buffalo calf mortality, Poor growth rate, Pneumonia, Metritis, Yoak gall, Mastitis, Anestrus, Silent heat, Calf mortality
Sheep/Goat	Acid indigestion, Upper respiratory tract infection, Diarrhoea with flat worms, Foot rot, Blue Tongue, Pre-weaning mortality, poor body weight gains, Poor fertility & conception rate, Peste des Petits Ruminants (PPR/Plague), Goat pox, Intestinal parasites
Rabbit	Pregnancy diagnosis, Torticollis
Poultry	Huddling syndrome, Chick mortality, Irregularity in egg laying

3. Capacity Building Programmes

Various capacity building programmes were organized by DAATTCs, KVKs and Extension Specialists (ES) during 2020-'21 to build the capacity of clientele groups on crop production and protection in Agriculture, Horticulture, Community Science, and Fisheries. The number of Capacity Building Programmes that were conducted in each category include a) 733 to Farmers and Farm Women; b) 47 to Rural Youth; c) 394 to Extension Personnel; d) 88 to NGOs & Input Agencies etc. Besides, a) 438 Method Demonstrations; b) 694

Group Discussions; c) 128 Field Days; and d) 73 Rythu Sadassus; were also conducted during the year.

Vocational Training Programmes

A total of 42 Vocational Training Programmes were organized by 11 KVKs, benefitting 2408 stakeholders. The list of topics that were included in imparting Vocational Trainings are as follows.

- Value addition in a) Pine apple; b) Milk; c) Millets; d) Tomato; e) Groundnut
- Vermi-composting, Mushroom cultivation & milky mushroom cultivation, Organic farming,

Small Poultry growing, Bee-keeping, Tie & Dye and Textile printing techniques, Entrepreneurship development, Orientation on life skills and vocational skills, Life skills to adolescent girls.

- Management of horticultural nurseries and SRI mechanized rice nurseries, nutri-gardening for year round availability of vegetables for farm families, Jute bag making, Block printing, Screen printing, Dry cleaning and Rolling, Pickle making (Veg & Non-Veg)
- IPM in vegetables; Production technology of Cashew

T & V Monthly Workshops

Being an important Research-Extension linkage mechanism, the “Training & Visit” (T&V) monthly workshops are conducted on regular basis by research stations in all the 13 districts of AP. Active participation and interaction between ANGRAU faculty and Officials/Functionaries of the State Dept. of Agriculture and line departments (Joint Director; Assistant Directors; etc) on important topics such as seasonal and crop condition, field problems, and impact points will be

discussed. During 2020-'21, about 85 T&V meetings were organized by ANGRAU in 13 districts and solutions were offered to farm problems.

4. Extension Studies

During the year 2020-'21, studies taken up by the extension scientists of KVKs, DAATTCs and Research Stations have resulted in the following salient findings.

Perception & Adoption of Soil Health Cards (SHCs) by Farmers

The farmers' perception on constraints in adoption of SHC usage include a) depiction of insufficient doses of fertilizers on SHC; b) delay in issue of SHCs; c) lack of proper guidance & awareness on soil sampling; d) non-availability of gypsum; and e) majority of farmers are being non-adoptive. Based on these identified constraints, suitable suggestions like a) timely distribution of SHC; b) organizing meetings on SHC; c) provision of information on procedure for calculating fertilizer doses based on soil-nutrient status on SHC; d) imparting training to farmers on soil sample collection and its importance were carried out during 2020-'21.

Integrated Farming System (IFS) models identified by different KVKs/DAATTCs

The following IFS models were identified by different KVKs & DAATTCs as viable in sustaining farm income.

S.No.	Integrated Farming System (IFS) Model	Identified by	Remarks
1	Paddy (kharif)+Maize&Blackgram (rabi) +Sesame (summer)+Cattle (2) + Poultry (20)	DAATTC, Vizianagaram	—
2	Groundnut+redgram+2 buffalo+5 rams+20 poultry	KVK, Banavasi	Suitable for rain fed red soils
3	Korra+chickpea+2 buffalo+5 rams+20 poultry	KVK, Banavasi	Suitable for rainfed black 4 soils
4	Sweet orange+groundnut+blackgram+ buffalo+5 rams +50 poultry	KVK, Banavasi	Suitable for KC Canal black soils
5	Paddy+blackgram+2 buffalo+10 rams+50 poultry	KVK, Banavasi	Suitable for well irrigated black soils

S.No.	Integrated Farming System (IFS) Model	Identified by	Remarks
6	Mango+groundnut+blackgram+1 buffalo+5 rams+20 poultry	KVK, Banavasi	Suitable for Well irrigated red soils
7	Paddy+Groundnut/maize of Agriculture, Bore well irrigated sandy clay loams- Papaya + Vegetables of horticulture and Dairy farm/poultry.	DAATTC, Amadalavalasa	Suitable for Canal fed red clay soils
8	Agriculture (Paddy-Maize/Pulse) + Veterinary (Cattle/Sheep/Backyard poultry) rainfed black soils	KVK, Garikapadu	Suitable under NSP Canal, Chalka Red NSP black soils,
9	Horticulture (Mango)+Veterinary Backyard (Cattle/Sheep poultry)	KVK, Garikapadu	Suitable for rainfed red soils
10	Agriculture + Horticulture	KVK, Garikapadu	Suitable for tankfed soils

Impact of Agricultural Interventions by ANGRAU

Significant impact was noticed with timely technological interventions in various crops. The following are the major findings/impacts that were made with timely interventions.

- The blackgram variety, LBG-752 occupied 52 % of area followed by LBG-645, PU-31 and LBG-787 in Krishna district (KVK, Ghantasala).
- Majority of farmers (66.66%) adopted the groundnut variety “Dharani”. This is closely followed by adopting the practice of seed treatment (66% adoption), and IPM practices (52% adoption). Horizontal spread of Dharani is about 147 acres in adopted villages and 320 acres in neighboring villages (KVK, Kalikiri).
- Majority of bengal gram farmers (90%) are following timely sowing followed by correct dose of fertilizers (86.67%), curative spray of recommended pesticides (80%), spinosad spray @0.35 ml/L or rynaxypyr @ 0.3 ml/L or indoxacarb @ 1 ml/L for managing *Helicoverpa* to a tune of 75%. Further, wider adoption rate of JG-11 due to promotion by

State Dept. of Agriculture is one of the reasons for non adoption of ANGRAU varieties (KVK, Utukur).

- Adoption of ANGRAU technologies in cotton was about 61.67% (wrt. seed rate); 68.33% (wrt. sowing distance); 86.67% (wrt. sowing method); 71.67% (wrt. water management); and 50.00% (wrt. weed management) (RARS, Lam, Guntur).
- Complete adoption of technologies (100%) regarding recommended rice varieties in Krishna district, age of seedlings for transplanting, recommended seed rate, date of sowing, age of seedlings for transplanting, main field preparation practices, spacing and water management (DAATTC, Krishna).
- Adoption rate is more than 50% in cotton with regard to recommended date of sowing, seed rate, spacing, method of sowing, herbicide application, intercultural operations, application of Magnesium sulphate, Zinc sulphate, Borax, Potassium nitrate; and management of boll worms, root rot, and boll rot in cotton (DAATTC, Guntur).
- The adoption rate of short duration varieties of turmeric such as Roma and Pragathi was

about 71.67%. Further, the adoption rates of times of sowing; low seed rate under Pro tray method was about 80% and 61.67% (KVK, Kondempudi).

- In a study on socio-economic impact of Farmer Producer Organizations, the improvement in participation in extension program (85%), followed by innovativeness (81.67%) and networking among farmers by themselves over non-members (80.33%) (RARS, Anakapalle).

5. Distance Education

Open and Distance Learning Centre (ODLC)

Open and Distance Learning Centre (ODLC) at Guntur was established in the year 2018, with the objective of extending agricultural education through distance learning to aspiring farmers, farm women, rural youth, students and other stakeholders in Andhra Pradesh. The centre is organizing skill oriented short term certificate courses across the state (KVK premises as study centres for contact classes and scientists as resource persons) on “Organic Farming”, “Terrace Gardening”, “Bee Keeping”, “Mushroom Production”, “Millets Promotion”, “Agricultural Journalism”, etc.

During the year 2020-'21, three batches in Organic Farming; two batches in Terrace Gardening; One batch in Mushroom cultivation have completed the certificate courses. A total of 658 candidates have completed the ODLC of which, 250 candidates each in Mushroom Production & Terrace Gardening and 158 candidates were in Organic Farming.

Diploma in Agriculture Extension Services for Input Dealers (DAESI)

Year Long DAESI programme for 120 Input dealers was organized at two KVKs (Banavasi & Darsi) and three DAATTCs (East Godavari,

Guntur, and Nellore) during 2020-'21 with an aim to transform them as Para-Extension Professionals. The DAESI programme was spread over a period of 48 weeks, with 40 classroom sessions and 8 field visits and to various institutions. A total of 200 Input Dealers had participated in the five DAESI programmes organized (40 in each programme).

Agriculture Information & Communication Centre (AI & CC) Programmes

ANGRAU is one of the few Agricultural Universities in the country to start distance education through a private TV channel, Vyavasaya Patasala, Phone in Live Programme and Video Conferences. On every Wednesday and Friday, Pasidipantalu Phone-in-Live Programme on Agriculture and Allied Subjects are being organized in Doordarshan for answering farmers' queries on a pre-informed topic from 6.00 PM to 7.00 PM. During 2020-'21, a total of 48 such programmes were telecasted. A total of 53 Vyavasaya Patasala programmes were broadcasted every Monday at 7.15 PM in All India Radio (AIR) during 2020-'21.

6. Technical Publications

During 2020-'21, the AI & CC has brought out the following publications.

- Vyavasaya Panchangam 2020-'21
- Journal of Research, ANGRAU (Quarterly)
- e-News Letter
- Vyavasayam (Monthly Telugu Farm Magazine)
- Crop Diagnostic Bulletins on Redgram, Bengalgram, Maize, Jowar, and Small millets

Vyavasaya Suchanalu

For wider dissemination of ANGRAU technologies, the technical content is published in Telugu daily newspapers in 13 districts of AP since 2014. The weekly advisories are covered in Sakshi

(*Padipantalu* column) on every Monday; Prajasakthi (Agri Plus column) on every Friday; and frequently in Andhra Prabha; Eenadu; and Andhra Jyothi newspapers. A total of 78 weekly advisories was published during 2020-'21. The technical information was communicated to farmers through Kalgudi and Reliance Foundation Information Services as well.

7. Technology Dissemination through ICTs and Other Mass Media

Mobile Applications for Smart Phones

Several android-based mobile applications were developed for farmers and the technical information is being updated from time to time. The ANGRAU developed/supported applications are:

- **ANGRAU Pasuposhan:** Developed by KVK, Banavasi, Kurnool district during 2018 with information on livestock, covering cattle management, sheep and goat rearing, poultry (layer & broiler), strategies that help in doubling farmers income, best management practices and technologies. Currently it has rating of 4.0/5 and 500+ downloads.
- **Fertilizer Calculator:** Developed by KVK, Banavasi in 2019 and has a rating of 4/5 and 5000+ downloads.
- **ANGRAU KVK Banavasi CFLDs:** Developed by KVK, Banavasi in 2018 to cater the information needs of CFLD farmers on crop production & protection, varieties, marketing of pulses, oilseeds etc. Currently, it has a rating of 4.9/5 with 1000+ downloads.
- **Krishi Vigyan:** Developed by KVK, Amadalavalasa in 2016 for providing information on package of practices for rice, blackgram, greengram, coconut and maize in telugu with photographs, video clips and telephone directory of ANGRAU. Currently,

it has a rating of 4.2/5 with 10000+ downloads.

- **Farm Radio:** (www.farmradio.in): The first of its kind online radio initiated by DAATTC, Kondempudi of ANGRAU, facilitating the freedom to podcast what you want and when you want it, with better sound quality to listeners.
- **Annapurna Krishi Prasaar Seva (AKPS):** The AKPS is an interactive information dissemination system (IIDS), being implemented through 8 KVKs (Nellore, Amadalavalasa, Utukur, Darsi, Reddipalli, Garikapadu, Undi and Kalikiri) and 5 DAATTC (Kurnool, Guntur, Vizianagaram, Peddapuram and Anakapalle). During 2020-'21, a total of 532 text and 160 voice based advisories were given by the KVKs. The DAATTCs gave 179 text and 21 voice SMS. The number of farmers registered by both the extension wings was about 60681.
- **Kisan Mobile Advisories (m-Kisan Portal):** To disseminate latest information, market prices on various agricultural commodities, Animal Husbandry, and crop based technologies to farmers; "Kisan Mobile Advisories" were facilitated by KVKs. During the year 2020-'21, a total of 477 text messages and 181 voice messages were sent through "m-Kisan".
- **Mass Communication Channels:** The success stories of ANGRAU-Extension Wings are frequently communicated through mass media. During the year 2020-'21, all the KVKs have come up with 127 publications, 1633 Press Notes, 84 Radio Talks, and 206 TV Programmes. The DAATTCs have produced 43 Publications, 821 Press Notes, 30 Radio Talks, and 72 TV Programmes.

C. EXTENSION EVENTS

1. Kisan Melas

Kisan Melas provide an opportunity for farmers to gain first hand information on the latest technologies, live demonstrations, informative agricultural exhibitions, interaction with the scientists, input agencies and inculcate the habit of visiting research stations frequently for exposure and timely advice. During 2020-'21, a total of 13 Kisan Melas were organized, of which five at RARSs (Anakapalle, Chintapalle, Lam, Tirupati and Nandhyal), six at ARSs (Amadalavalasa, Vizianagaram, Peddapuram, Ghantasala, Nellore and Kadiri), and one at KVK (Undi) and other one at Agricultural College, Bapatla with the

participation of 12,918 farmers. Important themes presented at Kisan Melas were effective utilization of Natural Resources in Agriculture; Millets cultivation; Sustainable agriculture; Pulses production; *Samagra sasya yajamanyam*; Soil health management; *Labasaati girijana vyavasayam*; *Sameekrutha vyavasayam mariyu saankethika vistharana*; *Susthira aadhayaniki sameekrutha vyavasaayam* etc. Exhibitions, *Rythusadassus* and Field Visits were arranged during *Kisan Melas*. Seed of improved varieties and ANGRAU publications were made available to the farmers besides releasing 66 booklets/folders and crop videos with number of copies for distribution to farmers on free of cost.



Kisan Mela at RARS, Tirupati on 03.03.2021



Kisan Mela at RARS, Lam, Guntur on 09.03.2021

2. Exhibitions

The KVKs, DAATTCs, Research Stations and AI&CC organize exhibitions at special events/ occasions like *Eruvaka Purnima*, *Kisan Melas*, *Rythusadassus*, *World Soil Day*, *Mahila Kisan Diwas*, *Pre-Rabi Campaign*, *Farmers Day*, *Sankranti Sambaralu*, *Nutrition Week Celebrations*, *Conferences and Workshops*, *Awareness Programmes* etc. During 2020-'21, a total of 67 exhibitions were organized in which 12,716 farmers have participated.

3. Village Adoption Programme

The Village Adoption Programme is implemented by ANGRAU since 1998 by major and medium research stations and the Colleges. Each of these institutes will adopt a village for its overall development. Besides conducting on-farm research, attending to malady-remedy analysis, monitor and forecast pests, diseases, nutritional

disorders, the Scientists and teaching Faculty regularly visit and render on the spot advices to farmers on various aspects of agriculture, animal husbandry, horticulture, fisheries etc. Further, assistance is rendered in procuring quality inputs, arranging credit through banks and cooperatives, improve literacy and in overall economic development.

During the year 2020-'21, about 19 centres comprising colleges, ARSs and RARSs were involved in Village Adoption Programme. A total of 118 diagnostic team visits covering 1307 farmers, 13 demonstrations on 135 farm holdings, 38 training programmes, thereby benefitting 1635 farmers, one animal health camp covering 304 animals. The following are the details of villages that were adopted by different institutes of ANGRAU during 2020-'21.

S.No.	Name of the College / RARS / ARS	Name of the Village / Mandal / District
1	Agricultural College, Bapatla	Perali Village, Kalapalem, Mandal, Guntur District
2	Agricultural College, Naira, Srikakulam district	Thandyamvalasa village, Srikakulam rural
3	Agricultural College, Rajamahendravaram	Nidigatla village, Korukonda mandal, East Godavari dist.
4	S. V. Agricultural College, Tirupati	Sanambatla, Chandragiri mandal, Chittoor district
5	College of Agricultural Engineering,	Chandakacharla village, Madakasira mandal, Ananthapuramu Madakasira district
6	Dr. NTR College of Food Science and Technology, Bapatla	Perali village, Karlapalem mandal, Guntur district
7	Advanced Post Graduate Centre, Lam	Nidumukkala village, Tadikonda mandal, Guntur district
8	RARS, Anakapalle	Lakshmipuram village, Chodavaram mandal, Visakhapatnam district
9	RARS, Chintapalle	Yebulam village, GK Veedhi mandal, Visakhapatnam district
10	RARS, Maruteru	Goteru village, Iragavaram mandal, West Godavari district
11	RARS, Tirupati	Sorakayalapalem village, Ramachandrapuram mandal, Chittoor district
12	ARS, Seethampeta	Marriguda village, Seethampeta mandal, Srikakulam district
13	ARS, Utukur	Sugali bidiki of C.K. Dinne (M), YSR District
14	ARS, Yelamanchili	Mulajampa village, Rambilli mandal, Visakhapatnam district
15	SRS, Vuyyuru	Gopuwanipalem village, Machilipatnam mandal, Krishna district
16	SWS, Bapatla	Parli village, Karlapalem mandal, Guntur district
17	ARS, Machilipatnam	S N Gollapalem village, Machilipatnam district
18	ARS, Nellore	Kondlapudi Village, Nellore Rural Mandal, Spsr Nellore District
19	ARS, Vizianagaram	L N Puram Village, Parvathipuram Mandal, Vizianagaram District

4. Rural Agricultural Work Experience Programme (RAWEP)

The DAATTCs and KVKs have been involved to guide the final year undergraduate students of Agricultural Colleges to provide practical training and experience for one semester by residing/placing them in villages and by attaching one host farmer per student. A total of 997 students from constituent and affiliated agricultural colleges of ANGRAU had undergone RAWEP during the year 2020-'21.

D. SPECIAL SCHEMES

1. Cluster Frontline Demonstrations (CFLDs) CFLDs on Pulses under NFSM

For increasing the production and productivity of pulses, the CFLD programme was initiated by Ministry of Agriculture and Farmers Welfare, GoI during *rabi* 2015-'16 under National Food Security Mission (NFSM). During 2020-'21, all 13 KVKs implemented CFLD on Pulses, both during *kharif* and *rabi*. A total of 410 ha area was covered by organizing 993 demonstrations on redgram, greengram, blackgram, and bengalgram crops in cluster approach in interior areas benefitting small & marginal farmers and weaker sections. Improved seed varieties released and notified by CVRC (Central Varietal Release Committee) during the past 15 years were provided as critical inputs for conducting demonstrations. Integrated Crop Management practices like bio-fertilizers, bio-pesticides were facilitated for getting higher net returns. A financial assistance of Rs. 9,000/ha was sanctioned to each crop for inputs, extension activities and monitoring of the programme.

CFLDs on Oilseeds under NMOOP

During the year 2021-'22, CFLDs on oilseeds were conducted under the National Mission on Oilseeds and Oil Palm (NMOOP) in farmers'

fields, both during *kharif*, *rabi* and summer seasons on groundnut, sesame, sunflower, castor, niger, and safflower. A total of 1031 CFLDs on oilseeds were conducted in 480 ha. During *kharif* 2020, a total of 350 demonstrations were conducted in 142.4 ha. In *rabi* 2020-'21, a total of 606 demonstrations in 307.6 ha; whereas during summer, 75 demonstrations in 30 ha were organized.

2. National Innovations in Climate Resilient Agriculture (NICRA)

National Innovations in Climate Resilient Agriculture (NICRA) is a multi-institutional and multi-disciplinary network project launched by ICAR in 2011 that aims to build resilience in Indian Agriculture to climate change and climate variability through strategic research and technology demonstrations. The Technology Demonstration Component (TDC) of NICRA was implemented in ANGRAU through 3 KVKs (Amadalavalasa, Undi and Reddipalli). Demonstrations, capacity building on livestock & fisheries and institutional interventions were taken up by KVKs. Demonstrations were organized for benefitting farmers under NRM interventions viz., water harvesting and recycling, in-situ moisture conservation and ground water recharge. Under Crop Production module, various interventions such as drought tolerant, flood tolerant, short duration varieties, pest & disease management, nutrient management and crop diversification etc. were taken up. Under livestock and fisheries, the interventions included improved fodder production, improved breeds of backyard poultry, captive rearing of fish, management of fish ponds etc. were taken up benefitting 20 stakeholders. Under institutional interventions through Custom Hiring Centre (CHC), 20 farmers were benefitted.

E. INSTITUTIONAL INTERVENTIONS

1. Custom Hiring Centres (CHC)

An Ad-hoc project on “Millet processing cum Custom Hiring Centre” was sanctioned to KVK, Banavasi and is in operation during the year 2020-'21 (sponsored by Indian Institute of Millet Research).

2. Tribal Sub Plan (TSP)

Four KVKs at Rastakuntubai, Kondempudi, Darsi and Amadalavalasa have been identified by the ICAR for implementing the activities under Tribal Sub-Plan (TSP). The aim of TSP is to provide physical and financial security to the members of the tribal areas against any kind of oppression and exploitation. Certain activities were taken up by these KVKs to improve the socio-economic

conditions, reducing poverty and unemployment in the operational area. During 2020-'21, a total of 26 OFTs (100 beneficiaries); 49 FLDs (444 beneficiaries); 79 Trainings to farmers (2344 beneficiaries); 22 Trainings to rural youth (577 beneficiaries); 34 Trainings to Extension Personnel (1443 beneficiaries); 20 Skill Training Programmes (390 beneficiaries); 126 Extension Activities (4116 beneficiaries) were conducted under TSP. Besides, a total of 215.9 Q of seed material (867 beneficiaries); 2,34,825 number of planting material (2199 beneficiaries); 4303 livestock strains (427 beneficiaries); and 25.90 Q & 480 L of bio-products (995 beneficiaries) were supplied under TSP. Further, a total of 858 soil samples (858 beneficiaries) were analyzed and about 2381 mobile advisories were extended to 13,588 farmers.



Tribal Sub Plan Activities at RARS, Chintapalle

3. Attracting and Retaining Youth in Agriculture (ARYA)

Attracting and Retaining Youth in Agriculture (ARYA) is a flagship project of ICAR that was launched during March, 2015 as one of the components of National Agricultural Innovations Fund. The main objectives of the programme are to attract rural youth to take up various agriculture, allied and service sector enterprises, to enable youth

to establish network groups to take up capital and resource intensive activities like processing, value addition and marketing and to demonstrate linkages with different stake holders for sustainable development of youth. ARYA has been implemented by two KVKs in ANGRAU viz., Nellore and Utukur during 2020-'21. Activities under ARYA included establishing enterprise units such as a) Vermi-composting, b) Mushroom production, c) Shadenets for vegetable and fruit

nursery; and d) Value addition (KVK, Utukur).

4. *Seed Hub Programme*

The Indian Institute of Pulses Research (ICAR-IIPR), Kanpur has sanctioned the project on “Creation of Seed Hubs for increasing indigenous production of pulses in India”, sponsored by National Food Security Mission (NFSM). Three KVKs of ANGRAU (Amadalavalasa, Reddipalli, & Ghantasala) in AP under Seed Hub Programme have altogether produced 1107.78 quintals of Certified and Foundation seed of redgram (LRG 52, PRG 176); greengram (WGG 42, IPM 2-14) and blackgram (LBG 752, LBG 787) during the year.

5. *Krishi Kalyan Abhiyan (KKA)*

Three districts (Vizianagaram, Visakhapatnam, and YSR Kadapa) in AP were identified as Aspirational Districts for implementation of the KKA programme from July 1, 2018 to August 15, 2018 (phase I) and October 2, 2018 to December 25, 2018 (phase II). The phase III activities were also implemented during 2020-'21, which include a) Soil Health Cards, b) Minikits (Greengram, Groundnut), c) NADEP pits, d) Bovine vaccination, e) Vaccination of Sheep and Goat for eradication of PPR, f) Artificial insemination, g) Training programmes by KVKs to farmers, h) Demonstrations in micro-irrigation, i) Pradhan Mantri Fasal Bima Yojana (PMFBY), and j) Gramin Haats.

6. *District Agro-Met Units (DAMUs)*

ICAR entered into a MoU with Indian Meteorological Department (IMD) for setting up of District Agro Met Units (DAMUs) under the *Gramin Krishi Mausam Seva* (GKMS) in 660 districts of the country. Seven DAMU units were established in ANGRAU, one each at KVKs-Amadalavalasa, Rastakuntubai, Garikapadu, Darsi, Nellore, Utukur, and Banavasi and these units are functional since October 2019. During the year

2020-'21, a total of 47 ‘Farmers Awareness Programmes’ were organized, benefitting 1808 farmers. A total of 7500 Text Messages and 331 Voice Messages were sent on weather. Further, a total of 2427 Agromet Advisory Bulletins were issued during the year.

7. *Soil Health Cards*

Soil Health Management (SHM), one of the important interventions under National Mission on Sustainable Agriculture (NMSA) that aims at promoting INM by juxtaposing chemical fertilizers, organic manures and bio-fertilizers. Under this scheme, soil health cards (SHC) were issued to farmers with crop-wise recommendations of nutrients and fertilizers for the individual farms. During 2020-'21, all KVKs of ANGRAU had analyzed 5695 soil samples with the established Soil Testing Laboratories (STLs) and Mini Soil Testing Laboratories (MSL). A total of 5,695 Soil Health Cards were distributed, benefitting 4919 farmers from 150 villages.

8. *Skill Development Training Programmes by ASCI*

During the year 2020-'21, Skill Development Training Programmes under Agricultural Skill Council of India (ASCI) were organized on job role of “Mushroom Grower” at KVK, Rastakuntubai for 25 trainees for 200 hrs duration.

9. *Doubling of Farmers Income (DFI)*

As per the guidelines of ICAR, each KVK should contribute to doubling of farmers’ income by selecting one or two villages in convergence with all stakeholders. During 2020-'21, all 13 KVKs of ANGRAU had conducted various OFTs, of which 39 are related to Agriculture, 17 to Horticulture, 10 in Home Science and Veterinary in the selected DFI villages. In Agriculture, the important aspects that were covered included a) Introduction of maize, b) Assessment of IPDM modules of rice pests and diseases, c) CFLD in

groundnut, d) Flood tolerance evaluations in rice, e) IFS, f) ICM in redgram, g) FLD on drought mitigation techniques in groundnut, h) CFLD in Chickpea variety NBeG-49. In Horticulture, the interventions tested were a) Demonstrations of ginger variety (Suprabha), b) Soil test based fertilizer application in chilli, c) Precision farming in tomato, d) CFLD in castor (DCH-519). Under Animal Husbandry, a) Diagnosis of sub clinical mastitis by SFMT reagent and usage of pre and post dip methods, b) Demonstrations of Rajasri chicks for backyard poultry, c) Assessment of Kadaknath & Rajashri birds to improve the nutritional and income status of tribal families. In Home Science, the important intervention made for DFI is the establishment of nutri gardens for year round supply of vegetables.

10. Cereal System Initiative for South Asia (CSISA)

The CSISA project was established in 2009 for benefitting more than 8 million farmers by the end of 2020. The CSISA is led by CIMMYT and is implemented jointly by IFPRI and IRRI. The CSISA generates data from multi-locational adaptive trials, production practices, diagnostic surveys in SAARC countries, for determining yield attributing factors and other pertinent information for refining recommendations and advisories. The KVKs were exposed to methods of collecting error free field data using digital data collection tools such as Open Data Kit (ODK). Eight KVKs (Amadalavalasa, Kondempudi, Undi, Ghantasala, Darsi, Kalikiri, Reddipalli, and Banavasi) implemented CSISA during the year 2020-'21. Diagnostic surveys for production practices and on farm evaluation of zinc fertilizer application in rice were carried out.

11. Biotech Kisan Hub-ANGRAU

The Biotech KISAN hub project "Expansion of activities of Biotech KISAN Hub in three

aspirational districts (Vizianagaram, Visakhapatnam and Kadapa) of Andhra Pradesh from Acharya NG Ranga Agricultural University is in growth since November 2019. The project is mainly aimed at increasing the area under pulses (Blackgram, Greengram, Chickpea, Redgram) in these districts, mainly as rice-fallow pulses as pulse production is deficient in the country. During the year 2020-'21, this scheme was in operation by two KVKs (Utukur and Rastakuntabai) in Kadapa (KVK, Utukur), Vizianagaram, and Visakhapatnam (KVK, Rastakuntabai) districts.

- a) *KVK, Rastakuntabai*: Initiative of Mini Dal mill was taken up in D. Mulaga village and nearby villages of Parvathipuram mandal. With this initiative, farmers have an opportunity to process their pulse produce at lesser costs.
- b) *KVK, Utukur*: Field days were conducted under this project on a) Best Management Practices in Blackgram; b) LRG-52 variety in Redgram; and c) NBeG-49 variety of Bengalgram.

12. Reach Every Panchayat

Reach every Panchayat is a unique programme formulated and implemented by ANGRAU with a goal of reaching every Panchayat of the state to disseminate improved technologies developed by the University. As a part of the programme, one key informant farmer is identified in each Panchayat who will influence other farmers' decisions in farming. The key farmer along with Sarpanch of the Panchayat are trained and oriented with the best management practices, critical interventions for increasing the productivity of major crops grown in that area, government schemes and ICT applications. During 2020-'21, this programme was implemented by one KVK (Banavasi) and four DAATTCs (Kalikiri, Vizianagaram, Nellore, and Reddipalli). A total of

17 capacity building meetings (training programmes) were organized by the DAATTCs during this year.

F. PARTNERSHIP PROGRAMMES

1. Partnership Activities with Reliance Foundation

Reliance Foundation Information Services (RFIS) provides validated information services with help of ANGRAU expertise to different livelihood information seekers using modern Information and Communication Technologies (ICT). The Information is disseminated through audio, dial out conferences, local cable TV scrolls, live-phone-in programmes, agro advisories on daily basis, weather news bulletins, voice advisories, text SMSs, Jio Chat, Whats app and field based programmes such as knowledge on wheels, plant clinics and training programmes covering agriculture and allied sectors. During the year, 2020-'21, about 605 advisories were sent to 67,429 farmers, covering 70 villages.

2. Partnership with SERP under APRIGP

In order to upgrade the knowledge and skills of the members of Farmers Producer Organizations assisted by the Society for Elimination of Rural Poverty (SERP), the University had entered MoU with SERP and implementing the project entitled "Collaborative Strategies of ANGRAU – SERP in enhancing the livelihoods of small and marginal farmers & Nutri & Hygiene entrepreneurship promotion in Andhra Pradesh" under Andhra Pradesh Rural Inclusive Growth Project (APRIGP). Under this project, during 2020-'21, two KVKs (Utukur and Banavasi) have implemented the SERP project goals. Ten Field days were organized by KVK, Utukur. Capacity building trainings to FPOs and skill

development activities to Farm women for self employment generation were organized by KVK, Banavasi.

3. Farming System for Nutrition (FSN) with MSSRF, Chennai

Farming System for Nutrition (FSN) is a model that entails mainstreaming the nutrition dimension in designing the farming system model which includes a combination of sustainable measures including advanced crop production practices, biofortification, promotion of nutrition gardens of fruits and vegetables, livestock and poultry development to address the problem of malnutrition and hidden hunger. The MSSRF has been engaged in advocating the FSN approach in five KVKs (Reddipalli, Undi, Rastakuntubai, Darsi, and Amadalavalasa) under ANGRAU. Important activities carried out during 2020-'21 are a) demonstrations on FSN model (Integrated Farming systems), b) Assessment of different farming system models, c) creating awareness on bio-fortified and nutritive dense varieties for tribal areas, and e) organizing field visits and field days to the FSN demo plots at KVKs.

G. COORDINATED ACTIVITIES WITH LINE DEPARTMENTS

1. Eruvaka Purnima

Eruvaka Purnima was celebrated on June 5, 2020 and on this occasion, best management practices (BMPs) were showcased for the benefit of the farmers, with the active participation of DAATTCs and KVKs in all the districts of state. Farmers were also educated about the critical interventions impacting the productivity, good agricultural practices leading to cost reduction and profitable farming.

2. *Dr Y S R Polambadi (Farmers Field School)*

All the scientists of DAATTCs and KVKs have actively participated in the Dr. Y.S.R. Polambadi as resource persons organized by the Dept. of Agriculture in all the districts of AP. These farm schools were held on Thursday and Friday of every week during 2020-'21 to train the farmers regarding agro-ecosystem analysis, importance of predators, ICM practices and importance of botanicals/bio-agents. During the year 2020-'21, ANGRAU has taken massive steps in popularizing FFS among 10851 VAAs and farmers by covering 888 RBKs.

3. *A M C Level Interaction Meetings*

All the Scientists of DAATTCs and KVKs of ANGRAU have actively participated in the AMC level interaction meetings organized by the State Government in all the districts of AP held on 1st and 16th of every month during 2020-'21.

A total of 373 Scientist-Farmers-RBK interaction meetings were conducted, benefitting 5696 staff working at 1767 RBKs.

4. *Rythu Bharosa*

All the scientists of KVK, DAATTCs have participated in Farmers-Scientist interaction meetings in Rythu Bharosa Chaitanya Yatra programmes organized by Dept. of Agriculture in all the districts of AP from July 9-23, 2021 and

created awareness among farmers on various agricultural issues.

H. CRITICAL TECHNOLOGY PRODUCTS

The KVKs also act as resource centres for supply of quality inputs. During 2020-'21, a total of 3165.28 Q of seed material, worth of Rs. 2,09,46,153/- of various crops and planting material/livestock species/Bio-products of Rs. 11,37,444/- was supplied to the farmers.

I. DOCUMENTATION OF SUCCESS STORIES

A total of 33 success stories/case studies (district-wise) in agriculture and allied sectors were documented by the KVKs and DAATTCs during the year 2020-'21.

J. OTHER EXTENSION ACTIVITIES

Social media tools such as Whatsapp offer new form of disseminating farm extension information. During 2020-'21 ANGRAU has created 240 Whatsapp groups. About 11991 VAAs have been covered through 168 Whatsapp groups and other digital platform. Mandal wise agro-met advisory bulletins (twice in a week), are being provided by VAAs through mobile apps and messages.

VI. PLANNING AND MONITORING CELL

The Planning & Monitoring Cell (P&M Cell) was established during the year 1986 in ANGRAU. Previously, the post of Director (Planning & Monitoring) was withdrawn during the periods from December 2017 to September 2020, and was headed by the Dean of Post-Graduate studies. However, the position of Director (P&M) was resumed w.e.f. September 2020. The P & M Cell works with the overall objectives of planning, monitoring and evaluation of various developmental programmes and activities of the University.

The P&M Cell acts as a liaison office between ANGRAU and other Government and Non-Government Institutions. The Cell does the job of compilation and submission of data and information of ANGRAU in different formats to various agencies at State, National and International level. It is also responsible for the maintenance and up-gradation of human resource data base of the University; information provider to statutory bodies; preparation of convocation report of the Vice Chancellor reflecting the

objectives and achievements of University etc.

The P & M Cell submits reports from time to time to State and Central Governments and other statutory bodies. The Significant Events of ANGRAU are prepared and presented to Board of Management-ANGRAU as Agenda Item No. (1).

As a “Nodal Officer” for the ICAR, the Director (P&M) discharges duties relating to day to day correspondence on various issues in general to information pertaining to Indian Rankings; ICAR Rankings of ANGRAU; Preparation and submission of Annual Reports of ANGRAU to be submitted to ICAR under “Strengthening and Development Grant”; uploading the information regarding JRF/SRF, NTS UG/PG, Student Ready Programme; Strengthening of Library Facilities; Audit Utilization Certificates etc., in ICAR Agricultural Education Portal.

Broadly, the job description of P&M Cell is categorized as below.

S.No.	Activity/Report Submission (for the year 2020-'21)
I.	Specific works at University level
1	Significant events for meetings of BoM
2	Prepared and brought out the Annual Report of ANGRAU (2018-'19). Compilation works of the Annual Report of ANGRAU (2019-'20).
3	Preparation and updating University Profile
II.	Job Description at State Level (AP)
1	Monthly Report (Significant Events) of ANGRAU to be included in Hon'ble Governor's report for submission to Hon'ble President of India. Submission of the same was carried out online in RajBhavan Portal w.e.f., October 2020.
2	Monthly Appraisal Report of ANGRAU to be submitted to “The Deputy Secretary to Govt., Agrl. & Cooperation (Agrl. IV Dept.), Govt. of AP (up to October 2020)
3	Brief Note of ANGRAU for Budget Speech of Finance, Planning and Legislative Affairs, Govt. of AP
4	Brief Note of ANGRAU for Budget Speech of Hon'ble Minister of Agriculture, Govt. of AP
5	Brief Note on Activities, Achievements & Action Plan of ANGRAU for Hon'ble Governor's address during budget session.

S.No.	Activity/Report Submission (for the year 2020-'21)
6	Compilation and preparation of OUTCOME BUDGET of ANGRAU to be presented by Hon'ble Minister of Agriculture, Govt. of AP.
7	All India Survey on Higher Education (AISHE)-DCF & TIF consolidation report (12 Constituent Colleges + 6 Affiliated colleges) & other proformae related to AISHE.
8	Other works on regular correspondence with Govt. of AP.
III. ICAR Works	
1	Preparation and submission of Tribal Sub Plan Annual Report
2	Compilation and submission of Asset Record of Tribal Sub Plan (TSP)/Scheduled Tribe Component (STC) for the years 2017-'20.
3	Submission of output-outcome targets 2020-'21 for Scheduled Tribe Component (STC erstwhile TSP).
4	Experiential Learning Programme (ELP) Report submission
5	Impact Assessment Report and Library Impact Assessment Report
6	Strengthening and Development of Higher Agricultural Education-Progress of works, Receipts and Expenditure etc.
7	Uploading of demand proposals of ELP/JRF-SRF/Library strengthening/Niche area of excellence/NTS (UG/PG)/Student Ready/TSP/Development Grants/Rural Agricultural Work Experience Program (RAWEP)/International Fellowship, Merit cum Means Scholarship etc. in ICAR Education Portal
8	Submission of Utilization Certificates (UC) and Audit Utilization Certificates (AUC) with purchase orders and proceedings for different activities under Strengthening & Development Grants of ICAR.
9	ICAR Annual Progress Report
10	Agenda points of IAUA and other related communication with IAUA
11	Submission of information under Scheduled Caste Sub Plan for the year 2019-'20.
12	Compilation and submission of Action Taken Report (ATR) of review meeting on "Priorities, Performance, and Preparedness of ICAR pertaining to ANGRAU", Lam, Guntur, Andhra Pradesh.
13	Responses to different Questionnaires; preparation and submission of various Compliance Reports and Action Taken Reports
14	Direct Benefit Transfer Information – Upload in the DBT DARE portal
15	Compilation of information and submission of information regarding Participation in ICAR Ranking of ANGRAU along with other Agricultural Universities
16	Demand under scheme being implemented in ANGRAU under Strengthening and Development Grant of ICAR
17	Experiential Learning Success Stories
18	Compilation and submission of reports on "International Yoga Day" & "Agricultural Education Day" & Related.

S.No.	Activity/Report Submission (for the year 2020-'21)
19	Nodal Officer for ICAR
IV. UGC	
1	Compilation and submission of Consolidated Statistical Data of ANGRAU.
2	Preparation of Action Taken Report based on recommendations in the Annual Report of the O/o CCPwDs for the years 2016-'17 & 2017-'18.
V. Others	
1	Developed proposal for “Strengthening of Planning & Monitoring Cell” through establishment of “Internal Quality Assurance Cell (IQAC)” based on resolution No.10 of the UOs Meeting dated 22.07.2020 of Registrar, ANGRAU.
2	Compilation of Faculty Information at University level for “INFLIBNET”- A Plagiarism detection software.
3	Answers to agriculture related queries in Parliament (Lok Sabha & Rajya Sabha)
4	Answers to agriculture related queries in Legislative Assembly & Legislative Council of AP
5	APSCHE-Publication of Diary information
6	Attended works pertaining to uploading ANGRAU’s information onto website of “Association of Indian Universities” (AIU).
VI. ANGRAU Website Development & Maintenance	
	<p>Website maintenance was transferred from P&M Cell to “Information Technology Wing”, O/o Dean of Agricultural Engineering & Technology wef. December 2020. However, the following activities were carried out by P&M Cell during the period under report.</p> <ul style="list-style-type: none"> • Web Portal Administration and security. • Audit inspection of the official website. • Content uploads from time to time. • Handling of both fake and valuable contents of ANGRAU in Google search engine. • Inspection and uploading of the domains of different colleges, RARSs, KVKs and DAATTCs. • Compilation of information at University level on Employees Enrolment in the portal of “Employee Identification Management System” (EIMS).
VII. Accreditation of ANGRAU & its constituent and affiliated colleges (including programmes):	
	<p>Besides the aforementioned activities, the P&M Cell initiated the Accreditation Works of ANGRAU during 2020-'21 for submitting the Letter of Intent (LoI); Institutional Eligibility for Accreditation (IEA) and Statement of Compliance (SoC) for the University and its constituent colleges, including programmes to ICAR.</p> <ul style="list-style-type: none"> • Self Study Report (SSR) of “Acharya N G Ranga Agricultural University” was prepared. • The SSRs of constituent colleges, programmes and University was submitted as a Master Copy to NAEAB (National Agricultural Education Accreditation Board) of ICAR. • The LoI, IEA and SoC for “N. S. Agricultural College, Markapuram” was uploaded in ICAR Accreditation Portal during April 2021.

VII. FINANCE AND BUDGET

The major financial grants to the University come from the Andhra Pradesh State Government under Plan and Non-Plan Schemes. The Non-Plan assistance is by way of Block Grants for running the University. The Block Grant approved in the budget for the year 2020-'21 and released was Rs.36207.36 lakh.

The ICAR assistance was Rs.5118.91 lakh and the Government of India assistance was Rs.543.75 lakh. During the year, an amount of Rs.1774.13 lakh was received under RKVY.

Thus, the total finances of the University during the year 2020-'21 was Rs.45418.34 lakh (Rs.36207.36+ Rs.9210.98 lakh) as detailed below.

Table 26. Funding Sources to ANGRAU during 2020-21

(Rupees in Lakhs)

S.No.	Particulars	Grants in Aid & Other Grants	Expenditure
1	Direct Receipts	1310.11	0
2	Revenue Expenditure	36207.36	36790.46
3	RKVY	1774.13	1162.46
4	NABARD - RIDF	0	1823.93
5	ICAR Plan	5118.91	5936.44
6	Government of India	543.75	122.90
7	Departmental Sponsored Schemes	0	110.90
8	Other Agencies	464.08	295.37
	TOTAL	45418.34	46242.46

Table 27. Budgetary Support to ANGRAU including Funds Released under Development Grant of ICAR during 2020-'21

(Rs. in lakhs)

S. No.	Total Funding from State Government					Funding Support from ICAR			Total ICAR Support (6+7+8+9)	Any other ICAR Central Funding	Grand Total
	Budget Heads	Plan	Non-Plan	Total (3+4)	Educa-tion	AICRP	KVK	Any other ICAR Support			
1	2	3	4	5	6	7	8	9	10	11	12
1	Salary & Revenue	-	36207.36	36207.36	-	5118.91	-	-	5118.91	-	41326.28
2.	Capital	-	-	-	-	-	-	-	-	-	-
	Total	-	36207.36	36207.36	-	5118.91	-	-	5118.91	-	41326.27

VIII. BUILDINGS AND CONSTRUCTION PROGRAMMES

During the period under report, the following civil works worth Rs.60.7158 crore were completed by the Engineering Department of the University.

S. No.	Name of Work	Project Cost (Approximately) Rs.in Lakhs
1	Construction of Administrative Building at KVK, Ghantasala, Krishna Dist.	177.38
2	Construction of Farmers Hostel at KVK, Ghantasala, Krishna Dist.	72.13
3	Construction of Seed storage godown at KVK, Ghantasala, Krishna Dist.	50.00
4	Construction of Administrative Building at KVK, Darsi, Prakasam Dist.	177.38
5	Construction of Administrative Building at KVK, Kalikiri, Chittoor Dist.	177.38
6	Construction of Farmers Hostel building at KVK, Kalikiri, Chittoor Dist.	72.13
7	Construction of Ground nut seed processing unit & Threshing floor at Agricultural College, Bapatla, Guntur Dist.	30.00
8	Construction of Research and Agricultural Polytechnic building at RARS, Podalakur, Nellore Dist.	170.00
9	Construction of Seed Storage Facility at RARS, Nandyal of Kurnool District	100.00
10	Construction of Soil Testing Laboratory at KVK, Reddipalli, Ananthapuramu dist.	33.00
11	Construction of Information Centre at KVK, Reddipalli, Ananthapuramu dist.	12.18
12	Construction of Annex Building at Agricultural College, Bapatla	5000.00
	Total	6071.58



NABARD funded Annex Building at Agriculture College, Bapatla inaugurated on 19-03-2021

IX. OTHER EVENTS OF THE YEAR

During the year 2020-'21, several important events have occurred at different centres of ANGRAU. An account of significant events, workshops, conferences, meetings, and other events that took place during the period under report is as follows.

A. SIGNIFICANT EVENTS

1. Inaugurations

- The following buildings were inaugurated online by Dr Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR) in the presence of Sri Y Madhusudhana Reddy, I.F.S., Special Secretary to Government of A.P. (Marketing & Co-operation) & Vice-Chancellor (FAC), ANGRAU on 02.07.2020.
 - Administrative Building at KVK, Ghantasala, Krishna Dist.
 - Farmers Hostel at KVK, Ghantasala, Krishna Dist.
 - Seed storage godown at KVK, Ghantasala, Krishna Dist.
 - Administrative Building at KVK, Darsi, Prakasam Dist.
 - Administrative Building at KVK, Kalikiri, Chittoor Dist.
 - Farmers Hostel building at KVK, Kalikiri, Chittoor Dist.
- Groundnut seed processing unit & Threshing floor at Agricultural College, Bapatla, Guntur Dist (16.07.2020)
- Research and Agricultural Polytechnic building at RARS, Podalakur, Nellore Dist. (25.07.2020)
- The Associate Director Research, RARS, Anakapalle inaugurated the renovated training hall at KVK, Amadalavalasa on 20.08.2020
- Dr A Vishnuvardhan Reddy, Hon'ble Vice-Chancellor, ANGRAU inaugurated
 - Seed Storage Facility at RARS, Nandyal, Kurnool District, constructed at an estimated cost of Rs.100.00 lakhs on 01.10.2020.
 - Soil Testing Laboratory at KVK, Reddipalli, Anantapuramu District constructed at an estimated cost of Rs.33.00 lakhs on 05.11.2020
 - Information Centre at KVK, Reddipalli, Anantapuramu District on 05.11.2020.
- Groundnut Cold Press Oil Extraction Unit at ARS, Anantapuramu on 05.11.2020
- Krishi Vigyan Kendra Product outlet inauguration at KVK, Utukur, Kadapa on 11.11.2020.
- Dr G Rama Rao, Associate Director of Research inaugurated automatic Weather Station (DAMU) at KVK, Rastakuntubai, Vizianagaram District on 02.03.2021.
- NABARD (RIDF XX) funded Annex building worth 50 crores was inaugurated by Dr. G. R. Chintala, Chairman, NABARD; Sri Kurasala Kanna Babu, Minister of Agriculture and Cooperation; Sri V.Balashowry, MP Machilipatnam; Sri Kona Raghupathi, Hon'ble Deputy Speaker, AP Assembly; Hon'ble Vice Chancellor ANGRAU Dr. A.Vishnuvardhan Reddy, Dean of Agriculture, ANGRAU on 19.03.2021 at Agricultural College, Bapatla.
- The 1st floor on Main building of College of Food science and Technology, Pulivendula was inaugurated on 31.03.2021 in the presence of Sri Y S Avinash Reddy, Member of Parliament (Kadapa), Mr. Anil Kumar Reddy, OSD and Special Officer, Pulivendula Area Development Authority, Pulivendula, and many others.

- Open gym was inaugurated in all colleges and indoor gym facilities were maintained regularly for students use

2. *Foundation Stones Laid*

- Foundation stone was laid out for construction of Tissue Culture lab on 23.10.2020 at SRS, Vuyyuru.
- Bhoomi Puja was performed for construction of Millet Processing Unit in the College of Community Science premises by Dr L. Uma Devi, Dean of Community Science on 09.12.2020.

3. *Others*

- Online classes were conducted regularly for UG and PG programme due to covid-19 pandemic situation during 2020 as per the University guidelines through zoom platform from June 2020.
- DBT Project Monitoring and Steering Committee (PMSC) appreciated the University and the team on implementation of Biotech KISAN Hub project and praised the online monitoring and communication system developed under this project is unique and felt that it should be implemented in all the Biotech KISAN Hubs in the country.
- RFID Technology with security gates, Bio-metric, Work station, self-service kiosk was integrated with Library Management System (LMS) KOHA at Regional Library (Student Knowledge Centre), Agricultural College, Bapatla.
- Five students from Agricultural College, Bapatla, five from S.V. Agricultural College, Tirupati and six students of Agriculture Polytechnic, Podalakur have received the Kisan Kraft Foundation Scholarship.
- RARS, Tirupati conducted 'Farmers participatory research in groundnut' programme at RARS, Tirupati for developing and promoting short duration and short

statured high yielding groundnut varieties having resistance to pests and diseases and suitable for coastal sandy soils of Nellore on 02.09.2020.

- NSS Online Special Camp was organized for B.Sc. (Ag.) final Year RAWEP students, Agricultural College, Bapatla in their villages. Face mask distribution, demonstration on hand sanitization, awareness on social distancing, poster making on covid 19, vanamahostav, swatch bharat, etc. were undertaken by NSS volunteers from 16.11.2020 to 22.11.2020.
- NSS volunteers of ANGRAU have prepared and disseminated the videos, posters and short films through social networking among the students and public on the preventive and safety measures to be taken against the Covid-19.
- Mr Sutrya Teja, NA/2016-150, Agricultural College, Naira was the only student selected from entire South India for FICCI Industry E-Internship Project on "Game Changing Ideas to overcome the COVID-19 Pandemic on Agriculture and its Allied Sectors".
- A MoU was entered with APSCHE on 20.11.2020 for taking-up Combined UG admissions ONLINE in ANGRAU, SVVU and Dr.YSRHU for the academic year 2020-21. Accordingly, ONLINE admissions were taken-up by inviting applications online with collaboration of APSCHE from 23.11.2020 up to 13.12.2020.
- Agricultural Education Day was organized on 03.12.2020 in a befitting manner at all Colleges and Polytechnics of the Acharya N.G. Ranga Agricultural University on the eve of the birthday of Bharat Ratna Dr Rajendra Prasad, the first President of Independent India.
- An orientation programme for CAT examination was organized for the benefit of

- B.Sc. (Hons) third year students on 08.01.2021 at Agricultural College, Bapatla. Mr. Kishore Kumar, Founder & Director, KISH Academy, Guntur interacted with the students. A mock test on CAT was conducted by KISH Academy, Guntur for B.Sc. (Hons) third year students on 20.01.2021.
- Guidelines on Conduct, Discipline and Welfare Measures for students prepared by the O/o Dean of Student Affairs, ANGRAU was released by Hon'ble Vice- Chancellor on 05.03.2021.
 - A 50 kW capacity solar system was installed in the college campus building of CAE, Madakasira on 25.03.2021.
 - The world famous rice variety BPT 5204, brain child of Agricultural College, Bapatla was released by the University in 1986. It has completed 35 years of its release. Its success was celebrated in the college. A television programme on the special features of BPT 5204 was delivered by Dr. G. Ramachandra Rao, Associate Dean, Agricultural College, Bapatla for E TV Annadata on 13.05.2021.

B. OTHER SIGNIFICANT EVENTS

S.No.	Event	Date	Venue
1	World Environment Day	05.06.2020	College of Community Science, Guntur, APT, Podalakur
2	University Formation Day	12.06.2020	All Centres of ANGRAU
3	The sixth International Yoga Day	21.06.2020	All Centres of ANGRAU
4	120 th Alluri Seetharamaraju birthday	04.07.2020	All Centres of ANGRAU
5	Rythu Dinotsavam in commemoration of Dr. YSR Rajasekhara Reddy Birth day	08.07.2020	All Centres of ANGRAU
6	ICAR Foundation day	16.07.2020	All Centres of ANGRAU
7	Breast feeding week	01.08.2020 to 07.08.2020	Jonnalagadda village by College of Community Science, Guntur; KVK, Rastakuntubai; Anganwadi Kendra, Snehanagar, kondayapalem sector, Nellore rural by KVK Nellore; KVK, Ghantasala; KVK, Kadapa
8	Vanamahotsavam	05.08.2020	RARS, Anakapalle and KVK Kondempudi
9	74 th Independence Day	15.08.2020	All Centres of ANGRAU
10	Parthenium awareness week	16.08.2020 to 22.08.2020	K.P.Valasa by KVK, Amadalavalasa; KVK, Kalyandurg & Adopted villages; KVK, Ghantasala; Lingareddypalli village by KVK, Reddipalle
11	Andhra Kesari Sri Tanguturi Prakasam Pantulu Jayanthi	23.08.2020	All Centres of ANGRAU
12	National Sports Day	29.08.2020	CAE, Madakasira

S.No.	Event	Date	Venue
13	Conducted Poshan Maah programmes	01.09.2020 to 30.09.2020	All the KVKs of ANGRAU
14	Teachers Day	05.09.2020	All Centres of ANGRAU
15	International Literacy Day	08.09.2020	ARS, Podalakur
16	Engineers Day	15.09.2020	All Colleges of Faculty of Agricultural Engineering & Technology, ANGRAU
17	NSS Foundation Day	24.09.2020	All constituent colleges of ANGRAU
18	Swachhta Bharat Programme	24.09.2020	CAE, Madakasira
19	Establishment of Nutri Garden	25.09.2020	KVK, Utukur
20	Gandhi Jayanthi	02.10.2020	All Centres of ANGRAU
21	Interaction with KVKs by Hon'ble Agriculture Minister through Webex platform	03.10.2020	KVK, Undi
22	Seed Day	05.10.2020	RARS, Maruteru, RARS, Tirupati
23	Mahila Kisan Diwas	15.10.2020	All Centres of ANGRAU
24	World Food Day-2020	16.10.2020	All Centres of ANGRAU
25	Vigilance Awareness Week	27.10.2020 to 02.11.2020	All Centres of ANGRAU
26	Rastriya Ekta Diwas & National Unity Day on the occasion of birth anniversary of Bharat Ratna Sardar Vallabhai Patel	31.10.2020	All constituent colleges under ANGRAU
27	AP Formation Day	01.11.2020	All Centres of ANGRAU
28	Acharya N G Ranga Jayanthi	07.11.2020	All Centres of ANGRAU
29	Education day	11.11.2020	ARS, Podalakur
30	Animal health Camp	18.11.2020	Araveedu (v), Gaaliveedu (M) by KVK, Utukur
31	Communal harmony week	24.11.2020	Model school, Kalyandurg by KVK, Kalyandurg
32	Constitution Day of India	26.11.2020	All Centres of ANGRAU
33	International Day of Persons with Disabilities	03.12.2020	College of Community Science, Lam, Guntur
34	World Soil Day	05.12.2020	All Centres of ANGRAU
35	Dr B R Ambedkar's 63 rd Death Anniversary	06.12.2020	All Centres of ANGRAU
36	Distributed high yielding Ragi varieties Vakula and Tirumala to farmers	11.12.2020	Perali Village by Agricultural College, Bapatla

S.No.	Event	Date	Venue
37	Sri Potti Sreeramulu Vardhanthi	15.12.2020	All Centres of ANGRAU
38	Swacchtaa Pakhwada programme	16.12.2020 to 31.12.2020	All the KVKs of ANGRAU
39	Agriculture Education Fair -2020	19.12.2020	Tirumala College, Kantheru, Rajamahendravaram
40	National Kisan Diwas	23.12.2020	All the KVKs and DAATTCs
41	Pradanamantri Kisan Samman Nidhi Yojana	25.12.2020	KVK, Kalyandurg
42	National Dietetics Day	10.01.2021	College of Community Science, Guntur
43	National Voters Day	25.01.2021	All Centres of ANGRAU
44	72 nd Republic Day Celebrations	26.01.2021	All Centres of ANGRAU
45	Mahatma Gandhi Vardhanthi	30.01.2021	All Centres of ANGRAU
46	National Horticulture fair 2021	08.02.2021 & 12.02.2021	Dr. K L Rao KVK, Garikapadu
47	World Pulses Day	10.02.2021	All Centres of ANGRAU
48	Energy Efficiency programme	12.02.2021	KVK, Kalikiri, KVK, Nellore
49	Sri Uyyalawada Narasimha Reddy, a freedom fighter from Andhra Pradesh State-Death anniversary	22.02.2021	All Centres of ANGRAU
50	The National Science Day	28.02.2021	All Centres of ANGRAU
51	Anti-Ragging Awareness programme	04.03.2021	CAE, Madakasira
52	International Women's Day	08.03.2021	All Centres of ANGRAU
53	In view the safety of girl students, an awareness programme on DISHA mobile application was organized on International Woman's Day	08.03.2021	Agricultural College, Bapatla
54	Sri Potti Sreeramulu Birth Anniversary	16.03.2021	All Centres of ANGRAU
55	World Water Day	22.03.2021	All Centres of ANGRAU
56	World Meteorological Day	23.03.2021	KVK, Rastakuntubai
57	Awareness programme on influence of weather on cattle health management	01.04.2021	Ebulam Village, G.K. Veedhi Mandal by RARS, Chintapalle
58	114 th Birth Anniversary of Sri Babu Jagvana Ram	05.04.2021	All Centres of ANGRAU
59	Mega Seed Display	08.04.2021	RARS, Maruteru
60	Dr B R Ambedkar Jayanthi	14.04.2021	All Centres of ANGRAU
61	Fire Safety Awareness Programme	17.04.2021	Agricultural College, Naira
62	World Earth Day	22.04.2021	KVK, Ghantasala

S.No.	Event	Date	Venue
63	World Honey Bee Day	20.05.2021	KVK office, Kalikiri (Virtual), KVK, Utukur (virtual); Tenu Kharja at KVK, Rastakuntubai
64	Kisan Melas	26.02.2021	RARS, Chintapalle
		27.02.2021	ARS, Peddapuram by RARS, Maruteru
		01.03.2021	ARS, Ghantasala
		02.03.2021	ARS, Nellore in coordination with KVK, Nellore; DAATTC, Nellore; ATMA, Nellore and Dept. of Agriculture
		03.03.2021	RARS, Tirupati
		06.03.2021	ARS, Kadiri
		09.03.2021	RARS, Lam
		22.03.2021	Dr. NTR CAE, Bapatla
		23.03.2021	KVK Amdalavalasa on Jala Shakthi Abhiyan in collaboration with DWMA, Srikakulam
		25.03.2021	RARS, Anakapalle
		27.03.2021	KVK, Undi
65	Farmer-Scientist Interaction meeting	08.07.2020	KVK, Kalikiri along with teachers of S V Agricultural College, Tirupati; DAATTC, Nellore through Zoom meetings.
		16.07.2020	KVK, Kalikiri along with Coramandal Pvt., Ltd through Zoom meeting on account of ICAR Foundation Day
		07.11.2020	DAATTC, Kalikiri (online) on Acharya N G Ranga Jayanthi

C. MEETINGS ORGANIZED

S. No.	Event	Date	Venue	Organized by
1	Faculty Board meeting of Agriculture, Agricultural Engineering & Technology, Community Science and the PG Studies	15.07.2020	Online mode	ANGRAU
2	DBT Kisan Bio-Tech Hub Review Meeting by DE, ANGRAU & T Sri nivasulu, DBT Principal Investigator	19.10.2020	KVK, Utukur online	KVK, Utukur

S. No.	Event	Date	Venue	Organized by
3	50 th REAC Meeting	20.01.2021 to 21.01.2021	SVVC Auditorium Tirupati	ANGRAU
4	Reach Every Panchayat meeting	12.02.2021	Madanapalli Mandal	DAATTC, Kalikiri
		25.03.2021	Sodum Mandal	
		25.03.2021	Chowdepalli Mandal	
		27.03.2021	Chinnagottigallu Mandal	
		01.04.2021	Irala Mandal	
5	Stakeholders meet on 'Market Intelligence' by AMIC, Lam, Guntur	16.02.2021	RARS, Tirupati	RARS, Tirupati
6	SAC 39 th meeting	13.03.2021	KVK, Amadalavalasa	KVK, Amadalavalasa
7	ZREAC Meetings			
i	Scarce Rainfall Zone	16.04.2021 to 17.04.2021	Online Mode	ANGRAU
ii	Southern Zone	19.04.2021 to 20.04.2021	Online Mode	ANGRAU
iii	Krishna Zone	23.4.2021 to 24.4. 2021	Online Mode	ANGRAU
iv	North Coastal Zone	26.04.2021 to 27.04. 2021	Online Mode	ANGRAU

D. TRAINING PROGRAMMES / SHORT COURSES / ORIENTATION PROGRAMMES ORGANIZED

S. No.	Event	Date	Venue	Organized by
1	Pre kharif orientation training programme to NICRA farmers on 'Management of paddy in flood prone areas and climate resilient technologies in paddy'	02.06.2020	KVK, Amadalavalasa	KVK, Amadalavalasa
2	Training programme on 'Soil health management'	06.06.2020	Virtual	KVK & DAATTC Amadalavalasa
3	Training programme on 'Kharif preparedness and BMPs of dryland crops like cotton, groundnut, redgram, castor'	08.06.2020	Pyalakurthi and Varkuru villages at RBK of Kodumur division	KVK Banavasi
4	Training programme on 'Redgram and distributed seed' under SC sub plan and also supplied seed to farmers under CFLD-Pulses	11.06.2020	KVK, Reddipalli	KVK, Reddipalli

S. No.	Event	Date	Venue	Organized by
5	Training programme on 'Farming system for nutrition'	20.06.2020	Usulumarri village of Peravali mandal	KVK, Undi
6	Training programme on 'Nursery management in vegetable crops' and on 'Locust management & importance of seed treatment in groundnut'	23.06.2020	Gangireguvalasa village of Komrada mandal	KVK, Rastakuntubai
7	Training programme on 'Production technology of early <i>kharif</i> rice' to farmers under SC-sub plan	24.06.2020	Mohammadapuram village of Podalakur mandal	ARS, Podalakur
8	Training programme on 'Flood tolerant varieties of paddy MTU-1061, MTU-1064'	25.06.2020	Matsyapuri (v) of Veeravasram mandal	KVK, Undi
9	Training programme on 'Cashew orchard management' under tribal sub plan	03.07.2020	Kothaguda (v), Seetampeta (m)	KVK, Amudalavasa
10	Training programme on 'Different types of paddy cultivation' under TSP	03.07.2020	Nowguda (V), Seetampeta mandal	KVK, Amadalavalasa
11	Vocational skill training programme on 'Value addition to pine apple'	06.07.2020 to 08.07.2020	KVK, Amadalavalasa	KVK, Amadalavalasa
12	Awareness programme on 'Horticulture nursery raising under shadenet' to rural youth under ARYA Project	22.07.2020	KVK, Nellore	KVK, Nellore
13	Training Programme on 'Mushroom spawn production'	25.07.2020	PHETC, RARS	RARS Tirupati Tirupati
14	On campus training programme on 'Demonstration of horticultural crops, ICM in tomato, IPM in bhendi'	03.08.2020	KVK, Reddipalli	KVK, Reddipalli
15	Training programme on 'Nutrient management in cotton'	04.08.2020	Kambaladinne village, Pedda kaduburu Mandal	KVK, Banavasi
16	Training programme to farmers on 'Real time pest and disease management on cotton, groundnut, importance of FPOs to overcome marketing problems and weather advisories and their role on production and productivity of <i>Kharif</i> crops'	06.08.2020	Bodibanda DFI Village	KVK, Banavasi

S. No.	Event	Date	Venue	Organized by
17	Training programme on 'Self employment & entrepreneurship opportunities' to rural youth in agriculture and allied sectors using Jiomeet platform	07.08.2020	Chennapuram, Kalugoltla and Nagalapuram adopted villages	KVK, Banavasi
18	Training programme on 'PM-KISAN and supportive schemes' initiated by central government and also created awareness on the COVID-19 precautionary measures	09.08.2020	DFI village- Raghavampalli	KVK, Reddipalli
19	Training programme on 'Pest management in greengram'	10.08.2020	Kottalapalli village of Veligandla mandal	DAATTC, Darsi
20	Training programme on 'Integrated pest management in sesamum'	12.08.2020	RBK, Kandulapuram	DAATTC, Darsi
21	Training programme on 'Cotton pest and disease management'	12.08.2020	Virtual	KVK, Amadalavalasa
22	Training programme on 'Production technology of Acid lime' to Nellore district farmers	12.08.2020	Virtual	KVK Nellore
23	Training programme on 'Backyard poultry'	14.08.2020	Yalagalavanka (DFI village), Patacheruvu (village) under FLD	KVK, Kalyandurg
24	Training programme to farmers on 'Different ameliorative measures to be followed in different <i>kharif</i> crops affected by heavy rains'	17.08.2020	Rythu Bharosa Kendram, Kanchikacherla	KVK, Garikapadu
25	Online training programme on 'Plant protection measures in cotton and chilli crops'	17.08.2020	Farmers of Kodumuru, Yemmiganur and Gonegandla mandals	KVK, Banavasi
26	Virtual training programme for VAAs on 'Micronutrient deficiency, pest and disease management in cotton'	18.08.2020	KVK, Darsi	KVK, Darsi
27	Training programme for VAAs on 'Integrated Crop Management in Paddy and Groundnut'	18.08.2020	Virtual	RARS, Tirupati
28	Training programme on 'Cotton production technology and weed and fertilizer management'	19.08.2020	LND Peta (V) Polavaram (M)	KVK, Undi

S. No.	Event	Date	Venue	Organized by
29	Video conference with farmers on 'Package of practices in paddy and redgram'	21.08.2020	Virtual	KVK, Darsi
30	Training programme on 'Integrated crop management in Acid lime' to Village Horticulture Assistants (VHAs)	25.08.2020	Virtual	KVK Nellore
31	Skill training programme on 'Bee keeping' under STRY	26.08.2020	Ramannapalem villages	KVK, Undi
32	Training programme on 'Tribal Sub Plan'	31.08.2020	KVK Rastakuntubai	KVK Rastakuntubai
33	Training on 'Production technology of millets and pearl millet value addition'	09.09.2020	ARS, Ananthapuramu	AICRP on Pearl Millet, ARS Rekulakunta
34	Orientation on 'Life skills and vocational skills' for adolescent girls	14.09.2020 to 19.09.2020	KVK, Utukur	KVK, Utukur
35	Training programme to farmers on 'Pest and disease management in fruit crops and flood ameliorating measures in horticultural crops' through jio meet in collaboration with Reliance Foundation	14.09.2020	Virtual	KVK, Undi
36	Training programme in collaboration with NABARD & Vidya Foundation on 'Seed production in pulses to the seed growers' under FFS seed production	15.09.2020	Kusumalapadu, Vellampeta	KVK, Amadalavalasa
37	Training programme to farmers on 'Pest and Disease management in paddy' to Agril. Officers, AEOs, VAA and VHAs of West Godavari District in collaboration with District Resource Center, Eluru through jio meet	18.09.2020	Virtual	KVK, Undi
38	Training programme on 'Greengram & redgram on production & protection aspects' under SCSP subplan	21.09.2020	KVK, Reddipalli	KVK, Reddipalli
39	Training programme on 'Integrated pest management' at Lakshmipuram village in rice under village adoption programme	23.09.2020	RARS, Anakapalle	RARS, Anakapalle
40	Training programme on 'Mushroom cultivation' in collaboration with ATMA under STRY programme	23.09.2020 to 29.09.2020	KVK, Reddipalli	KVK, Reddipalli

S. No.	Event	Date	Venue	Organized by
41	Training programme on 'Health and Nutrition' during COVID 19 as a part of National Nutrition month celebration	24.09.2020	Attaluru village, Attalurupalem, Organic Farmers Producer Company Limited	College of Community Science, Guntur
42	Training programme on 'J-Gate@ CeRA' for library staff to create awareness about J-gate@CeRA, train the features and functionalities available in J-Gate@CeRA	25.09.2020	Admn Office, ANGRAU	University Library, ANGRAU
43	Training programme on 'Importance of Nutri gardens' to farm women under SC sub plan	26.09.2020	Raghavampalli village	KVK, Reddipalli
44	Training programme on 'Best management practices of vegetables'	29.09.2020	Indukurupeta Rythu Barosa Kendram	KVK Nellore
45	Conducted awareness trainings on 'Solar farming' and on "Mushroom cultivation to rural youth"	23.09.2020; 30.09.2020 and 01.10.2020 respectively	In tribal <i>thandas</i> of Vizianagaram District at 23 Durbili village	KVK, Rastakuntubai
46	Training on 'Seed production in paddy and pulses' to the farmers of Srikakulam district	05.10.2020	ARS, Ragolu	ARS, Ragolu
47	Training on 'Seed production technology of groundnut'	05.10.2020	ARS, Ananthapuramu	ARS, Ananthapuramu
48	Training on 'Agricultural processing, supply chain and ware housing – profitable agriculture'	06.10.2020	PHETC, RARS Tirupati	ANGRAU
49.	Training programme on 'BPH (Brown plant hopper) management in paddy' for Village Agricultural Assistants working at RBKs	08.10.2020	Virtual	KVK, Amadalavalasa
50	Training programme on 'Geographic Information System using QGIS'	12.10.2020 to 23.10.2020	Geospatial Technology Centre, RARS, Lam	Geospatial Technology Centre, RARS, Lam
51	Training programme on 'Contingency crop plan and measures to be taken in heavy rains affected areas of Vizianagaram district' to VAAs	14.10.2020	Virtual	DAATTC, Vizianagaram
52	Training programme on 'Mushroom cultivation'	20.10.2020	PHETC, RARS Tirupati	RARS Tirupati

S. No.	Event	Date	Venue	Organized by
53	A personality development training programme was organized to 540 students of ANGRAU by “CommuniCare”	28.10.2020 to 13.12.2020	Virtual	ANGRAU under IDP
54	Training programme on ‘Production technology of Cashew’ sponsored by (DCCD, Kochi)	31.10.2020 to 02.11.2020	Gumma Lakshmipuram	KVK, Rastakuntubai
55	Training programme for extension personnel and Anganwadi women groups’ on ‘Value addition of Millets’	02.11.2020	KVK, Kalikiri	KVK, Kalikiri
56	Training programme to farmers on ‘Value addition of Jaggery’	07.11.2020	AICRP on PHET, RARS, Anakapalle	AICRP on PHET
57	Conducted hands on training on ‘Pearl millet production and value addition’ to women farmers and SHG members.	18.11.2020	ARS Ananthapuramu	AICRP on Pearl Millet, ARS, Rekulakunta
58	Training Programme on ‘Farm Mechanization in Groundnut Crop’	23.11.2020	CAE, Madakasira	CAE, Madakasira
59	Training programme on ‘Export competitiveness of Indian Agril. Commodities’	25.11.2020 to 27.11.2020	Agricultural College, Bapatla	Agricultural College, Bapatla
60	Training on ‘Usage of complete mechanization of Groundnut cultivation’	07.12.2020 to 14.12.2020	RARS, Farm Machinery Park, Tirupati	RARS, Agricultural Engineering
61	Training programme on ‘Integrated management in major crops’	09.12.2020	Sorakayalapalem village	RARS, Tirupati
62	Team of Scientists of AINP on Tobacco scheme conducted training programme on ‘Popularization of Nandyal pogaku -1 and ABD 132 varieties, Good agricultural practices and <i>Orobanche</i> management in tobacco’	16.12.2020	Parumanchala village of Nandikotkur mandal	RARS, Nandyal
63	Training programme on ‘Organic farming in vegetables, turmeric, ginger’	17.12.2020	Kollaput, Dumbriguda Mandal, Araku valley	AICRP on Bio control
64	Training programme on ‘Quality seed production in rice’	19.12.2020	Perali Village	Agricultural College, Bapatla
65	Training programme on ‘Technological interventions for rice fallow rabi crops and seed production in different rabi crops’	29.12.2020	Thummapala village of Anakapalle mandal	RARS, Anakapalle in collaboration with Department of Agriculture

S. No.	Event	Date	Venue	Organized by
66	Training programme for farmers on 'Quality Seed Production in field crops'	31.12.2020	Bukkapuram, Mahanandi mandal	Agricultural College, Mahanandi
67	Training programme on 'Cultivation of vegetables for attaining nutritional security'	08.01.2021	Agricultural College, Bapatla	Agricultural College, Bapatla
68	Training Programme on 'Groundnut Crop Production Technologies'	22.01.2021	CAE, Madakasira	CAE, Madakasira
69	Two months / 60 hrs training course for 2 nd Cohort of RKVY-RAFTAAR ABI project (Sankalp 2020)	30.01.2021 to 06.03.2021	Virtual	ANGRAU Poshan Incubator
70	Two months / 60 hrs training course for 2 nd Cohort of RKVY-RAFTAAR ABI project (Samriddhi 2020)	30.01.2021 to 06.03.2021	Virtual	ANGRAU Poshan incubator
71	Training on 'Castor cultivation'	26.02.2021	ARS, Ananthapur	ARS, Ananthapur
72	Training programme on 'Competency enhancement and student mentorship in Agricultural Competitive Exams' under SCSP in collaboration with ICAR –NAARM, Hyderabad	09.03.2021 & 10.03.2021	Agricultural College, Rajamahendravaram	Agricultural College, Rajamahendravaram
73	Training programme on 'Implementation of PFMS' in KVK's, AICRP schemes on GoI projects	17.03.2021 & 18.03.2021	Dr NTR CAE, Bapatla	Dr NTR CAE, Bapatla
74	Training programme on Preparation of Hand Cleaning Disinfectant'	20.03.2021	Ponnikallu, Guntur	College of Community Science, Guntur
75	Vocational training programmes on 'Value addition to Millets'	22.03.2021 to 24.03.2021	KVK, Amadalavalasa	KVK, Amadalavalasa
76	Training programme to the farmers entitled 'Protected Cultivation' as a part of capacity building training programme under ICAR-SC sub plan	24.03.2021	S V Agricultural College, Tirupati	SV Agricultural College, Tirupati
77	Training programme on 'Creating awareness on DISHA act and app'	30.03.2021	Jonnalagadda village	College of Community Science, Guntur
78	Training programme on 'Recent ANGRAU Production Technologies of Major Crops in Scarce Rainfall Zone'	31.03.2021	RARS, Nandyal	RARS, Nandyal

S. No.	Event	Date	Venue	Organized by
79	Training programme on ‘Nursery production & Vermi compost preparation’	09.04.2021	Rythu Bharosa Kendra, Perali	Agricultural College, Bapatla
80	Training Programme on ‘Organic jaggery making using moringa leaf extract’	17.04.2021	PHET, RARS, Anakapalle	PHET, RARS, Anakapalle
81	One week training programme on ‘Bio rational Agricultural Practices for organic farming’ for rural youth	22.04.2021 to 29.04.2021	RARS, Anakapalle	RARS, Anakapalle
82	Training programme on ‘Paddy production practices’ for VAAs & VHAs of Atmakur	04.05.2021	Virtual	KVK, Nellore division
83	Training programme on ‘Importance of Honey bees on the eve of World Bee Day’ to VAAs / VHAs / VSAs / VFAs of Jaggayyapet and Nandigama sub divisions	20.05.2021	Virtual	Dr K L Rao KVK, Garikapadu

E. WORKSHOPS / SEMINARS / WEBINARS/ CONFERENCES / SYMPOSIA ORGANIZED

S. No.	Event	Date	Venue	Organized by
1	Mahatma Gandhi National Council of Rural Education Swachta Action Plan workshop	08.06.2020	Dr NTR CFST, Bapatla	Dr. NTR CFST bapatla
2	Video conference on ‘Fertilizer and weed management in paddy’	07.08.2020	Virtual	KVK, Undi
3	Organized web casting of Hon’ble Prime Minister’s address on inauguration programme on ‘Agriculture Infrastructure Fund and Kisan Samman Nidhi programme’ and conducted training programme on “Pest and Disease management practices in paddy”	09.08.2020	KVK, Amadalavalasa	KVK, Amadalavalasa
4	Webinar on ‘Best management practices in paddy’ to VAAs working at RBKs	10.08.2020	Narayan puram village of Rambillim mandal	DAATTC, Kondempudi
5	Webinar on ‘Management of rainfed sugarcane’ to Village Agriculture Assistants (VAAs) working at RBKs	12.08.2020	DAATTC, Kondempudi	DAATTC, Kondempudi

S. No.	Event	Date	Venue	Organized by
6	Knowledge outreach webinar on 'Mitigation of COVID 19'	17.08.2020	College of Community Science, Guntur	College of Community Science, Guntur
7	National Conference on 'Transformation of Agril Extension - Strategies for Effective Reformation'	20.08.2020 & 21.08.2020	Agricultural College, Bapatla	ANGRAU & Agricultural College, Bapatla
8	Webinar on 'Integrated Crop Management in Rice' to Village Agriculture Assistants (VAAs) working at RBKs; 'Best management practices in vegetables'	05.09.2020 & 10.09.2020 respectively	KVK, Kondempudi	KVK, Kondempudi
9	Video conference on 'Integrated Nutrient Management in paddy (<i>Varilo Samagra Poshaka Yajamanyam</i>)' in collaboration with Reliance Foundation, Krishna Dt. to the farmers through Jio meet app	09.09.2020	KVK, Ghantasala	KVK, Ghantasala
10	Online Seminar on 'Gandhian Philosophy' in view of Gandhi Jayanthi	25.09.2020	Dr NTR CAE, Bapatla	Dr NTR CAE, Bapatla
11	National Webinar on 'Statistical Computing Using R software'	28.09.2020 & 30.09.2020	Agricultural College, Bapatla	Agricultural College, Bapatla
12	Webinar on the eve of World Food Day on the topic 'Tackle the Hunger Together' considering the theme for the year 2020 'Grow, Nourish, Sustain Together' through ZOOM	16.10.2020	Virtual	College of Community Science, Guntur
13	Virtual Sensitization Programme Management in the Networked Digital Environment'	17.10.2020	Virtual	Jointly organized by ANGRAU, Guntur, TANVASU, Chennai, and Dr. YSRHU under ICAR- NAHEP
14	Organized IDP webinar on 'Gender Mainstreaming in Agriculture'	05.11.2020	Virtual	Agricultural College, Bapatla
15	National Webinar on 'Remote Sensing and Geospatial Technologies in National Resource Management'	24.11.2020	Virtual	SV Agricultural College, Tirupati

S. No.	Event	Date	Venue	Organized by
16	National webinar on 'Keep soil alive and protect soil biodiversity'	03.12.2020	Virtual	Agricultural College, Bapatla
17	Webinar on 'Building back better towards a disability inclusive, accessible and sustainable post COVID world'	03.12.2020	College of Community Science, Guntur	College of Community Science, Guntur
18	National Webinar on 'Pulses to keep soil alive and protect biodiversity'	04.12.2020	Virtual	RARS, Lam, Guntur
19	National webinar on 'Plant Health Management- Sustainable Agriculture'	16.12.2020	Agricultural College, Bapatla	Agricultural College, Bapatla
20	Webinar entitled "Prospects of Institute of Agribusiness Management - A way ahead"	16.12.2020	S V Agricultural College, Tirupati	Institute of Agri Business Management
21.	National Webinar on 'Recent Molecular Approaches for Plant Disease Diagnosis'	17.12.2020& 18.12.2020	SV Agricultural College, Tirupati	SV Agricultural College, Tirupati
22	Boudhi Krishi 2020 (IPR workshop) - Intellectual property rights and its span regarding entrepreneurs	19.12.2020	Dr K L Rao KVK, Garikapadu	Dr K L Rao KVK, Garikapadu
23	National Webinar series on 'Plant Health Management- Challenges, Interventions, Advances' with the first Webinar on 'Transboundary pests – Threats to Biosecurity and Biosafety issues'	21.12.2020	Virtual	S V Agricultural College, Tirupati
24	National Webinar on 'Agro Forestry as a tool to improve farm income'	22.12.2020	Virtual	Agricultural College, Mahanandi
25	National Webinar through online on 'Natural Resources conservation and management'	30.12.2020	Virtual	Agricultural College, Rajamahendravaram
26	National Webinar through online on 'Digital Agriculture-Challenges and Opportunities'	04.01.2021	Virtual	Agricultural College, Rajamahendravaram
27	National Webinar Series, Session-II on 'Recent molecular approaches for plant disease diagnosis'	05.01.2021	Virtual	S.V. Agricultural College, Tirupati

S. No.	Event	Date	Venue	Organized by
28	Webinar on 'Development of online teaching and learning resources for effective content delivery and assessment of students using ICT'	06.01.2021	Virtual	Agricultural College, Mahanandi
29	National Seminar on 'Government new initiatives in agriculture'	22.01.2021	Virtual	S.V. Agricultural College, Tirupati
30	National Webinar on 'Climate Change - Insect pest management strategies'	23.01.2021	Virtual	Agricultural College, Bapatla
31	Webinar on "Agriculture Reform Bills 2020 : Realities and Way Forward"	29.01.2021	Virtual	RARS, Lam, Guntur
32	National Webinar on 'Contemporary avenues for Entrepreneurship – Opportunities and Challenges'	12.02.2021	Virtual	S V Agricultural College, Tirupati
33	The Annual PG Students National Conference on 'Multidimensional Approaches for Sustaining Food and Nutritional Security'	04.02.2021 to 05.02.2021	S.V. Agricultural College, Tirupati	S.V. Agricultural College, Tirupati
34	Workshop on 'Energy conservation and Energy efficiency'	12.02.2021	KVK, Reddipalli	KVK, Reddipalli
35	Two-day workshop on 'Constraint analysis and strategies for improving productivity of major crops grown' in North Coastal Zone	25.02.2021 & 26.02.2021	RARS, Anakapalle	RARS, Anakapalle
36	National Webinar Series, Session -II on 'Impact of Climate Change and Invasive Alien Species on Agriculture'	26.02.2021	Virtual	S.V. Agricultural College, Tirupati
37	National Webinar on 'Role of Response Surface Methodology (RSM) for Process and Product Optimization in Agriculture'	05.03.2021	Virtual	S.V. Agricultural college, Tirupati
38	National Webinar on 'Transition of Technology from Lab to Market through Technology Commercialization' virtually on Zoom platform & YouTube live by ANGRAU-Agri Innovations and Entrepreneurship Development Cell, RARS, Tirupati	12.03.2021	Virtual	ANGRAU Posham Incubator RARS, Tirupati

S. No.	Event	Date	Venue	Organized by
39	Energy efficiency and demand side management in agriculture sector	22.03.2021	Dr KL Rao, KVK Varikapadu	Dr. KL Rao KVK, Garikapadu
40	Workshop on ‘Strategies to enhance the productivity of major field crops in HAT zone of Andhra Pradesh’ through Zoom App (online mode)	24.03.2021	RARS, Chintapalle	RARS, Chintapalle
41	International Webinar on ‘International pulses market and production economics’ by Dr Yelto Jimmer”, Germany	20.04.2021	Virtual	ANGRAU under IDP
42	International Webinar on ‘Water, Food, Energy Nexus: The Integrated Management for efficient use of resources’ by Prof. Ragab”, President, ICID, UK.	26.04.2021	Virtual	ANGRAU under IDP
43	National Conference on ‘Recent Trends in Plant Pathology’	04.05.2021	Virtual	ARS, Viiziana-garam
44	International Webinar on ‘Creating effective online learning environments: A Strategy’ by Dr Fedro S Zazueta, Associate CIO and Emeritus Professor, University of Florida, USA	18.05.2021	Virtual	ANGRAU under IDP

F. PARTICIPATION / VISITS OF VICE-CHANCELLOR

Date	Venue	Event
From 26.5.2020 to 4.6.2020	Virtual	State Level Technical Programme meeting through Zoom Video conference for the departments of Agronomy Home Science, Crop Physiology Genetics and Plant Breeding
18.06.2020	Administrative Office, Lam, Guntur	293 rd meeting of the Board of Management
24.06.2020	Virtual	National Webinar on “Recent Biotechnological tools for crop improvement”
07.07.2020	ARS, Utukur and RARS, Tirupati	Reviewed the ongoing research activities. Suggested to establish an organic research station for the improvement of bio farming activities and also to transfer the technical know-how to the farming community of Chittoor Zone
08.07.2020	ARS, Nellore	Inspected the ongoing constructions and also stressed on the development of new paddy varieties

Date	Venue	Event
16.07.2020	Agricultural College, Bapatla	Participated in the 75 th (Platinum Jubilee Year) Foundation Day and inaugurated the website of the Alumni Agricultural Graduates Trust For College Development (AAGTCD) - Alumni Association of Agriculture College, Bapatla and released the Souvenir
17.07.2020	Virtual	Participated in a meeting convened by Hon'ble Chancellor and Governor of Andhra Pradesh at Raj Bhavan, Vijayawada
17.07.2020	University Head Quarters, Lam, Guntur	Participated in 104 th Academic Council Meeting
03.08.2020	RARS Nandyal	Visited and evaluated the ongoing research activity and suggested several recommendations and new activities to be taken up during the Kharif 2020
22.08.2020	Raj Bhavan & AP Secretariat	Courtesy meeting with Sri Biswabhusan Harichandan, Hon'ble Governor of Andhra Pradesh and Sri Y.S. Jaganmohan Reddy, Hon'ble Chief Minister of Andhra Pradesh
27.08.2020	Rajamahendravaram	Visited Agricultural College and suggested several measures to be taken up to improve quality of education and also suggested to maintain data bank of passed students. Suggested to focus on civil works pertaining to construction of college buildings and hostels. Suggested to concentrate on income generation by producing quality seed
28.08.2020	Maruteru	Visited Regional Agricultural Research Station and enquired about the ongoing research and also about the diagnostic field visits. Suggested that the scientists should be aware of the latest Agricultural Schemes of State and Central and also the latest agricultural chemicals coming into market
01.09.2020	Bapatla	Visited Agriculture College and suggested to establish shade nets in the college farm, planting bamboo as boundary, advised the Estate Officer to clear the dilapidated staff quarters existing in the farm within 3 months and to renovate the old Japanese guest house depending on the strength of the building or for using Post-Harvest storage purpose
11.09.2020	Lam, Guntur	Visited RARS and made some suggestions
15.09.2020	Univ. Head Quarters, Lam, Guntur	Convened 294 th Meeting of the Board of Management
17.09.2020	Bapatla	Visited Agriculture College and made some suggestions
17.09.2020	Bapatla	Visited College of Food Science & Technology and advised to have data base of all the alumini employed in different sectors and to have linkage for further development of the college
23.09.2020	Nellore	Visited ARS and suggested to have linkages with international and national institutes of repute to exchange material and ideas etc.

Date	Venue	Event
23.09.2020	Nellore	Visited KVK and suggested Krishi Vigyan Kendra activities should reach farmers in village in coordination with Rythu Bharosa Kendras etc.
24.09.2020	Tirupati	Visited S.V. Agricultural College and advised the PG/Ph.D students to have research programmes in collaboration with other National and International Institutes etc.
30.09.2020	ABF, Hyderabad	Participated in 13 th General Body of Agri Biotech Foundation
10.10.2020	Tirupati	Visited Regional Agricultural Research Station (RARS), ANGR Agricultural University has made an MoU with TTD regarding food waste converted into bio-fertilizers
11.10.2020	KVK, Kalikiri	Visited and inspected the ongoing research work
27.10.2020	Ghantasala	Visited KVK, Agricultural Research Station and Agril. Polytechnic and inspected the ongoing extension, research & teaching activities
05.11.2020 & 06.11.2020	Anantapuramu	Visited Agricultural Research Station (ARS), and also graced the convocation of Sri Krishna Devaraya College of Agricultural Sciences, Anantapuramu
20.11.2020	Univ. Head Quarters, Lam, Guntur	Presided over the MoU signing ceremony of ANGRAU and Andhra Pradesh State Council of Higher Education (APSCHE) for implementation of Undergraduate online admissions combinedly for ANGRAU, Dr. YSRHU and SVVU for the academic year 2020-'21
04.12.2020	Agricultural College, Raja-mahendravaramu	Monitored the teaching activities and online verification of certificates of Farmers Quota for UG admissions. Further, monitored the progress of civil works in Kantheru farm.
05.12.2020	Nidigatla	Visited Nidigatla farm and suggested the improvements for the development of the farm
14.12.2020	Yelamanchili & Anakapalli	Visited and reviewed activities at ARS and RARS
15.12.2020	Naira, Ragolu Amadalavalasa	Visited and reviewed the research/teaching/extension activities at Agricultural College, Naira; ARS, Ragolu; KVK, Amadalavalasa; ARS, Amadalavalasa; DAATTC, Amadalavalasa; ARS, Vizianagaram & DAATTC, Vizianagaram
17.12.2020	RARS, Lam, Guntur	Participated in the exposure visit to promising entries/ germplasm/parental lines of cotton with private seed companies
24.12.2020	Administrative office, ANGRAU, Lam, Guntur	Participated in the Faculty Board meeting of Agriculture, Agricultural Engineering & Technology, Community Science and the PG Studies through online
26.12.2020	Vijayarai	Visited and reviewed research activities at ARS
28.12.2020	RARS, Lam, Guntur	Convened 105 th Academic Council meeting

Date	Venue	Event
29.12.2020	Hon'ble Chief Minister's Camp	Participated in the Inauguration of A.P. State Agriculture Council Office
30.12.2020	–	Visited and reviewed the activities of RBKs along with Hon'ble Minister of Agriculture, AP.
03.01.2021	Nandyal	Visited RARS and reviewed the field and laboratory research
04.01.2021	Vizianagaram	Visited ARS and DAATTC, and reviewed the research and extension activities
05.01.2021	Visakhapatnam & Kondempudi	Visited DAATTC and KVK, reviewed the ongoing extension activities
14.01.2021	Perumallapalli & Tirupati	Visited ARS and RARS and monitored the ongoing research activities
19.01.2021	Kavali	Visited ARS and monitored the ongoing research and instructed to maintain nursery block
20.1.2021 & 21.1.2021	SVVU Auditorium, Tirupati	Convened and participated in the 50 th REAC meeting of ANGRAU
26.01.2021	VIT, Amaravati	Attended as Chief Guest on the occasion of 72 nd Republic Day celebrations
29.01.2021	Tadepalligudem	Participated in the Board of Management meeting of Dr. Y.S.R. Horticultural University
03.02.2021	Podalakur	Visited APT and ARS and reviewed the ongoing activities
4.2.2021 & 5.2.2021	Tirupati	Participated in the Annual Post Graduate students National conference Visited and reviewed the academic activities at S.V. Agricultural College, Tirupati, & research activities at RARS, Tirupati and extension & academic activities at KVK, Kalikiri & APT, Kalikiri respectively
06.02.2021	Utukur	Visited and reviewed the research and extension activities of DAATTC, Kadapa, ARS, Utukur and KVK, Utukur
07.02.2021	Hyderabad	Visited Agri Biotech Foundation and participated in the meeting with Chairman, NABARD
15.02.2021	Maruteru	Visited RARS, Maruteru and reviewed research activities
16.2.2021 & 17.2.2021	Annavaram	Chaired the 296 th Meeting of Board of Management
19.02.2021	Hyderabad	Visited Agri Biotech Foundation Ltd.
22.02.2021	Venkataramanna-gudem	Attended 4 th Convocation of YSR Horticultural University
24.02.2021	Ag. College, Bapatla	Inaugurated the Sports meeting of Inauguration Non-Teaching employees of ANGRAU
26.02.2021	RARS, Lam, Guntur	Delivered presidential address at Science Day conference as president
27.02.2021	IIT, Tirupati	Attended meeting organized by APSHE

Date	Venue	Event
02.03.2021	Nellore	Visited ARS and participated in Kisan Mela
03.03.2021	RARS, Lam, Guntur	Convened and participated in Pulsesreview meeting
06.03.2021	Bapatla	Visited Agricultural College and reviewed the teaching activities
15.03.2021	Rajamahendravaram	Visited Agricultural College and reviewed the teaching activities
16.3.2021 & 7.3.2021 respectively	Tirupati	Visited S. V. Agricultural College & RARS and reviewed the teaching & research activities
19.03.2021	Bapatla	Visited Agricultural College and participated in the opening ceremony of Apex Building
20.03.2021	Vijayawada	Visited Swarna Bharati Trust and participated in the meetings
25.03.2021	Anakapalle	Visited RARS and inaugurated Agro processing Centre” along with Hon’ble MLA, Anakapalle and other public representatives. Participated in the 62 nd Kisan Mela cum Technology Demonstration Mela
26.03.2021	Chintapalle	Visited RARS and reviewed the research activities
27.03.2021	Maruteru	Visited RARS and reviewed the ongoing research activities
27.03.2021	Undi	Visited KVK and participated in the Kisan Mela
31.03.2021	Administrative Office, Lam, Guntur	Convened a meeting with a team of Scientists from ICRISAT, Hyderabad for future collaborations with ICRISAT in research and extension
03.04.2021	Administrative Office, ANGRAU, Lam, Guntur	Convened an interaction meeting on “Trends for development of policy matters in agriculture and allied sectors” with all the faculty of Agricultural Economists
06.04.2021	Administrative Office, Lam, Guntur	Convened 297 th Board Of Management meeting
06.04.2021	Nellore	Visited ARS, KVK & DAATTC and reviewed the ongoing research and extension activities
08.04.2021	Maruteru	Visited RARS and participated in “Mega Seed Display” of ANGRAU rice varieties
18.04.2021	Rajamahendra -varamu	Visited Agricultural College and reviewed the ongoing teaching activities
19.04.2021	Administrative Office, Lam, Guntur	Participated in Advisory Committee meeting to the Academic Council
20.04.2021	APSCH, Mangalagiri	Participated in Webinar with Hon’ble Governor of Andhra Pradesh
22.04.2021	Administrative Office, Lam, Guntur	Convened 298 th Board of Management
14.05.2021	Chinapavani, Prakasam district	Visited and reviewed the ongoing works at newly established Agricultural Research Station

Date	Venue	Event
From 17.5.2021 to 31.05.2021	Administrative Office, Lam, Guntur	Participated and reviewed the State Level Technical Programmes (SLTP) of various disciplines through online
26.05.2021	Administrative Office, Lam, Guntur	Chaired the Finance Committee meeting through online
28.05.2021	Administrative Office, Lam, Guntur	Participated in Departmental Promotion Committee (DPC) meeting through online

G. VISITORS

S. No.	Event	Date	Place Visited
1	Mohan Charan Das, Senior Seed Certification Officer, Lam, APSSCA attended the physical verification of Source seed (<i>Kharif</i> sown Redgram & Paddy)	04.07.2020	ARS, J M Puram and APT, JM Puram
2	Smt. K.Bhagyalakshmi, Hon'ble MLA Paderu, Smt. J Halilya Rani, AMC chair person, Chintapalle participated Tribal Sub Plan programme	08.07.2020	RARS, Chintapalle
3	Sri Kesineni Srinivas (Nani), Hon'ble Member of Parliament, Vijayawada and observed some of the demonstration units. Enquired about the cost economics of various agriculture, horticulture crops and veterinary units	10.08.2020	KVK, Garikapadu and ARS, Garikapadu
4	Sri Srinivasa Rao, District Development officer, NABARD, Visakhapatnam inspected the progress of construction of building under NABARD funding	10.08.2020	RARS, Anakapalle
5	Sri R Arun, Regional Manager, JCI, Parvatheepuram	12.08.2020	Tossa Jute Research Project at ARS, Amadalavalasa
6	SriKaushikChoudary, Zonal Manager, East Coast Region, Visakhapatnam, Sri R. Arun, Regional Manager, JCI, Parvatheepuram, Sri R Ram Kiran, Additional Deputy Marketing Manager, Parvatheepuram and Sri M ChendraSekhar, Additional Administrative Officer, Visakhapatnam	18.08.2020	Tossa Jute Research Project at ARS, Amadalavalasa
7	B M K Reddy, Chairman, AP Biodiversity Andhra Pradesh	26.08.2020	S V Agricultural College, Tirupati
8	Dr Chandra Mohan Reddy, ZSPO, RARS, Nandyal	09.09.2020	Seed production plots of Groundnut, Redgram, Horsegram etc. at ARS, Ananthapuramu

S. No.	Event	Date	Place Visited
9	Sri H Arun Kumar, Hon'ble Commissioner Agriculture, Govt. of Andhra Pradesh along with Sri Sumit Kumar, Joint Collector, Srikakulam reviewed and interacted with the scientists	26.09.2020	ARS, Ragolu
10	Sri K Sridhar, Joint Director of Agriculture, Srikakulam interacted with the scientists	26.09.2020	ARS, Ragolu
11	Sri MVS Nagi Reddy, Vice-Chairman, AP Agril. Mission	01.10.2020	Farm Machinery park Millet processing unit and PHETC Laboratory at RARS, Tirupati
12	A team of scientists from Professor Jayasankar Telangana Agricultural University comprising Dr K Avil Kumar, The Associate Director of Research, RARS, Palem, Dr M Sujatha, P.S. (Oil seeds), Dr G Seshu, Scientist (Pl. Breeding) and Smt. Sravanthi, Scientist (Pl. Breeding) monitored all the ongoing experiments (plant breeding, pathology and agronomy) and seed production activities	13.10.2020	Agricultural Research Station, Kadiri
13	Sri MVS Nagi Reddy, Vice-Chairman Agri-Mission, Govt. of AP, Dr Chandra Sekhara Reddy, Member, Agri-Mission, Govt. of AP	15.10.2020	RARS, Maruteru
14	Sri V. Jagadesh, Manager, APSSCA Thanuku monitored paddy seed production plots	23.10.2020	ARS, Seethampet
15	Sri Ramana Murthy, Senior Seed Certification Officer, APSSCA, Tanuku inspected the Breeder and foundation seed production plots	27.10.2020	ARS, Ragolu
16	Sri Palle Raghunatha Reddy garu observed different departments	03.11.2020	Agricultural College, Bapatla
17	Dr M V S Nagi Reddy, Chairman, AP Agri Mission; Dr Y V Malla Reddy Member, AP Agri Mission; Dr Chandra Sekhar Reddy Member, AP Agri Mission; Sri Ramakrishna, JDA, ATP	05.11.2020	Inaugurated Oil Expeller Unit at ARS, Anathapuram
18	Sri G Amarnadh, Hon'ble MLA, Anakapalle	16.11.2020	RARS, Anakapalle
19	Sri V. Jagadesh, Seed Certification Officer monitored seed production fields	23.11.2020	RARS, Anakapalle
20	N Venkata Lakshmi, Sr. Seed Certification Officer, APSSCA; Dr. S. Ravi Kumar Seed Certification Officer, APSSCA monitored seed production of BPT-5204 & LRG-52	23.11.2020	ARS, JM Puram and APT, JM Puram

S. No.	Event	Date	Place Visited
21	Sri M V S. Nagireddy, Vice Chairman, Andhra Pradesh Agriculture Mission	25.11.2020	Biocontrol Lab, RARS, Anakapalle and RARS, Anakapalle
22	Sri M V S Nagi Reddy, AP State Agricultural Mission Vice Chairman Sri G Raghu Ram and Dr M Chandra Sekhar Reddy, Members of AP State Agricultural Mission	26.11.2020	Experimental and seed production plots of mesta, jute, sunnhemp and pulses at ARS, Amadalavalasa
23	Sri M V S Nagi Reddy, AP State Agricultural Mission Vice Chairman, Sri G Raghu Ram and Dr M. Chandra Sekhar Reddy, Members of AP State Agricultural Mission visited experimental and seed production plots of mesta, jute, sun hemp and pulses and interacted with the scientists	26.11.2020	ARS, Ragolu
24	Mr A Praveen Kumar, MTAB Service Engineer	26.11.2020 & 27.11.2020	Dr NTR College of Agricultural Engineering, Bapatla
25	APSSCA Team inspected Paddy Foundation Seed taken up in an area of 78 acres during 2020-21	03.12.2020	Agricultural College Farm, Bapatla
26	The monitoring team consisting of Principal Scientist (Rice), ZSPO, RARS, Lam, Principal Scientist (Seeds) and representatives from NSC, APSSDC, APSSCA monitored breeder seed of BPT 5204, BPT 2231, BPT 2411 and BPT 3291	03.12.2020	ARS, Bapatla
27	Dr B M K Reddy, Chairman, AP State Biodiversity Board	05.12.2020	ARS, Podalakur
28	Sri V Viswanatham, Chief Seed Certification Officer, APSSCA; Ms NVenkata Lakshmi, Sr. Seed Certification Officer, APSSCA; Dr S Ravi Kumar, Seed Certification Officer, APSSCA monitored seed production of BPT-5204& LRG-52 under field conditions at flowering stage	11.12.2020	ARS, J M Puram and APT, JM Puram
29	CSCO, Guntur inspected seed production plots of Blackgram and Greengram	14.12.2020	ARS, Podalakur
30	Dr B M K Reddy, Chairman, State Bio diversity attended interactive meeting with teaching staff and planted tamarind saplings at ARS, Rekulakunta farm	16.12.2020	APT, Reddipalle
31	Dr B M K Reddy, Chairman, AP Biodiversity board	16.12.2020	ARS, Anathapuram
32	Sri M V S Nagi Reddy, Vice Chairman of Agriculture Mission and Dr Chandra Sekhar Reddy, Member of Agriculture Mission visited experimental plots and interacted with scientists and Teaching staff of Agricultural Polytechnic	18.12.2020	APT, Garikapadu

S. No.	Event	Date	Place Visited
33	Smt. T Shalini, SSCO, APSSCA monitored seed production fields	18.12.2020	RARS, Anakapalle
34	Sri M Girija Shankar, IAS, Commissioner, Panchayat Raj & RD, Govt. of AP visited in view of visit of Hon'ble Chief Minister at Takkellapadu	21.12.2020	APT & ARS Garikapadu
35	Ms Padmavathi, Scientist, ICAR-IIRR, Rajendranagar monitored breeder seed production of DRR Dhan-49 & DRR Dhan-44 under field conditions at flowering stage	24.12.2020	ARS, J.M.Puram
36	D Papi Reddy, Facilitator, DESI, Guntur	24.12.2020	ARS, Amaravathi
37	Sri V Viswanatham, Chief Seed certification officer, APSSCA; Ms N Venkata Lakshmi, Sr. Seed Certification Officer, APSSCA; Dr S Ravi Kumar, Seed Certification Officer, APSSCA; Dr J Satish, Zonal Seed Production Officer, Lam; Dr M V Ramana PS (Pulses), Lam monitored Breeder seed production of ICPL-87119 & LRG-52 under field conditions at pod development stage	30.12.2020	ARS, J M Puram and APT, J M Puram
38	Sri H Arun Kumar, IAS Special Commissioner & Director of Agrl. Govt. of A.P	02.01.2021	RARS, Tirupati
39	Er Balachandra Babu, President, Agricultural Machinery Manufacturer association, India	04.01.2021	RARS, Tirupati
40	Dr A V S R. Swamy; Pr. Scientist (Pl.Br.), ICAR-IIRR, Rajendranagar; R Bosu Babu, YP-II, ICAR-IIRR, Rajendranagar; V.Viswanatham, Chief Seed certification officer, APSSCA; Dr S Ravi Kumar Seed Certification Officer, APSSCA monitored breeder seed production of DRR Dhan-49 and DRR Dhan-44 under field conditions at grain filling to grain hardening stage	05.01.2021	ARS, JM Puram and APT J M Puram
41	Mr Kishore Kumar, Founder & Director, KISH Academy, Guntur interacted with the students in orientation programme for CAT examination organized for the benefit of III B Sc (Hons) students	08.01.2021	Agricultural College Bapatla
42	The monitoring team consisting of representatives from APSSCA, APSSDC and NSC monitored BPT 5204, BPT 2270 and BPT 2595 B/S	12.01.2021	ARS, Bapatla
43	Sri M V S Nagi Reddy, Vice chairman, A.P. State Agriculture Mission and Sri Simhadri Ramesh garu, MLA, Avanigadda constituency, Krishna District monitored ongoing research activities	12.01.2021	ARS, Ghantasala
44	Sri M V S Nagi Reddy, Agri Mission Vice chairman, and Dr M Chandrasekhar Reddy, Agri Mission member	19.01.2021	ARS, Nellore

S. No.	Event	Date	Place Visited
45	KISH Academy, Guntur conducted mock test on CAT	20.01.2021	Agricultural College, Bapatla
46	Sri M V S Nagi Reddy, Vice-Chairman, Agri-mission, A.P	20.01.2021	S.V. Agricultural College, Tirupati
47	Dr Ratna Kumar, Scientist IIOR, Dr HD Pushpa, Scientist, IIOR	20.01.2021	ICAR-DBT Niger project at RARS Chintapalle
48	Sri M Ravi Pratap, General Manager, Sree Platino Bio Aesthetics Pvt. Ltd. Hyderabad and Sri Dastagiri, Local Sales Officer, Nandyal visited the Bengal gram paid up trial field	20.01.2021	RARS, Nandyal
49	Scientists from IISER & IIT, Chennai	20.01.2021	Pesticide Residue Testing Laboratory, RARS, Tirupati
50	Dr K N Satyanarayana Director, IIT Tirupati & Prof. K N Ganesh Director, IISER Tirupati (MoU with ANGRAU)	21.01.2021	PHETC Lab, RARS, Tirupati
51	Dr P M Gaur, Dr Mamta Sharama, Dr Srinivasan Scientists from RARS, ICRISAT	27.01.2021	Experimental plots of AICRP Chickpea at Nandyal
52	Dr Ponnuswamy, J D, IIOR, GOI, Hyderabad, Sr. NCH. Balu Naik, DDA (PP), DOA, T Mohana Rao, JDA, Krishna Dt. Machilipatnam and Sri N. Manidhar, ADA, O/o JDA, Krishna Dt. Machilipatnam and K Srinivasa Rao, ADA, Movva and Agricultural officer, Ghantasala	28.01.2021	ARS, Ghantasala
53	Officials of NABARD, A.P	29.01.2021	RARS, Lam
54	Dr R C Agrawal, Deputy Director General-ICAR, New Delhi	04.02.2021	SV Agricultural College, Tirupati
55	Sri K Sridhar, Joint Director of Agriculture, Srikakulam and Sri K Krishna Rao, Project Director, ATMA, Srikakulam visited and interacted and observed rabi pulse programme of both seed production plots, pulse crop experiments	04.02.2021	ARS, Ragolu d with the scientists
56	Dr M Charumati, Principal Scientist (Pl. Br.) and Zonal Seed Production officer, RARS, Anakapalle, Sri Sampath Kumar, District Manager and Sri Jagadeesh, Seed Certification Officer monitored pulses breeder seed production plots of LBG-787, LBG 752 and Foundation seed production plots of IPM 2-14	08.02.2021	ARS, Ragolu

S. No.	Event	Date	Place Visited
57	Dr M V Ramana, Principal Scientist (Pulses), Dr M Charumati, Principal Scientist (Pl. Br.) and Zonal Seed Production officer, RARS, Anakapalle, Sri Sampath Kumar, District Manager and Sri Jagadeesh, Seed Certification Officer to monitor pulses breeder seed production plots of LBG-787 and GBG-1	08.02.2021	ARS, Amadalavalasa
58	Chief Seed Certification Officer, APSSCA, Dr J Satish, Zonal Seed Production Officer, Lam monitored team visit for Breeder seed production of LBG-787, LBG-752& IPM-2-14 under field conditions at pod development stage	12.02.2021	APT, Seed Technology, JM Puram
59	Sri Vishnu Charan, Trainee Collector, Testing Chittoor District	16.02.2021	Pesticide Residue Lab, RARS, Tirupati
60	Sugar Cane Commissioner, A P, and ACC Vuyyuru	17.02.2021	SRS, Vuyyuru
61	Sri V Viswanath, CSCO, APSSCA and Sri Jagadeesh, SCO	19.02.2021	ARS, Amudalavalasa
62	Sri J Nivas, District Collector & Magistrate, Srikakulam, Dr N Dr N Trimurthulu, Director of Research & Dr P Rambabu, Director of Extension; Dr S V S R K Netaji, Sri K Sridhar; Joint Director of Agriculture, Srikakulam; Sri K. Krishnarao, Project Director, ATMA, Srikakulam to participate in Kisan mela celebrations	23.02.2021	ARS, Amudalavalasa
63	Director, ICAR-NRRI and Team	24.02.2021	Agricultural College, Naira
64	APSSCA team Sri V Viswanadham, Chief SCO, Sri M. Venkata Lakshmi, SSCO and Sri Suresh Babu, SCO monitored seed production godowns (BPT 5204) and seed processing BPT 2270	25.02.2021	Agricultural College, Bapatla
65	Sri Kona Ragupathi Garu, Hon'ble Deputy Speaker AP Legislative Assembly participated in Valedictory function of Annual Sports, Games, Cultural & Literary Competitions 2020-21 for Non-teaching staff of ANGRAU	26.02.2021	Agricultural College, Bapatla
66	Sri Sumit Kumar, IAS, Joint collector, Srikakulam attended interaction programme on enhancement of productivity in rice fallow pulses in Srikakulam district in the presence of ADAs, MAOs of all Agricultural Department officials	26.02.2021	ARS, Ragolu

S. No.	Event	Date	Place Visited
67	Dr S Michael Raj IPS, CID Beauru New Delhi M Sc (Ento.) (1999-2001) for Alumnus visit	27.02.2021	Agricultural College Bapatla and Dept. of Entomology
68	Sk Sugur Begum, MAO, Achampet	02.03.2021	ARS, Amaravathi
69	Sri Vishal Gunni, Rural SP; Sri Trivikram Varma, Guntur Range DIG; Ms E Annamani, Principal Junior Civil Judge; Sri Arif Abee, OSD Guntur Rural SP; Sri Gautam Sawang, DG of Police - Addressed the girl students and staff on sensitization on DISHA mobile application	08.03.2021	Agricultural College, Bapatla
70	Sri H Arun Kumar Special Commissioner and Director and Agriculture Govt. of A.P.	13.03.2021	ARS, Kadiri
71	Dr G P Rao, Principal scientist (Virology), Indian Agricultural Research Institute, New Delhi	15.03.2021	Agricultural Research Station, Kadiri
72	Sri Y Manikantam, ZPHS, Dodleru	15.03.2021	ARS, Amaravathi
73	Dr Sekhar Babu, Vice Chairman and Managing Director of APSSDC organized training programme on groundnut seed procurement and quality standards for procurement	19.03.2021	Agricultural Research Station, Kadiri
74	Sri K Viswanadham, Chief SCO and Smt. M Venkata Lakshmi, SSCO verified seed sales	19.03.2021	Agricultural College, Bapatla
75	Sri M V S Nagireddy, Vice Chairman, Agril. Mission on the eve of World Water Day	22.03.2021	Agricultural College, Bapatla
76	Sri K Narasimha Reddy, MLC, Kurnool	22.03.2021	Agricultural College, Naira
77	Dr N N Murthy, Assoc. Professor, IIT, Tirupati along with team	26.03.2021	RARS, Tirupati
78	Sri K Kanna Babu, Hon'ble Agriculture Minister, Sri Ch. Sri Ranganadha Raju, Hon'ble Housing and Society Welfare Minister, Sri MVS Nagireddy, Chairman, Agricultural Mission, Sri M Ramraju, MLA, Undi, Sri G Srinivas, MLA, Bhimavaram participated in Kisan Mela in view of Silver Jubilee celebrations of KVK	27.03.2021	KVK, Undi
79	Sri P Neelakantewara Rao, Facilitator, DESI, Guntur	01.04.2021	ARS, Amaravathi
80	Ms K Tanuja, MAO, Thullur	03.04.2021	ARS, Amaravathi
81	MsKTanuja, MAO, Thullur	03.04.2021	ARS, Amaravathi

S. No.	Event	Date	Place Visited
82	Ms M Venkata Lakshmi, SSCO to collect samples of BPT 5204 & physical purity analysis	09.04.2021 & 27.04.2021 respectively	Agricultural College, Bapatla
83	Sri Viswanadham and Dr Pratap Kumar Reddy, APSSCA, Ongole monitored <i>rabi</i> seed production plots	17.04.2021	Agril. Research Station, Nellore
84	Sri V.Jagadesh, Seed Certification Officer monitored processed seed	18.05.2021	RARS, Anakapalle
85.	Sri Muttam Setty Srinivasa Rao, Hon'ble MLA, Sri G Amarnath, Hon'ble MLA, Smt. Satyavathi, Hon'ble MP & Sri Vinay Chand, IAS, District Magistrate	31.05.2021	RARS, Anakapalle

X. RESEARCH PUBLICATIONS

A. BOOKS AND CHAPTERS

1. Anil Kumar, B M., Rajashekara, H., Tara Satyavathi, C., Ganesan Prakash., Rajan Sharma., Narasimhulu, R and Chandra Nayaka, S. 2021. Book Chapter on 'Pearl millet blast resistance: Current status and recent advancements in genomic selection and genome editing approaches'. In: *Blast Disease of Cereal Crops*. 183-200.DOI: 10.1007/978-3-030-60585-8-13.
2. Bharathu Nirujogi. 2021. Book Chapter on 'Avacado' In: *Tropical Fruit Crops – Theory to Practical*. Jaya Publishing House.
3. Bindumadhavi, G and Gopi, R. 2021. Book Chapter on 'Exploitation of biofumigation and biocontrol agents for the management of soil-borne diseases'. In: *Innovative Approaches in Diagnosis and Management of Crop Diseases. Volume 3: Nanomolecules and Biocontrol Agents*. Singh, R.K and Gopala (Eds). Apple Academic Press. 409-436.
4. Bindumadhavi, G and Gopi, R. 2021. Book Chapter on 'Plant immunization: An innovative approach for plant disease management'. In: *Innovative Approaches in Diagnosis and Management of Crop Diseases, Volume 3: Nanomolecules and Biocontrol Agents*. Singh, R.K and Gopala (Eds). Apple Academic Press.
5. Darshan, K., Lakshmi, M A and Reddy, M G. 2021. *Phyto Pathological Techniques: Basic to Advance*. Gupta Printers, Mysore. ISBN.No.978-93-5473-629-2.
6. Durga Prasad, A V S. 2020. Book Chapter on 'Recent trends in molecular biology and biotechnology'. In: Vol-1. *IPRs and Plant Breeding*.65-75.
7. Gurumurthy, P. 2020. *Nature, Properties and Management of Problem Soils*. Satish Serial Publishers, New Delhi.
8. Lakshmi Durga, M. 2021. Book Chapter on 'Agapanthus'. In: *Commercial flowers*. Kalyani Publishers.
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XI. AWARDS AND HONORS

A. INSTITUTIONAL AWARDS

- ICAR Award to ANGRAU for securing 2nd position in PG Admissions at National Level during 2020-'21.
- ARS, Vizianagaram has bagged “Fakhruddin Ali Ahmed” award” for outstanding research in “Tribal Farming Systems” for the year 2020.
- KVK, Garikapadu received “Best performance in CFLD Pulses” award at Annual Zonal Review workshop of KVKs of Zone X organized during 23-25 July, 2020.
- KVK, Banavasi received “Best Fact Sheet 2019-‘20” award among KVKs of Andhra Pradesh during the Virtual Annual Zonal Review Workshop of KVKs of ICAR-ATARI-Zone-X held during 23-25 July, 2020.
- KVK, Rastakuntubai received “Best Programme: Swatchtha Seva 2019-‘20” award during Virtual Annual Zonal Review Workshop of KVKs of ICAR-ATARI-Zone X, Hyderabad, held during 23-25 July, 2020.
- ARS, Vizianagaram has bagged ‘Best Centre of All India Coordinated Research Project on Integrated Farming Systems (AICRP on IFS) under On-Farm Scheduled Tribe Components (STC) category” during biennium of 2018-‘20 under ICAR-IIFSR, Modipuram for introducing and popularising Duplex Poultry Rearing Units.
- KVK, Amadalavalasa has bagged “Dhanuka Innovative Agricultural Award”, presented by Shri Gajendra Singh Shekavath, Central Jhalsakthi Minister.
- KVK, Amadalavalasa received Zonal Best KVK in implementing Jhalsakthi Abhiyan by Zonal Level ATARI-X for the year 2020-21.

- KVK, Anantapuramu received “Best CFLD-Pulses implementation” award for the year 2019-‘20 in the Annual Zonal workshop of KVKs.
- KVK, Anantapuramu received Best PKVY implementation” award for the year 2019-‘20 in the Annual Zonal workshop of KVKs.
- KVK, Darsi received “Best Oral presentation” award in Annual Zonal Review Workshop of KVKs of Zone -X at Hyderabad.
- Appreciation certificate for KVK, Utukur from ICAR – ATARI, Zone-X for second position in Jalashakti Abhiyan-I & II programmes organized by KVKs of Zone -X.
- Certificate of Appreciation during Annual Zonal Workshop 2020 to KVK, Nellore for a) Best project ARYA 2019-20 and b) Best publications in 2019-‘20.

B. PATENTS GRANTED

- A patent on “A Process for Preparing Dehydrated Fruit Bar from Prickly Pear Fruits (*Opuntia ficus indica*) and Product thereof” was granted to S. V. University and College of Food Science & Technology, Pulivendula vide Patent No: 367043 dt: 19.05.2021.
- A patent on “Machinery & Process of Manufacturing of Cane Jaggery in Crystal Form” was granted to Acharya N G Ranga Agricultural University by Patent Office, Chennai, vide Patent No.361025 on 12.03.2021 (RARS, Anakapalle).

C. AWARDS PRESENTED AT REAC (2020-21) MEETING FOR THE YEAR 2019-20

- ARS, Vizianagaram received ‘Best Agricultural Research Station’ award.

- DAATTC, Vizianagaram received 'University level Best DAATTC' award.
- RARS, Anakapalle received 'Best RARS' award under Category 'A'.
- KVK, Nellore received 'Best Krishi Vigyan Kendra' award for its outstanding contribution in agricultural extension and rendering timely services to the farming community.

D. INDIVIDUAL AWARDS

1) *Ugadi Puraskaralu Awards for the year 2021*

The following scientists were conferred with Ugadi Puraskaralu Award for the year 2021 on 13.04.2021.

- Dr C Venkata Reddy, Principal Scientist (Agronomy), RARS, Maruteru
- Dr P Anil Kumar, Professor & Head, Dept. of Plant Pathology, Agricultural College, Bapatla
- Dr G Rama Rao, Associate Director of Research, RARS, Chintapalle
- Dr K V. Naga Madhuri, Principal Scientist (SSAC), RARS, Tirupati
- Dr N Mallikarjuna Rao, Principal Scientist & Programme Coordinator, KVK, Undi
- Dr M. Girija Rani, Senior Scientist (Plant Breeding), ARS, Machilipatnam
- Dr Bilqis, Associate Professor, Dept. of Human Development & Family Studies, College of Community Science, Guntur
- Dr A Sambaiah, Senior Scientist (Agril. Engg), O/o the Director of Research, Lam, Guntur
- Sri M Madhava Reddy farmer of Kadapa district nominated by KVK, Utukur, Kadapa.

2) *Other Awards / Honors*

- Dr P Lavanya Kumari, Associate Professor (Stat. & Comp. Appli.) S V Agricultural

College, Tirupati -Copy rights achieved for the developed technology 'ANGRAU Fertiliser Planner-2015(AFP-2015)'. (Ref. Diary No. 2185/2020/CO/L, on dt. 08-06-2020.

- Dr D Sudha Rani, Senior Scientist (Entomology), SRS, Vuyyuru has conferred 'Young Scientist Award-2020' for her commendable contribution to Agricultural Entomology from Dr B Vasantha Raj David Foundation on 5th December, 2020 at Chennai.
- Dr T S S K Patro, ARS, Vizianagaram received 'Excellence in Innovation Award-2020' from Dr B Vasantharaj David Foundation on 5th December, 2020 at Chennai.
- Dr S V S Gopala Swamy, Senior Scientist (Ento.), PHTC, Bapatla received "Scientist Award - 2020" from the Dr B Vasantharaj David Foundation on 5th December, 2020 at Chennai.
- Dr Bilquis, College of Community Science, Guntur received Best Extension Scientist award from Hon'ble Vice President of India at Hyderabad on 16.12.2020.
- Dr D Sudha Rani, Scientist (Entomology), SRS, Vuyyuru has received 'Best oral presentation award' in theme "Integrated pest/disease management in national Symposium on "Plant Health Management" organized on 2-4 November, 2020 by Navsari Agricultural University, Gujarat.
- Dr Y Satish, Senior Scientist (Plant Breeding), RARS, Maruteru received Rythu Nestham Puraskaram on 16.12.2020.
- Dr P V Satyanarayana, Principal Scientist (Breeding) and Head, ARS, Ragolu received Award from Andhra Pradesh Seedsmen Association on 11.01.2021 for his remarkable contribution in paddy varietal development.
- Dr J Manjunath, Sr. Scientist (Ento), RARS,

- Nandyal received Certificate of Commendation from District Collector & Magistrate, Kurnool Dist., Andhra Pradesh during 72nd Republic Day Celebrations.
- Dr V R Prakash Reddy, Scientist (Br.), RARS, Nandyal received Commendation letter from Hon'ble Vice Chancellor, ANGRU, Guntur.
 - Dr M Gurivi Reddy, Assistant Professor, Dept. of Plant Pathology, S V Agricultural College, Tirupati received Young Scientist award by SSCE, New Delhi.
 - Dr N Anuradha, ARS, Vizianagaram received 'Outstanding Scientist Award' in 4th International Conference conducted by GNRSA-2020, at Meerut, U.P.
 - Dr N Anuradha, ARS, Vizianagaram received Best Scientist of North Coastal zone during Kisan Mela at RARS, Anakapalle.
 - Dr M V Krishnaji, SMS (Extension), KVK, Undi received Best Extension Worker Award.
 - Dr V R Prakash, Reddy, Scientist (Br.), RARS, Nandyal received 'IARI Merit medal' for academic excellence during Ph D programme from IARI, New Delhi.
 - Dr V R Prakash, Reddy, Scientist (Br.), RARS, Nandyal received 'Best Thesis Award-2020' from SSDAT.
 - Dr M Gurivi Reddy, Assistant Professor, Dept. of Plant Pathology, S V Agricultural College, Tirupati received Award of Excellence by CRDMP, New Delhi.
 - Dr M Seshamahalakshmi, Senior Scientist (Ento.), RARS, Lam received "Research Excellence award 2021" by Institute of Scholars (InSc).
 - Dr B H Chaithanya, Scientist (Path), RARS, Nandyal received Commendation certificate of M J Narasimhan Academic Merit for Ph D research work presentation during Annual meeting & National Conference on "Plant health and food security, challenges and opportunities" organized by Indian Phytopathological Society, IARI, New Delhi.
- 3) Best Paper/Poster/Presentation Awards**
- Scientists of KVK, Kondempudi participated in Virtual Annual Zonal workshop and released two publications (books) viz., 1. *Vari maaganlulo labhadhayakamgaa paralasagu, Allam*, 2. *Pasupu mariyu Miriyalu Sagu lo samagra panta yajamanyam* on 23.07.2020. KVK, Kondempudi received two appreciation awards one for best presentation of KVK activities and another for implementation of TSP programme.
 - Dr K Dhanasree, Assistant Professor (EECM), College of Community Science, Guntur received Best Poster award entitled "Transformation of Agricultural Extension - Strategies for effective reformation" organized by Agricultural College, Bapatla on 20-21 August, 2020.
 - Dr M Raveendra Reddy, RARS, Tirupati received 'Best Oral Presentation' award on "Growth & Survivability of Lactic acid bacteria at different temperatures in probioticated muskmelon juice" during the conference on Virtual National Conference on Food Microbiology during 5-6 October, 2020 at IIFPT, Thanjavur on 05-10-2020.
 - Dr Sarada Jayalakshmi Devi, Professor & Head (Pl. Pathology) S V Agricultural College, Tirupati received Second Best Poster Presentation Award by International E-

- Conference on “Multidisciplinary approaches for plant disease management in achieving sustainability in agriculture” UAS, Bagalkot, India on 6-9 October, 2020.
- Dr M Srinivasa Rao, Assistant Professor, Dept. of Agronomy, Agricultural College, Mahanandi received 3rd best oral presentation in National symposium on “Plant health management” organized by College of Agril. Navasari Agril. University, Bharuch, during 2-4 November, 2020.
 - Dr M S Chaitanya Kumari, Professor (EECM), College of Community Science, Guntur received Best oral presentation award entitled “Health promotion by NGOs in Krishna Zone of Andhra Pradesh” in international extension education conference - 2020 organised by Department of Agriculture Extension, BHU, Varanasi, during 27-30 December, 2020.
 - “Kanwar Virender Singh Memorial All India Best Publication Award 2020” from the Society for Advancement of Human and Nature (SADHANA) for the research article “Evaluation of best method for sterilization of Eri Silkworm eggs under UV radiation and refrigerator storage for Trichocard production” by Manisha, B L., Visalakshi, M., Kumar, D., Sairam, V and Varma P Kishore in 2018” published in Andhra Agricultural Journal 65(2): 378-383.
 - Dr D Sudha Rani, Senior Scientist (Entomology) and Dr K Krishnamma, Principal Scientist (Pl. Path.) & Head, SRS, Vuyyuru had received best poster presentation award on research paper entitled “Evaluation of Biological based Integrated pest Management Strategies against Sugarcane borers” in 6th National Conference on Biological Control held at Bengaluru, 3-5 March, 2021.
 - Dr Sarada Jayalakshmi Devi, S.V. Agricultural College, Tirupati received Reviewer excellence award as Reviewer of articles of Legume Research ARCC Journals 2021 (National).
 - Dr M V S Naidu, Professor and Head, Dept. of SS&AC, S V Agricultural College, Tirupati received ‘Fellowship of Indian Society of Soil Survey & Land Use Planning’, ICAR-NBSS & LUB, Nagpur by Fellow of Indian Society of Soil Survey & Land use planning (NBSS & LUB).
 - Dr J Manjunath, Senior Scientist (Ento), RARS, Nandyal received “Research Excellence Award-2020” for best paper presentation by “Institute of Scholars, Bangalore University”, Bangalore.

ANNEXURE-1

MEMBERS OF THE ACADEMIC COUNCIL

(104th & 105th) DURING 2020-'21

CHAIRMAN

Sri Y Madhusudhana Reddy

Special Secretary to Government (Marketing & Cooperation) and Hon'ble Vice-Chancellor (FAC), ANGRAU, Guntur (104th AC)

Dr A Vishnuvardhan Reddy

Hon'ble Vice Chancellor ANGRAU, Guntur (105th AC)

MEMBERS

Board of Management

Dr Ch Srinivasa Rao

Hon'ble Member, Board of Management
Director, NAARM, Rajendranagar, Hyderabad

Dr V Chenga Reddy

Hon'ble Member, Board of Management
Principal Scientist (Cotton) (Retd.), ANGRAU, Guntur

MEMBERS

University Officers

Dr A Pratap Kumar Reddy

Dean of Agriculture

Dr D Balaguravaiah

Dean of Post Graduate Studies

Dr K Yella Reddy

Dean of Agricultural Engg. & Technology

Dr L Uma Devi

Dean of Community Science

Dr T Giridhara Krishna

Director of Research (104th AC)

Dr N Trimmurtulu

Director of Research (105th AC)

Dr P Ram Babu

Director of Extension

Dr S R Koteswara Rao

Dean of Student Affairs

Dr R Veeraghavaiah

Comptroller

Nominated Members

Dr A Siva Sankar

Controller of Examinations

Dr C V Rama Rao

Principal Scientist & Head (104th AC)
ARS, Bapatla

Dr B Venkateswarlu

Professor (Agronomy) (104th AC)
Agricultural College, Bapatla

Dr D Sampath Kumar

Programme Coordinator (104th AC)
KVK, Kalyandurg

Co-Opted Members

Sri S Selvaraju

Chief General Manager, (104th AC) RO
NABARD, Musheerabad, Hyderabad

Dr K Ramasamy

Former Vice Chancellor (104th AC) Tamil Nadu
Agril. University Coimbatore, Tamilnadu

Dr P Rajasekhar

Principal Scientist (Entomology) (104th AC)
ARS, Nellore

Dr K S Varaprasad

Former Director (104th AC) (ICAR-IIOSR),
Rajendranagar, Hyderabad



Annual Report 2020-2021

Dr P Rajendraprasad

Professor (Retd.)(Entomology) (104th AC)
S V Agricultural College, Tirupati

Dr D Krishnaveni

Principal Scientist (Plant Pathology)
(ICAR - IIRR) Rajendranagar, Hyderabad

Dr B Mukunda Rao

Principal Scientist (Polytechnics) (104th AC)
O/o. Dean of Agriculture, Admin. Office, Lam,
Guntur

Prof (Mrs) Vijaya Khader

Dean of Home Science (Retd.) (104th AC)
Secunderabad, Hyderabad.

Dr Ch Syamraj Naik

Principal Scientist (105th AC) RARS, Lam

Special Invitees

Dr Ch Pulla Rao

Associate Dean (104th AC)
KBR College of Agriculture,
C S Puram, Prakasam Dist.

Sri K Vijay Kumar

Associate Dean (104th AC), Nova Agriculture
Polytechnic, Nuzvid, Krishna Dist.

Sri G Chaitanya Kumar

Principal (104th AC), SBNM Agriculture
Polytechnic, Badvel, Kadapa Dist.

Sri P Murali Krishna

Principal (104th AC), G M Agriculture
Polytechnic, Nandyal

Sri B Sudheer Kumar

Principal (104th AC), B.R. Agriculture
Polytechnic, Visakhapatnam

Dr K Sridevi

Principal Scientist (Agril. Entomology)
(105thAC), Division of Germplasm Collection &
Characterization, National Bureau of Agricultural
Insect Resources, Bengaluru

Dr M Govardhan

Principal Scientist & Head (105th AC)
ARS, Kammasagar, PJTSAU, Hyderabad.

Other Members

Dr K Madhavi

Associate Dean (FAC) & Professor & Head
(Agronomy) (104th & 105th AC) Agricultural
College, Rajamahendravaram

Dr S Joseph Reddy

Associate Dean & Professor Dr NTR College
of Agril. Engineering, Bapatla

Dr P V Krishnayya

Associate Dean & Professor & Head
(104th AC), Agricultural College, Bapatla

Dr G Prabhakara Reddy

Associate Dean,
Agricultural College, Mahanandi

Dr A Venkata Ramana

Associate Dean,
Agricultural College, Naira

Dr B Ravindranatha Reddy

Associate Dean, S V Agricultural College,
Tirupati

Dr D D Smith

Associate Dean, College of Food Science &
Technology, Pulivendula

Dr Y Radha

Associate Dean & Univ. Head (Agril. Econ.),
(104th AC), Dr NTR College of Food
Science & Technology, Bapatla

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Associate Dean & Professor, College of
Agricultural Engineering, Madakasira

Dr J Lakshmi

Associate Dean, Professor & Head College of
Community Science, Lam.

Dr N Trimurthulu

Special Officer (104th AC), Advanced Post
Graduate Centre, Lam, Guntur

Dr P Prabhu Prasadini

ADR (HQ) & University Head (SS&AC)
(104th AC), Admin. Office, Lam, Guntur

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(104th AC), Advanced Post Graduate Centre,
Lam, Guntur

Dr V Padma

Professor (CAS) & University Head
Advanced Post Graduate Centre, Lam, Guntur

Dr A Vijaya Gopal

Professor (CAS) & University Head,
Advanced Post Graduate Centre, Lam, Guntur

Dr P V K Jagannadha Rao

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Anakapalle

Dr T V Satyanarayana

Nodal Officer & University Head Administrative
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Dr B V S Prasad

Professor & University Head, Dr NTR College
of Agricultural Engineering, Bapatla

Dr B Vijayabhinandana

Professor (Direct) & University Head
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Dr V Srinivasa Rao

Professor (CAS) & University Head
Agricultural College, Bapatla

Dr R Sarada Jayalakshmi Devi

Professor (HAG) & University Head
S V Agricultural College, Tirupati

Dr A Pratap Reddy

Professor (CAS) & University Head (104th AC)
S. V. Agricultural College, Tirupati

Dr V Sriatha

Associate Professor (CAS) & University Head
S V Agricultural College, Tirupati

Dr T Neeraja

Professor & University Head
College of Community Science, Guntur

Dr Bilquis

Professor & University Head
College of Community Science, Guntur

Dr Y Padmalatha

ADR & University Head, RARS, Lam

Dr C Ramana

Professor & University Head, RARS, Tirupati

Dr Ch V V Satyanarayana

Professor (CAS) & University Head, Dr NTR
College of Food Science & Technology, Bapatla

Dr B Govinda Rao

Principal Scientist & University Head,
RARS, Lam

Dr B John Wesely

Principal Scientist & University Head,
PHTC, Bapatla

Dr M Raghu Babu

Professor (Direct), College of Agricultural
Engineering, Madakasira

Dr B Sahadeva Reddy

Professor (Direct) (104th AC), Agricultural
College, Rajamahendravaram

Dr P Anil Kumar

Professor (Direct) & Head, Agricultural College,
Bapatla

Dr G Mohan Naidu

Professor (CAS) & Head,
S V Agricultural College, Tirupati

Dr D Srinivas

Professor (CAS) & Head, Agricultural College,
Rajamahendravaram

Dr I Bhavani Devi

Professor (CAS) & University Head,
S. V. Agricultural College, Tirupati



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Dr K Radhika

Professor (CAS) & Head,
Advanced Post Graduate Centre, Lam, Guntur

Dr D Bhaskara Rao

Professor (CAS) & Head,
Dr NTR College of Agril. Engineering, Bapatla

Dr A Upendra Rao

Professor (CAS) & Head,
Agricultural College, Naira

Dr M Suresh Kumar

Professor (CAS) & Head,
Agricultural College, Naira

Dr A Appala Swamy

Professor (CAS) & Head,
Agricultural College, Naira

Dr P Rama Krishna Prasad

Professor (CAS) & University Head
Agricultural College, Bapatla

Dr M Martin Luther

Professor (CAS) & Head,
Agricultural College, Bapatla

Dr Ch Chiranjeevi

Professor (CAS) & Head,
Agricultural College, Bapatla

Dr V Satyanarayana Rao

Professor (CAS) & Head,
Agricultural College, Bapatla

Dr S Ratna Kumari

Professor (CAS) & Head,
Agricultural College, Bapatla

Dr Y Narasimhudu

Professor (CAS) & Head,
Agricultural College, Mahanandi

Dr A Prasanna Rajesh

Professor (CAS) & Head,
Agricultural College, Mahanandi

Dr L Vijaya Bhaskar

Professor (CAS) & Head,
Agricultural College, Mahanandi

Dr B Sarojini Devi

Professor (CAS) & Head,
Agricultural College, Mahanandi

Dr S Dayakar

Professor (CAS) & Head,
Agricultural College, Rajamahendravaram

Dr S Krishnam Raju

Professor (CAS) & Head,
Agricultural College, Rajamahendravaram

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Professor (CAS) & Head,
Advanced Post Graduate Centre, Lam, Guntur

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S V Agricultural College, Tirupati

Dr N C Venkateswarlu

Professor (CAS) & Head,
S V Agricultural College, Tirupati

Dr P Sandhya Rani

Professor (CAS) & Head,
S V Agricultural College, Tirupati

Dr M V S Naidu

Professor (CAS) & Head,
S.V. Agricultural College, Tirupati

Dr M S Chaitanya Kumari

Professor (CAS)
College of Community Science, Guntur

Dr G Ramachandra Rao

Associate Dean (105th AC),
Agricultural College, Bapatla

Dr S Vishnuvardhan

Technical Officer (AE&T) (105th AC)
Administrative Office, Lam

Dr K Gurruva Reddy

Technical Officer (Vice Chancellor) (105th AC)
Administrative Office, Lam

Dr S Khayum Ahammed

Technical Officer (Dean of PGS) (105th AC)
Administrative Office, Lam

Dr S Jaffar Basha

Technical Officer (Dean of Agril.) (105th AC)
Administrative Office, Lam

Dr P Munitanmam

Professor (CAS) & Head (105th AC)
Agricultural College, Naira

Dr P L R J Praveena

Professor (CAS) & Head (105th AC)
Agricultural College, Rajamahendravaram

Dr D Lokanadha Reddy

Professor (CAS) & Head,
S V Agricultural College, Tirupati

Dr M V Ramana

Professor (CAS) & Head,
S V Agricultural College, Tirupati

Dr G KarunaSagar

Professor (CAS) & Head,
S V Agricultural College, Tirupati

Dr P Guruswamy

Professor (CAS) & Head (105th AC)
Agricultural College, Naira

Dr Sanjay Dhanu

Professor (CAS) & Head (105th AC)
Agricultural College, Rajamahendravaram

Dr K Kiran Prakash

Professor (CAS) (105th AC)
Advanced Post Graduate Centre, Lam, Guntur

Dr A Lalitha Kumari

Professor (CAS) & Head (105th AC)
Agricultural College, Bapatla

Dr K V S Rami Reddy

Professor (CAS) & Head (105th AC), College of
Agricultural Engineering, Madakasira

Dr M. Madhava

Professor (CAS) & Head (105th AC),
College of Agricultural Engineering, Madakasira

Dr M S Baig

Professor (CAS) (105th AC),

Dr. NTR College of Food Science &
Technology, Bapatla

Dr P Kavitha

Professor (CAS) & Head (105th AC)
Agricultural College, Mahanandi

Dr S V Bhavani Prasad

Professor (CAS) & Head (105th AC)
Agricultural College, Rajamahendravaram

Dr K N Ravi Kumar

Professor (CAS) & Head (105th AC)
Agricultural College, Bapatla

Dr M Sree Rekha

Professor (CAS) & Head (105th AC)
Advanced Post Graduate Centre, Lam, Guntur

Dr G Krishna Reddy

Coordinator (Polytechnics) (105th AC)
Administrative Office, Lam, Guntur

Dr G Subba Rao

Associate Dean (105th AC),
Agricultural College, Rajamahendravaram

Dr D V Ramana Reddy

Special Officer, Professor (CAS) & Head (105th AC),
Advanced Post Graduate Studies, Lam

Dr J Krishna Prasadji

Professor (Direct) & Head (105th AC)
Agricultural College, Rajamahendravaram

Dr G Murali Krishna

Professor (CAS) & Head (105th AC),
College of Agricultural Engineering, Madakasira

Dr P V Sathya Gopal

Professor (CAS) & University Head (105th AC)
S V Agricultural College, Tirupati

Dr V Visalakshmi

Professor (CAS), Advanced Post Graduate
Centre, Lam, Guntur

Dr R P Vasanthi

Professor
S V Agricultural College, Tirupati

ANNEXURE II

MEMBERS OF THE RESEARCH AND EXTENSION ADVISORY COUNCIL DURING 2020-'21 (50th REAC)

Chairperson

Dr A Vishnuvardhan Reddy
Vice-Chancellor

Convener and Secretary

Dr N Trimurtulu
Director of Experimental Stations

Members

*Members of the Board of Management
representing the three regions of the state*

Dr V Chenga Reddy
Distinguished Agriculture Scientist,
Guntur

Smt Viswasarayi Kalavathi
Hon'ble MLA, Palakonda

Sri P Devullu,
Progressive Agriculturist, Visakhapatnam

Sri T V Muralinadha Reddy
Progressive Agriculturist, Tirupati

Sri Batchu Sreenivasa Rao,
Progressive Agriculturist, Guntur

Dr P V R M Reddy
Director, IWMP, Dept. of PR & RD,
Govt. of AP.

Sri C Ram Mohan Reddy
MD, Sree Nandiswara Polymers Pvt. Ltd.,
Kurnool

Dr L Vijaya Bhaskar,
Professor & Head (Ento.), Member of
Academic Council, Ag.College, Mahanandi

Dr J Lakshmi
Professor & UHOD (Foods & Nutrition),
ANGRAU

Dr V Srinivasa Rao,
Professor & UHoD (Statistics & Computer
Applications), ANGRAU

Ex-Officio Members (4)

Special Commissioner of Agriculture, Govt. of
AP, Managing Director, A P S S D C, Director,
Women and Child Welfare, Govt. of AP.

Special Invitees (Officials)

Special Chief Secretary,
Agriculture & Cooperation Department, Govt.
of AP.

Special Secretary to Govt., Marketing,
Govt. of AP.

Vice Chairman,
Agri Mission, Govt. of AP.

Director,
A.P. State Seed Certification Authority,
Govt. of AP.

Sr. Scientist (Agril. Economics),
Agri. Mission, Govt. of AP

Eminent Scientists

Research Experts
Extension Experts

Farmer representatives (From each Agro-Climatic Zone)(6)

1. Yedla Bangari Naidu,
Vizianagaram
2. Taggi Rama Chandra Rao,
Visakhapatnam
3. Sri Gandham Vijaya Srinivas Rao,
East Godavari
4. Sri Bulla Prasad,
Guntur
5. Smt. S. Aruna,
Ramachandrapuram
6. Tarigopula R K V Prasad Reddy,
Kurnool

*Representatives of
Agro Business Consortium*

1. Sri P Suryaparakash Reddy,
Kurnool
2. Sri K Rama Rao,
Guntur

*Representatives from
KVKs (Operated by NGOs) (3)*

1. Dr Srinivasarao,
PC, KVK, Karakambadu
2. Dr Sailaja,
PC, KVK, BCT, Yelamanchili
3. Dr Dhanalakshmi,
PC, KVK, Yagantipalli

Women Members (2)

1. Smt. Padala Bhoodevi,
Srikakulam
2. Smt. Padmavatlamma,
Kurnool

Special Invitees (Farmers) (10)

1. Sri Sivashankar Reddy,
Anantapur
2. Sri Kosireddy
Parameswara Pettaju, Gollaprolu

3. Sri C S R Koti Reddy,
SPSR Nellore

4. Sri Uppala Prasad,
Ghantasala

5. Sri A Sambi Reddy,
Guntur

6. Sri V Satya Bhupal Reddy,
Giddalur

7. Sri N Krishna Mohan Reddy,
Anantapur

8. Sri Chaganti Srinivasa Reddy,
Krishna

9. Sri Medapati Veera Reddy,
East Godavari

10. Sri Narasimha Raju,
Anarann

Deans of Faculties of ANGRAU

Associate Directors of Research

Principal Scientists of Crops

University Heads of Departments

Coordinators of DAATTCs Programme

Coordinators of KVKs

ANNEXURE III

CADRE-WISE FACULTY STRENGTH DURING 2020-'21

S. No.	Name of the College / Polytechnic / Research Station / Extension Unit / Administration	Professor / Principal Scientist		Associate Professor / Senior Scientist		Assistant Professor / Scientist	
		SS	IP	SS	IP	SS	IP
Teaching							
1	Agricultural College, Bapatla	09	04	09	05	73	43
2	S.V. Agricultural College, Tirupati	05	07	10	06	56	42
3	Agricultural College, Naira	01	01	11	07	21	16
4	Agricultural College, Mahanandi	01	01	07	05	16	12
5	Agricultural College, Rajamahendravaram	02	02	09	06	22	10
6	Advanced P.G. Centre, Guntur	-	01	-	-	-	-
7	Dr NTR College of Agricultural Engineering, Bapatla	05	05	08	02	17	09
8	College of Agricultural Engineering, Madakasira	05	02	08	-	20	09
9	Dr NTR College of Food Science & Technology, Bapatla	01	01	05	02	09	07
10	College of Food Science & Technology, Pulivendula	05	01	13	01	18	06
11	College of Community Science, Lam, Guntur	01	01	-	02	10	07
12	Agriculture Polytechnic, Anakapalle	-	-	-	01	-	-
13	Agriculture Polytechnic, Maruteru	-	-	01	-	-	-
14	Agriculture Polytechnic, Podalakur	-	-	-	-	-	-
15	Agriculture Polytechnic, Reddipalli	-	-	-	01	-	-
16	Agriculture Polytechnic, Utukur	-	-	01	-	02	-
17	Agriculture Polytechnic, Garikapadu	-	-	-	-	-	-
18	Agriculture Polytechnic, Madakasira	04	-	-	-	-	-
19	Agriculture Polytechnic, Nandyal	-	-	02	-	02	01
20	Agriculture Polytechnic, Tirupati	-	-	-	-	01	01
21	Agriculture Polytechnic, Kalkiri	-	-	-	01	-	-
22	Agriculture Polytechnic, Somasila	-	-	-	01	-	-
23	Agriculture Polytechnic, Rampachodavaram	-	-	-	01	-	-
24	Agriculture Polytechnic, J.M.Puram	-	-	-	-	-	-
25	Agriculture Polytechnic, Ghanatasala	-	-	03	-	01	-
26	Agriculture Polytechnic, Ramagiri	-	-	-	-	-	01
27	Agril. Polytechnic (Seed Technology), J.M.Puram	-	-	01	-	-	-

SS: Sanctioned Strength

IP: In-position

S. No.	Name of the College / Polytechnic / Research Station / Extension Unit / Administration	Professor / Principal Scientist		Associate Professor / Senior Scientist		Assistant Professor / Scientist	
		SS	IP	SS	IP	SS	IP
28	Agril. Polytechnic (Organic Farming) Chintapalle	-	-	-	-	-	-
29	Polytechnic of Agricultural Engineering, Kalkiri	-	-	-	-	-	-
30	Polytechnic of Agricultural Engineering, Anakapalle	-	-	-	-	-	-
<i>Sub Total (Teaching)</i>		39	26	88	41	268	164
Research							
I. Krishna Zone (13 Stations)							
Guntur District							
1.	Regional Agricultural Research Station, Lam	04	03	09	04	32	29
2.	Agricultural Research Station, Bapatla	-	-	02	02	06	01
3.	Post-Harvest Technology & Engineering, Bapatla	-	-	01	01	04	03
4.	Saline Water Research Scheme, Bapatla	02	01	-	-	-	01
5.	AICRP on FIM, Bapatla	-	-	01	01	-	-
6.	Agricultural Research Station, Amaravati	-	-	-	-	02	02
7.	Agricultural Research Station, J. M. Puram	-	-	-	-	03	02
Krishna District							
8.	Agricultural Research Station, Vyyuru	-	-	01	-	06	05
9.	Agricultural Research Station, Machilipatnam	-	-	-	-	03	01
10.	Agricultural Research Station, Garikapadu	01	01	02	-	02	01
11.	Agricultural Research Station, Ghanasala Prakasam District	-	-	01	01	03	02
12.	Agricultural Research Station, Darsi	-	-	01	01	04	01
13.	Agricultural Research Station, Chinapavani	-	-	-	01	-	-
II. Godavari Zone (3 Stations)							
West Godavari District							
14.	Regional Agril. Research Station, Marruturu	02	01	08	06	17	21
15.	Agricultural Research Station, Vijayarai	-	-	01	01	05	01
East Godavari District							
16.	Agricultural Research Station, Peddapuram	-	-	-	01	06	03

SS: Sanctioned Strength

IP: In-position

S. No.	Name of the College / Polytechnic / Research Station / Extension Unit / Administration	Professor / Principal Scientist		Associate Professor / Senior Scientist		Assistant Professor / Scientist	
		SS	IP	SS	IP	SS	IP
III. North Coastal Zone (5 Stations)							
Visakhapatnam District							
17.	Regional Agril. Research Station, Anakapalle	03	01	06	04	20	12
18.	Agricultural Research Station, Yelamanchili Srikulam District	-	-	01	01	03	02
19.	Agricultural Research Station, Amadalavalasa	-	-	01	01	05	05
20.	Agricultural Research Station, Ragolu Vizianagaram District	-	-	01	01	03	02
21.	Agricultural Research Station, Vizianagaram	01	-	-	01	04	04
IV. Southern Zone (6 Stations)							
Chittoor District							
22.	Regional Agricultural Research Station, Tirupati	03	01	11	07	23	17
23.	Agricultural Research Station, Perumallapalle	-	-	01	01	06	06
SPS Nellore District							
24.	Agricultural Research Station, Nellore	-	-	03	03	04	04
25.	Agricultural Research Station, Podalakur	-	-	01	01	05	02
26.	Agricultural Research Station, Kavali	01	-	-	-	-	- \
YSR (Kadapa) District							
27.	Agricultural Research Station, Urukur	-	-	01	01	05	05
V. Scarce Rainfall Zone (4 Stations)							
Kurnool District							
28.	Regional Agricultural Research Station, Nandyal	03	03	08	04	23	18
Anantapuramu District							
29.	Agricultural Research Station, Anantapuramu	01	01	05	05	10	06
30.	Agricultural Research Station, Reddipalli	01	-	-	01	-	-
31.	Agricultural Research Station, Kaduri	01	01	05	02	02	01
VI. High Altitude And Tribal Area Zone (2 Stations)							
Visakhapatnam District							
32.	Regional Agril. Research Station, Chintapalle Srikulam District	01	01	01	-	08	07
33.	Agricultural Research Station, Seethampet	-	-	01	01	02	01
Sub Total (Research)		24	14	73	53	216	165

SS: Sanctioned Strength

IP: In-position

S. No.	Name of the College / Polytechnic / Research Station / Extension Unit / Administration	Professor /	Associate	Assistant			
		Principal Scientist	Professor / Senior Scientist	Professor / Scientist			
Extension							
Krishni Vigyan Kendras (KVKs) (13)							
1.	KVK, Reddipalli, Anantapuramu Dist.	-	-	01	01	06	04
2.	KVK, Rastakuntabai, Vizianagaram Dist.	-	-	01	01	05	02
3.	KVK, Amadalavalasa, Srikakulam Dist.	-	-	01	01	06	06
4.	KVK, Utukur, YSR (Kadapa) Dist.	-	-	01	01	06	05
5.	KVK, Undi, West Godavari Dist.	-	-	01	01	06	06
6	KVK, Darsi, Prakasam Dist.	-	-	01	01	06	05
7.	KVK, Nellore, SPS Nellore Dist.	01	-	-	01	06	04
8.	Dr. K. L.Rao KVK, Garikipadu, Krishna Dist.	-	-	01	01	06	04
9.	KVK, Kalyandurg, Anantapuramu Dist.	-	-	01	01	06	04
10.	KVK, Banavasi, Yamniganur, Kurnool Dist.	-	-	01	01	06	04
11.	KVK, Kalikiri, Chittoor Dist.	-	-	01	01	06	05
12.	KVK, Ghantasala, Krishna Dist.	01	-	03	01	02	05
13.	KVK, Kondempudi, Visakhapatnam Dist.	-	-	01	01	06	04
District Agricultural Advisory & Transfer of Technology Centres (DAATTCs) (13)							
14.	DAATTC, Guntur District.	-	-	-	-	04	02
15.	DAATTC, Machilipatnam, Krishna District.	-	-	-	-	03	01
16.	DAATTC, Eluru, West Godavari District.	-	-	-	-	04	02
17.	DAATTC, Kakinada, East Godavari District	-	-	-	-	03	02
18.	DAATTC, Darsi, Prakasam District	-	-	-	-	03	01
19.	DAATTC, Anakapalle, Visakhapatnam District.	-	-	-	-	03	02
20.	DAATTC, Vizianagaram District.	-	-	-	-	03	03
21.	DAATTC, Srikakulam District	-	-	-	-	02	02
22.	DAATTC, SPS Nellore District.	-	-	-	-	02	02
23.	DAATTC, YSR (Kadapa) District.	-	-	-	-	03	02
24.	DAATTC, Kurnool District.	-	-	-	-	04	02
25.	DAATTC, Anantapuramu District.	03	-	-	-	-	01
26.	DAATTC, Chittoor District	-	-	01	-	03	03
Other Extension Centres							
27.	AI & CC, Lam, Guntur District	-	-	-	-	03	03
Sub Total (Extension)		05	-	15	13	113	86
Administration		08	11	03	06	01	20
Grand Total		76	51	179	113	598	435

SS: Sanctioned Strength

IP: In-position

ANNEXURE IV

STUDENTS' ENROLMENT BY COURSES, FIRST YEAR TO FINAL YEAR IN UNDERGRADUATE, POSTGRADUATE, DOCTORAL AND DIPLOMA PROGRAMMES DURING 2020-'21

Course	Year	Enrolment Distribution																
		Total Student Enrolment			SC Students		ST Students		BC Students		OC Students		Muslim Minority		Physically Challenged Students		Forigen Students	
		Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Faculty of Agriculture																		
UG Programmes																		
B.Sc. (Hons) Agriculture	I	286	507	793	42	71	18	27	135	241	81	154	10	14	07	05	-	-
	II	257	475	732	43	65	21	27	118	235	65	142	10	06	04	04	-	-
	III	268	391	659	39	66	20	24	124	191	75	101	10	09	06	02	-	-
	IV	285	404	689	51	61	19	24	136	169	67	136	12	14	01	04	-	-
	Total (UG)	1096	1777	2873	175	263	78	102	513	836	288	533	42	43	18	15	-	-
PG Programmes																		
M.Sc. (Ag.)	I	61	96	157	08	08	04	03	29	49	15	36	05	-	-	-	-	-
	II	32	66	98	04	14	01	04	20	21	07	27	-	-	-	01	-	01
	Total	93	162	255	12	22	05	07	49	70	22	63	05	-	-	01	-	01
M.B.A. (ABM)	I	09	05	14	-	-	-	-	05	03	04	02	-	-	-	-	-	-
	II	06	08	14	-	-	-	-	04	06	02	02	-	-	-	-	-	-
	Total	15	13	28	-	-	-	-	09	09	06	04	-	-	-	-	-	-
	Total (PG)	108	175	283	12	22	05	07	58	79	28	67	05	-	-	01	-	-

Doctoral Programmes																		
Ph.D. (Ag.)	I	21	33	54	03	07	03	-	06	14	09	12	-	-	-	-	-	-
	II	19	24	43	02	02	02	01	08	08	07	13	-	-	01	-	-	-
	III	26	30	56	08	02	02	02	09	11	07	15	-	-	-	01	-	-
	Total	66	87	153	13	11	07	03	23	33	23	40	-	-	01	01	-	-
Diploma Programmes																		
Diploma (Agriculture)	I	197	275	472	56	60	15	18	97	158	26	31	04	08	02	-	-	-
	II	164	283	447	46	69	18	09	87	164	08	32	05	09	-	02	-	-
	Total	361	558	919	102	129	33	27	184	322	34	63	09	17	02	02	-	-
Diploma (Seed Technology)	I	04	07	11	02	03	-	01	02	03	-	-	-	-	-	-	-	-
	II	06	11	17	-	03	-	01	03	05	02	02	01	-	-	-	-	-
	Total	10	18	28	02	06	-	02	05	08	02	02	01	-	-	-	-	-
Diploma (Organic Farming)	I	04	06	10	01	01	01	-	02	05	-	-	-	-	-	-	-	-
	II	05	16	21	02	02	02	03	-	06	01	04	-	01	-	-	-	-
	Total	09	22	31	03	03	03	03	02	11	01	04	-	01	-	-	-	-
	Total (Dip.)	380	598	978	107	138	36	32	191	341	37	69	10	18	02	02	-	-
Faculty of Agricultural Engineering and Technology																		
UG Programmes																		
B.Tech. (Ag. Engg.)	I	54	52	106	07	13	06	04	26	20	13	13	02	02	-	-	-	-
	II	55	64	119	08	06	05	04	25	35	16	16	01	03	-	-	-	-

	III	73	49	122	08	12	03	01	31	22	25	14	06	-	-	-	-	-
	IV	62	41	103	04	07	04	01	28	20	23	12	03	01	-	-	-	-
	Total	244	206	450	27	38	18	10	110	97	77	55	12	06	-	-	-	-
B.Tech.(Food Tech.)	I	40	56	96	07	10	01	02	21	27	08	15	03	02	-	-	-	-
	II	26	85	111	05	18	02	03	09	43	08	20	02	01	-	-	-	-
	III	60	60	120	07	06	07	01	26	29	19	23	01	01	-	-	-	-
	IV	32	52	84	03	08	02	02	16	30	10	12	01	-	-	-	-	-
	Total	158	253	411	22	42	12	08	72	129	45	70	07	04	-	-	-	-
	Total (UG)	402	459	861	49	80	30	18	182	226	122	125	19	10	-	-	-	-
PG Programmes																		
M. Tech. (Ag. Engg.)	I	04	04	08	01	-	-	-	03	01	-	03	-	-	-	-	-	-
	II	07	06	13	01	-	-	-	05	03	01	03	-	-	-	-	-	-
	Total	11	10	21	02	-	-	-	08	04	01	06	-	-	-	-	-	-
Doctoral Programmes																		
Ph. D. (Ag. Engg.)	I	06	-	06	-	-	02	-	03	-	01	-	-	-	-	-	-	-
	II	03	03	06	-	02	-	-	01	01	02	-	-	-	-	-	-	-
	III	02	03	05	-	-	-	01	01	02	01	-	-	-	-	-	-	-
	Total	11	06	17	-	02	02	01	05	03	04	-	-	-	-	-	-	-
Diploma Programmes																		
Diploma (Ag. Engg.)	I	20	29	49	03	08	02	02	13	12	02	05	-	02	-	-	-	-
	II	22	28	50	06	05	01	03	12	14	03	04	-	02	-	-	-	-

	III	22	31	53	06	07	02	01	11	20	03	03	-	-	-	-	-	-
	Total	64	88	152	15	20	05	06	36	46	08	12	-	04	-	-	-	-
Faculty of Community Science																		
UG Programmes																		
B.Sc. (Hons) Community Science	I	09	73	82	02	20	01	06	02	26	02	20	02	01	-	-	-	-
	II	07	65	72	01	24	-	04	05	23	-	11	01	03	-	-	-	-
	III	-	67	67	-	17	-	05	-	30	-	11	-	04	-	-	-	-
	IV	-	70	70	-	16	-	07	-	31	-	14	-	02	-	-	-	-
	Total	16	275	291	03	77	01	22	07	110	02	56	03	10	-	-	-	-
PG Programmes																		
M.Sc. (H.Sc.)	I	-	11	11	-	01	-	-	-	08	-	02	-	-	-	-	-	-
	II	-	08	08	-	01	-	01	-	05	-	01	-	-	-	-	-	-
	Total	-	19	19	-	02	-	01	-	13	-	03	-	-	-	-	-	-
Ph.D. Programmes																		
Ph.D. (H.Sc.)	I	-	02	02	-	-	-	-	-	01	-	01	-	-	-	-	-	-
	II	01	04	05	-	01	-	-	01	03	-	-	-	-	-	-	-	-
	III	-	02	02	-	02	-	-	-	-	-	-	-	-	-	-	-	-
	Total	01	08	09	-	03	-	-	01	04	-	01	-	-	-	-	-	-
GRAND TOTAL		2155	3502	5657	376	618	164	192	1024	1695	513	912	79	85	21	19	-	01

ANNEXURE V

COLLEGE-WISE STUDENTS' STRENGTH -FIRST YEAR TO FINAL YEAR DURING 2020-'21

S. No.	Name of the College	Year	Students Enrollment			SC Students		ST Students		BC Students		OC Students		Muslim Students		Disability Students		Forigen Challenged		
			Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Faculty of Agriculture																				
B.Sc. (Hons) Agriculture																				
01	Agricultural College, Bapatla	I	94	187	281	16	30	07	12	43	83	27	56	01	06	03	01	-	-	
		II	81	174	255	12	18	06	10	34	79	22	64	07	03	02	02	-	-	
		III	79	155	234	11	24	03	10	39	76	24	40	02	05	04	01	-	-	
		IV	76	149	225	12	29	05	06	34	57	21	52	04	05	01	-	-	-	
			M.Sc. (Agril.)																	
			I	21	44	65	03	03	01	01	17	25	-	15	-	-	-	-	-	-
			II	18	31	49	03	08	-	01	13	10	02	12	-	-	-	-	-	-
			Ph.D. (Agril.)																	
			I	11	13	24	01	03	02	-	03	04	05	06	-	-	-	-	-	-
			II	11	11	22	02	01	01	01	06	03	02	06	-	-	-	-	-	-
			III	14	12	26	02	01	01	01	06	05	05	05	-	-	-	-	-	-

S. No.	Name of the College	Year	Students Enrollment			SC Students		ST Students		BC Students		OC Students		Muslim Students		Disability Students		Forigen Challenged	
			Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
B.Sc. (Hons) Agriculture																			
02	S.V. Agricultural College, Tirupati	I	80	128	208	10	17	03	06	34	44	29	56	04	05	03	03	-	-
		II	62	94	156	14	15	01	07	29	58	17	14	01	-	-	-	-	-
		III	76	85	161	12	16	09	03	33	39	18	25	04	02	-	-	-	-
		IV	59	91	150	10	11	05	06	20	30	19	39	05	05	-	-	-	-
	M.Sc. (Agril.)																		
		I	16	41	57	01	05	02	01	10	16	03	19	-	-	-	-	-	-
		II	11	27	38	01	04	01	01	06	09	03	12	-	-	-	01	-	01
	M.B.A. (Agri Business Management)																		
		I	09	05	14	-	-	-	-	05	03	04	02	-	-	-	-	-	-
		II	06	08	14	-	-	-	-	04	06	02	02	-	-	-	-	-	-
	Ph.D. (Agril.)																		
		I	10	18	28	02	04	01	-	03	09	04	05	-	-	-	-	-	-
		II	07	10	17	-	-	01	-	01	03	05	07	-	-	01	-	-	-
		III	09	10	19	04	-	01	-	03	03	01	07	-	-	-	01	-	-
B.Sc. (Hons) Agriculture																			
03	Agricultural College, Naira	I	45	88	133	08	09	02	04	25	61	08	12	02	02	01	01	-	-
		II	52	92	144	09	14	08	03	25	55	08	18	02	2	02	02	-	-
		III	56	51	107	07	08	03	05	23	31	19	06	04	01	02	01	-	-
		IV	67	62	129	14	02	05	06	40	42	07	09	01	03	-	04	-	-
	M.Sc. (Agril.)																		
		I	06	01	07	02	-	01	01	02	-	-	-	01	-	-	-	-	-
II		01	05	06	-	02	-	02	01	-	-	01	-	-	-	-	-	-	

S. No.	Name of the College	Year	Students Enrollment			SC Students		ST Students		BC Students		OC Students		Muslim Students		Disability Students		Forigen Challenged	
			Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
B.Sc. (Hons) Agriculture																			
04	Agricultural College, Mahanandi	I	41	44	85	06	06	02	03	18	20	12	14	03	01	-	-	-	-
		II	40	73	113	06	08	03	05	19	24	12	35	-	01	-	-	-	-
		III	38	54	92	07	08	01	05	20	23	10	17	-	01	-	-	-	-
		IV	52	49	101	08	09	03	02	26	22	13	15	02	01	-	-	-	-
	M.Sc. (Agril.)																		
		I	09	05	14	01	-	-	-	-	04	06	01	02	-	-	-	-	-
	II	01	02	03	-	-	-	-	-	01	01	01	-	-	-	-	-	-	
B.Sc. (Hons) Agriculture																			
05	Agricultural College, Rajamahendravaram	I	26	60	86	02	09	04	02	15	33	05	16	-	-	-	-	-	
		II	22	42	64	02	10	03	02	11	19	06	11	-	-	-	-	-	-
		III	19	46	65	02	10	04	01	09	22	04	13	-	-	-	-	-	-
		IV	31	53	84	07	10	01	04	16	18	07	21	-	-	-	-	-	-
M.Sc. (Agril.)																			
06	Advanced Post Graduate Centre, Guntur	I	09	05	14	01	-	-	-	-	04	06	01	02	-	-	-	-	-
		II	01	02	03	-	-	-	-	-	01	01	01	-	-	-	-	-	-
	Ph.D. (Agril.)																		
		I	-	02	02	-	-	-	-	-	01	-	01	-	-	-	-	-	-
		II	01	03	04	-	01	-	-	01	02	-	-	-	-	-	-	-	-
		III	03	08	11	02	01	-	01	-	03	01	03	-	-	-	-	-	-

S. No.	Name of the College	Year	Students Enrollment			SC Students		ST Students		BC Students		OC Students		Muslim Students		Disability Students		Forigen Challenged	
			Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Faculty of Agricultural Engineering & Technology																			
B.Tech. (Agril. Engg.)																			
07	Dr. NTR College of Agricultural Engineering, Bapatla	I	32	32	64	02	06	03	03	15	14	10	09	02	-	-	-	-	-
		II	30	45	75	03	05	03	04	16	22	07	12	01	02	-	-	-	-
		III	48	29	77	06	06	02	-	19	13	18	10	03	-	-	-	-	-
		IV	42	25	67	03	05	03	-	16	11	18	09	02	-	-	-	-	-
	M. Tech. (Agril. Engg.)																		
		I	04	04	08	01	-	-	-	03	01	-	03	-	-	-	-	-	-
		II	07	06	13	01	-	-	-	05	03	01	03	-	-	-	-	-	-
	Ph.D. (Agril. Engg.)																		
		I	06	-	06	-	-	02	-	03	-	01	-	-	-	-	-	-	-
		II	03	03	06	-	02	-	-	01	01	02	-	-	-	-	-	-	-
		III	02	03	05	-	-	-	01	01	02	01	-	-	-	-	-	-	-
	B.Tech. (Agril. Engg.)																		
08	College of Agricultural Engineering, Madakasira	I	22	20	42	05	07	03	01	11	06	03	04	-	02	-	-	-	-
		II	25	19	44	05	01	02	-	09	13	09	04	-	01	-	-	-	-
		III	25	20	45	02	06	01	01	12	09	07	04	03	-	-	-	-	-
		IV	20	16	36	01	02	01	01	12	09	05	03	01	01	-	-	-	-
B.Tech. (Food Tech.)																			
09	Dr. NTR College of Food Science and Technology, Bapatla	I	24	37	61	03	08	01	01	16	20	04	08	-	-	-	-	-	-
		II	13	52	65	01	08	01	01	06	28	05	15	-	-	-	-	-	-
		III	34	31	65	05	03	05	01	12	17	12	10	-	-	-	-	-	-
		IV	16	32	48	02	05	01	01	06	20	07	06	-	-	-	-	-	-

S. No.	Name of the College	Year	Students Enrollment			SC Students		ST Students		BC Students		OC Students		Muslim Students		Disability Students		Forigen Challenged	
			Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
B. Tech. (Food Tech.)																			
10	College of Food Science & Technology, Pulivendula	I	16	19	35	04	02	-	01	05	07	04	07	03	02	-	-	-	-
		II	13	33	46	04	10	01	02	03	15	03	05	02	01	-	-	-	-
		III	26	29	55	02	03	02	-	14	12	07	13	01	01	-	-	-	-
		IV	16	20	36	01	03	01	01	10	10	03	06	01	-	-	-	-	-
B.Sc.(Hons) Community Science																			
11	College of Community Science, Guntur	I	09	73	82	02	20	01	06	02	26	02	20	02	01	-	-	-	-
		II	07	65	72	01	24	-	04	05	23	-	11	01	03	-	-	-	-
		III	-	67	67	-	17	-	05	-	30	-	11	-	04	-	-	-	-
		IV	-	70	70	-	16	-	07	-	31	-	14	-	02	-	-	-	-
M.Sc.(H. Sc.)																			
12	Advanced Post Graduate Centre, Guntur	I	-	11	11	-	01	-	-	-	08	-	02	-	-	-	-	-	-
		II	-	08	08	-	01	-	01	-	05	-	01	-	-	-	-	-	-
	Ph. D. (H.Sc.)																		
		I	-	02	02	-	-	-	-	-	01	-	01	-	-	-	-	-	-
		II	01	04	05	-	01	-	-	01	03	-	-	-	-	-	-	-	-
		III	-	02	02	-	02	-	-	-	-	-	-	-	-	-	-	-	-
Diploma Programmes																			
Diploma (Agriculture)																			
13	Agril. Poly., Maruteru	I	08	28	36	-	06	-	02	07	18	01	02	-	-	-	-	-	-
		II	17	36	53	06	08	01	01	10	23	-	04	-	-	-	01	-	-

S. No.	Name of the College	Year	Students Enrollment			SC Students		ST Students		BC Students		OC Students		Muslim Students		Disability Students		Forigen Challenged	
			Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Diploma (Agriculture)																			
14	Agril. Poly., Anakapalle	I	08	24	32	01	05	01	01	05	17	01	01	-	-	-	-	-	-
		II	22	30	52	08	04	02	-	12	25	-	01	-	-	-	-	-	-
15	Agril. Poly., Podalakur	I	-	34	34	-	08	-	02	-	14	-	07	-	03	-	-	-	-
		II	-	21	21	-	06	-	01	-	10	-	-	-	04	-	-	-	-
16	Agril. Poly., Reddipalli	I	14	16	30	05	04	02	-	06	11	01	01	-	-	-	-	-	-
		II	07	18	25	02	04	01	-	04	14	-	-	-	-	-	-	-	-
17	Agril. Poly., Utukur	I	14	19	33	04	04	-	02	04	11	06	02	-	-	-	-	-	-
		II	05	17	22	02	02	01	01	01	08	01	06	-	-	-	-	-	-
18	Agril. Poly., Garikapadu	I	09	26	35	04	05	-	02	05	15	-	04	-	-	-	-	-	-
		II	08	29	37	02	04	01	03	04	16	-	04	01	02	-	-	-	-
19	Agril. Poly., Madakasira	I	14	18	32	03	02	03	03	06	10	01	01	01	02	01	-	-	-
		II	07	17	24	01	05	02	01	04	06	-	04	-	01	-	-	-	-
20	Agril. Poly.,	I	13	18	31	05	02	-	01	05	13	03	02	-	-	-	-	-	-
	Nandyal	II	09	16	25	02	04	-	-	07	11	-	01	-	-	-	-	-	-
21	Agril. Poly., Tirupati	I	17	17	34	04	03	01	01	11	11	01	02	-	-	-	-	-	-
		II	12	12	24	04	05	-	-	07	05	01	02	-	-	-	-	-	-
22	Agril. Poly., Kalikiri	I	15	16	31	04	04	01	02	05	07	03	02	02	01	-	-	-	-
		II	13	09	22	02	04	03	-	05	04	02	01	01	-	-	-	-	-
23	Agril. Poly., Somasila	I	23	-	23	08	-	02	-	09	-	04	-	-	-	-	-	-	-
		II	16	-	16	07	-	03	-	04	-	02	-	-	-	-	-	-	-
24	Agril. Poly., Rampachodavaram	I	25	-	25	08	-	01	-	16	-	-	-	-	-	-	-	-	-
		II	14	-	14	02	-	-	-	12	-	-	-	-	-	-	-	-	-

S. No.	Name of the College	Year	Students Enrollment			SC Students		ST Students		BC Students		OC Students		Muslim Students		Disability Students		Forigen Challenged	
			Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Diploma (Agriculture)																			
21	Agricultural Polytechnic, Tirupati	I	17	17	34	04	03	01	01	11	11	01	02	-	-	-	-	-	-
		II	12	12	24	04	05	-	-	07	05	01	02	-	-	-	-	-	-
22	Agricultural Polytechnic, Kalikiri	I	15	16	31	04	04	01	02	05	07	03	02	02	01	-	-	-	-
		II	13	09	22	02	04	03	-	05	04	02	01	01	-	-	-	-	-
23	Agricultural Polytechnic, Somasila	I	23	-	23	08	-	02	-	09	-	04	-	-	-	-	-	-	-
		II	16	-	16	07	-	03	-	04	-	02	-	-	-	-	-	-	-
24	Agricultural Polytechnic, Rampachodavaram	I	25	-	25	08	-	01	-	16	-	-	-	-	-	-	-	-	-
		II	14	-	14	02	-	-	-	12	-	-	-	-	-	-	-	-	-
25	Agricultural Polytechnic, Darsi	I	09	23	32	02	05	01	-	04	13	01	04	01	01	-	-	-	-
		II	07	16	23	03	02	-	-	02	10	01	03	01	01	-	-	-	-
26	Agricultural Polytechnic, Ghantasala	I	14	19	33	05	08	02	01	07	09	-	-	-	01	01	-	-	-
		II	10	27	37	02	09	02	-	04	13	01	05	01	-	-	01	-	-
27	Agricultural Polytechnic, Ramagiri	I	14	17	31	03	04	01	01	06	09	04	03	-	-	-	-	-	-
		II	17	35	52	03	12	02	02	11	19	-	01	01	01	-	-	-	-

S. No.	Name of the College	Year	Students Enrollment			SC Students		ST Students		BC Students		OC Students		Muslim Students		Disability Students		Forigen Challenged	
			Boys	Girls	Total	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Diploma (Agriculture)																			
25	Agril. Poly., Darsi	I	09	23	32	02	05	01	-	04	13	01	04	01	01	-	-	-	-
		II	07	16	23	03	02	-	-	02	10	01	03	01	01	-	-	-	-
26	Agril. Poly., Ghantasala	I	14	19	33	05	08	02	01	07	09	-	-	-	01	01	-	-	-
		II	10	27	37	02	09	02	-	04	13	01	05	01	-	-	01	-	-
27	Agril. Poly., Ramagiri	I	14	17	31	03	04	01	01	06	09	04	03	-	-	-	-	-	-
		II	17	35	52	03	12	02	02	11	19	-	01	01	01	-	-	-	-
Diploma (Seed Technology)																			
28	Agril. Poly., J.M.Puram	I	04	07	11	02	03	-	01	02	03	-	-	-	-	-	-	-	-
		II	06	11	17	-	03	-	01	03	05	02	02	01	-	-	-	-	-
Diploma (Organic Farming)																			
29	Agril. Poly., Chintapalle	I	04	06	10	01	01	01	-	02	05	-	-	-	-	-	-	-	-
		II	05	16	21	02	02	02	03	-	06	01	04	-	01	-	-	-	-
Diploma (Agricultural Engineering)																			
30	Polytechnic of Agril. Engg., Kalikiri	I	9	14	23	02	06	02	-	05	05	-	01	-	02	-	-	-	-
		II	11	14	25	02	03	01	02	07	05	01	02	-	02	-	-	-	-
		III	13	17	30	05	02	01	01	04	11	03	03	-	-	-	-	-	-
31	Polytechnic of Agril. Engg., Anakapalle	I	11	15	26	01	02	-	02	08	07	02	04	-	-	-	-	-	-
		II	11	14	25	04	02	-	01	05	09	02	02	-	-	-	-	-	-
		III	9	14	23	01	05	01	-	07	09	-	-	-	-	-	-	-	-

ANNEXURE VI

AGRO-CLIMATIC ZONE-WISE LIST OF RESEARCH STATIONS OF ANGRAU AND THEIR FUNCTIONS

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
I. Krishna Zone				
1.	Regional Agricultural Research Station, Lam, Guntur Dist.	<ul style="list-style-type: none">• Development of sustainable, profitable technologies and integrated cropping/farming systems for rainfed/ID conditions in pulses, cotton, millets and oil seeds.• Extending of weather based agro advisory services, working out of viable effective price forecasting for major crops.	<ul style="list-style-type: none">• Development of short / medium duration cotton varieties / hybrids.• Development of ideotypes in cotton suitable for HDPS and mechanical picking.• Climate resilient production technologies (including organic farming) for cotton and cotton based cropping systems.• Sustainable integrated management technologies for biotic and abiotic stresses.• Mechanization in cotton.• Value addition in cotton.• Weather based agro advisories to farmers.• Research on socio-economic aspects of farming community.	<ul style="list-style-type: none">• Control of weeds in rice fallow pulses
2.	Agricultural Research Station, Agricultural College Farm, Bapatla. Guntur Dist.	<ul style="list-style-type: none">• Development of improved long duration rice varieties with good grain quality and sustainable agro-techniques suitable for black soils of Krishna Western Delta and NSP area.	<ul style="list-style-type: none">• Development of climate resilient rice varieties for KW Delta and NSP area.• Development of varieties suitable for direct seeding.• Beeding long duration varieties with fine grain quality.• Evolving of cost reduction technologies.• Innovative and adaptable production and protection technologies.• Identification of efficient integrated farming systems.	—
3.	Saline Water Scheme, Agricultural college campus, Bapatla, Guntur District	<ul style="list-style-type: none">• Research on water quality, soil survey & monitoring of benchmark sites and reclama-tion & fertility management of problematic soils.	<ul style="list-style-type: none">• Water quality, soil survey and monitoring of benchmark sites• Up-coming problems of sea water in coastal sandy soils.• Effective management and utilization of through harvesting techniques and irrigation methods• Reclamation of salt affected areas-aqua ponds	<ul style="list-style-type: none">• Demonation and popula-rization of post-harvest technologies

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
4.	Post-Harvest Technology Centre Agricultural College campus, Bapatla, Guntur District.	<ul style="list-style-type: none"> Design, fabrication, valuation of post - harvest equipments/ machinery for reducing the crop losses and enhancing value addition. Research on biochemical quality factors in storage and impact of abiotic and biotic factors on storage of food grains and control methods of storage pests. 	<ul style="list-style-type: none"> Design and development of crop specific and location specific technologies and machineries for value addition and safe storage. Development of value added products using innovative and novel technologies. Design and development of efficient storage structures for cereals, pulses and oilseeds and horticulture produces. Design and development of low cost ripening chambers for fruits/ crops. Utilization of innovative biotechnological approaches for preparation of value added products. Development of complete protocol for agricultural waste management. Development of process technology for utilization of by- products. Design and development of Agro Processing Clusters based on production catchments of various agro climatic zones of the state. 	<ul style="list-style-type: none"> Demonstration and popularization of post-harvest related equipment/technologies.
5.	Agricultural Research Station, Amaravati, Guntur District	<ul style="list-style-type: none"> Research, production and quality control of Rhizobium and Azotobacter etc. Research and mass production of biofertilizers and associated protocols. 	—	<ul style="list-style-type: none"> Testing efficacy of biofertilizers on mandatory crops of the zone.
6.	Agricultural Research Station, Jangamaheswarapuram, Guntur District	<ul style="list-style-type: none"> Development of high yielding rice varieties with good grain quality and resistance to pest & diseases suitable to NSP right canal area. 	<ul style="list-style-type: none"> Development and identification of rice varieties suitable for NSP right canal area. Evaluation of water saving technologies and micro irrigation systems to enhance water productivity. Seed research& seed production technologies for rice and pulses. 	<ul style="list-style-type: none"> Identification of HYVs in greengram and redgram suitable for the tract.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
		<ul style="list-style-type: none"> • Production of breeder and foundation seed of different varieties of rice 	<ul style="list-style-type: none"> • Standardization of seed production technologies for fodder and green manure crops. 	
7.	Agricultural Research Station, Machilipatnam, Krishna District	<ul style="list-style-type: none"> • Development of medium duration, salt tolerant / resistant rice varieties suitable to coastal ecosystem and management strategies for improving productivity in salt affected areas 	<ul style="list-style-type: none"> • Development of medium duration and salt tolerant rice varieties. • Conduct of basic, applied and adaptive research on increasing and stabilizing rice productivity in coastal saline ecosystems. • Production technologies for improving productivity in salt affected areas. • Collection, evaluation, conservation of rice germplasm. 	<ul style="list-style-type: none"> • Testing and identification of suitable blackgram varieties for salt affected areas.
8.	Agricultural Research Station, Ghantasala, Krishna District	<ul style="list-style-type: none"> • Development and identification of high yielding blackgram and greengram varieties suitable for rice fallows(rabi) and production and protection technologies for improving productivity. 	<ul style="list-style-type: none"> • Development of short or medium duration greengram and blackgram varieties to escape terminal moisture stress and biotic stress with special emphasis on sucking pests & viral diseases. • Alternate crops to greengram and blackgram for rice fallows. • Mechanization in pulse crops. • Organic enrichment of soils to sustain rice fallow pulse cropping sequence. 	<ul style="list-style-type: none"> • Identification of suitable mustard and maize varieties (Zero tillage) and production technologies under rice fallows.
9.	Sugarcane Research Station, Vuyyuru, Krishna District	<ul style="list-style-type: none"> • Development of sugarcane varieties possessing high cane yield potential and sugar content coupled with tolerance / resistance to biotic and abiotic stresses and viable agro techniques suitable for Krishna - Godavari Zone 	<ul style="list-style-type: none"> • To develop high yielding sucrose rich varieties with climate resilience and multiratooning ability. • To develop cost effective comprehensive production technologies. • Water saving technologies to enhance water and nutrient productivities. • To develop technologies for soil health, management of ESB, INB and red rot. • To identify efficient clones under water logged conditions & clones with tolerance for post-harvest deterioration. • Agro-techniques for mechanized sugarcane cultivation. 	<ul style="list-style-type: none"> • Identification of suitable rice varieties for kharif and blackgram varieties for rice fallow situation.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
10.	Agricultural Research Station, Garikapadu, Krishna District	<ul style="list-style-type: none"> Research on water management of different crops grown under NSP left canal command area. 	<ul style="list-style-type: none"> To conduct research on crops and cropping systems and water management for NSP left command area. 	<ul style="list-style-type: none"> Testing and identification of suitable rice, pulses and soybean varieties for the tract. Transfer of proven technologies through field demonstrations in farmers fields.
11.	Agricultural Research Station, Darsi, Prakasam District	<ul style="list-style-type: none"> Development of economically viable and efficient cropping system models, Agro-forestry system, watershed management technologies suitable for NSP right canal area for enhancing the productivity of rainfed crops. 	<ul style="list-style-type: none"> Development of high yielding varieties with resistance to pests and diseases in millets, pulses and oilseeds. Identification of crops and cropping systems suitable for NSP right canal area. To identify suitable agro-forestry system matching soil and environmental conditions. To evaluate different techniques of modification of crop microclimates for enhancing the water-use efficiency and productivity of rainfed crops. Development of suitable technologies for water harvesting and conservation. Identification of viable agro-technologies for crops suitable to the tract. 	<ul style="list-style-type: none"> Identification of alternative crops to Tobacco. Introduction of drought tolerant oilseed crops viz., safflower and castor. Screening of cowpea and horsegram varieties for their adaptability. Introduction of millets in kharif season preceding to rabi bengalgram. Organic enrichment to improve the physical properties of the soil. Testing & identification of greengram, blackgram, redgram varieties suitable for the tract.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
12.	Agricultural Research Station, Chinapavani, Lingasamudram (M), Prakasam Dist.	<ul style="list-style-type: none"> • Millets, Pulses and Oil Seeds, Seed Production 	<ul style="list-style-type: none"> • Seed Production 	—
II. Godavari Zone				
13.	Regional Agricultural Research Station, Maruteru, West Godavari District.	<ul style="list-style-type: none"> • Rice, Rice based sustainable/ integrated cropping/farming systems through development of suitable varieties, sustainable crop production and protection technologies. 	<ul style="list-style-type: none"> • Development of climate resilient rice varieties. • Development of rice varieties for direct seeding. • Breeding for mid late duration rice varieties with fine grain. • Development of exportable rice. • Development of rice varieties for semi-deep water situations. • Bio-fortification in rice. • Cost reduction technologies. • Innovative and adaptable production technologies. • Processing and value addition. • Integrated farming systems. • Organic / natural farming. • Soil health management. • Mechanization in rice. • Research on summer pulses. • Imparting skill oriented training to farmers & extension functionaries. • Research on non-pesticide management. • Weather based Agro advisories to farmers. • Research on socio-economic aspects of farming community. 	<ul style="list-style-type: none"> • Identification of suitable maize varieties for rabi season.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
14.	Agricultural Research Station, Vijayarai, West Godavari District	<ul style="list-style-type: none"> Research on maize and maize based cropping systems and on apiculture. 	<ul style="list-style-type: none"> Development of medium and short duration maize hybrids/ varieties. Development of speciality corn varieties/hybrids. Development of location specific innovative production technologies for maize. Research on honeybees - Breeding for disease resistance, high yielding, non-pestiferous pollinators. Capacity building on bee keeping 	—
15.	Agricultural Research Station, Peddapuram, East Godavari District.	<ul style="list-style-type: none"> Research on finger millet, pulses (blackgram, green-gram, redgram), maize and oilseeds (groundnut sesa-mum). 	<ul style="list-style-type: none"> Development of climate resilient finger millet varieties and profitable production technologies. Evaluation of varieties/hybrids of blackgram, redgram, greengram, sesamum, groundnut and maize. 	—
III. North Coastal Zone				
16.	Regional Agricultural Research Station, Anakapalle, Visakhapatnam District	<ul style="list-style-type: none"> Research on sugarcane, sugarcane based cropping systems, cost reduction technologies and value addition. 	<ul style="list-style-type: none"> Development of high yielding climate resilient varieties of sugarcane. Development of INM, IPM and IDM strategies for sustainable sugarcane production. Development of cost reduction technologies for sustainable sugarcane production. Processing and value addition of Jaggery and sugarcane by-products. Identification of profitable and sustainable sugarcane based cropping systems for different agro climatic conditions. 	<ul style="list-style-type: none"> Testing & identification of thermo & photo insensitive varieties of sesame and groundnut. Evaluation of varieties / hybrids of maize suitable for kharif and rabi. Identification of suitable varieties in rice.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
			<ul style="list-style-type: none"> • Soil health, pest and disease management in multi ratooning • Mechanization in sugarcane. • Development of water smart technologies for increasing the crop / water productivity. • Popularization of feasible and adaptable technologies (bio-pesticides, bio-fertilizers). • To encourage small and marginal farmers to set up industries for value addition. • Weather based Agro advisories to farmers. • Research on socio-economic aspects of farming community. 	<ul style="list-style-type: none"> • To evolve suitable package of practices for organic / natural farming.
17.	Agricultural Research Station, Yellamanchili, Visakhapatnam District	<ul style="list-style-type: none"> • Research on sesamum and sesamum based cropping systems. 	<ul style="list-style-type: none"> • Development of climate resilient (Photo insensitive) sesame varieties and profitable production technologies. • Evolving varieties / hybrids of sunflower. • Breeding for improved varieties of groundnut suitable for North Coastal Zone 	<ul style="list-style-type: none"> • Testing / Identification of varieties / hybrids of millets suitable for light soils & rainfed areas of North Coastal Zone. • Identification of suitable varieties of sugarcane, greengram, horsegram and redgram for rainfed situations.
18.	Agricultural Research Station, Amadalavalasa, Srikakulam District	<ul style="list-style-type: none"> • Research on mesta, mesta based cropping systems, post harvest technology and on pulses. 	<ul style="list-style-type: none"> • Development of climate smart varieties of mesta with biotic and abiotic stress tolerance. • Identification of profitable and sustainable mesta based cropping systems. • Development of innovative and climate resilient production technologies. 	<ul style="list-style-type: none"> • Verification function of cotton, redgram upland pulses, maize and rainfed sugarcane. • Identification of suitable sugarcane, maize and other crops for rainfed conditions.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
			<ul style="list-style-type: none"> Post-harvest technology and value addition. 	<ul style="list-style-type: none"> Evaluation / identification of cotton hybrids / varieties and IPM practices suitable for rainfed situation.
19.	Agricultural Research Station, Ragolu, Srikakulam District	<ul style="list-style-type: none"> Rice, Rice based cropping systems, climate resilient, sustainable / integrated cropping / farming systems, soil and water management for canal fed and tankfed areas and research on rice fallow pulses. 	<ul style="list-style-type: none"> Development of fine grain, long and medium duration varieties for canal fed and rainfed areas. Development of climate resilient short duration varieties for uplands. Development of innovative and adoptable production technologies for different ecosystems (canal, tankfed and rainfed) including direct seeding. Identification and popularization of profitable integrated farming systems. Standardization of organic / natural farming practices. Research on rice fallow pulses. Development of cost reduction technologies (planting methods, bio fertilizers and bio control agents). Bio fortification and value addition. Development of suitable technologies for zerotillage maize. 	<ul style="list-style-type: none"> Testing and identification of suitable varieties of groundnut, mustard, sunflower for rabi season.
20.	Agricultural Research Station, Vizianagaram, Vizianagaram District	<ul style="list-style-type: none"> Research on ragi, ragi based cropping systems and minor millets (proso, kodo, ooda and foxtail). 	<ul style="list-style-type: none"> Development of climate resilient ragi varieties (with blast resistance and non-lodging nature) and production technologies. Evaluation / identification of suitable varieties / hybrids in minor millets. Evaluation / identification of groundnut varieties with biotic and abiotic stress tolerance. 	<ul style="list-style-type: none"> Testing & identification of suitable varieties in greengram, blackgram, redgram, horsegram, maize and sunflower.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
			<ul style="list-style-type: none"> • Bio fortification, processing and value addition in ragi and other minor millets. • Identification of profitable ragi based cropping system including organic farming. • Mechanization in millets. 	
IV. Southern Zone				
21.	Regional Agricultural Research Station, Tirupati, Chittoor District	<ul style="list-style-type: none"> • Research on groundnut and sustainable groundnut based cropping systems, pulses, soil and water management, farm mechanization and post-harvest technology. 	<ul style="list-style-type: none"> • Development of drought tolerance, high yield, pest and disease resistant varieties in groundnut and pulses for the zone. • Research on groundnut based cropping systems, production and protection technologies. • Soil, water and nutrient management technologies for groundnut and pulses including arid legumes. • Evaluation of farm machinery and post-harvest technologies. • Testing, production and distribution of efficient strains of bio-fertilizers. • Weather based agro advisories to farmers. • Research on Socio- economic aspects of farming community. 	<ul style="list-style-type: none"> • Identification of viable Integrated Farming Systems for dryland/ rainfed farmer. • Agro-climate advisory services for dryland / rainfed farming. • Development of digital agricultural communication technologies for efficient transfer of technology. • Creation of farmers organizations and technology commercialization. • Testing / identification of HYVs of fodders, organic/ natural farming practices.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
22.	Agricultural Research Station, Perumallapalle, Chittoor District	<ul style="list-style-type: none"> • Research on sugarcane, maize, jowar and millets. 	<ul style="list-style-type: none"> • Development of high yielding sugarcane varieties possessing tolerance to biotic and abiotic stresses and suitable for jaggery mechanization and diversified uses in Southern Zone. • Development of input use efficient cane management technologies. • Seed production of elite clones through conventional and micro propagation techniques. • Development of high yielding blast resistant finger millet varieties suitable for Andhra Pradesh. • Breeding varieties/hybrids of jowar, maize and pearl millet. • Development of input use efficient crop production and protection practices for maize, jowar and millets. 	<ul style="list-style-type: none"> • Testing and identification of HYVs of minor millets and value addition.
23.	Agricultural Research Station, Nellore, Nellore District	<ul style="list-style-type: none"> • Rice and rice based cropping systems. 	<ul style="list-style-type: none"> • Development of rice varieties of different duration maturity groups suitable to southern zone. • Development of rice varieties resistant/ tolerant to blast. • Screening / identification of resistant donors for major insect pests and diseases. • Development of pest and disease management strategies. • Development of varieties and technologies for aerobic, direct seeding of rice. • Working out package for organic rice cultivation/natural farming. • Basic research on the resistance to insect pests with particular reference to Brown Plant Hopper. • Monitoring and identification of rice gall midge biotypes in Southern Zone. • Development of Integrated pest and disease management including biological control. " Research on the methods of non-pesticide management. 	<ul style="list-style-type: none"> • Evaluation and identification of suitable blackgram and greengram varieties for rice fallows. • Identification of suitable varieties in gingelly. • Identification of HYVs of sesamum. • Testing of pulses under rice fallows.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
24.	Agricultural Research Station, Podalakur, Nellore District	<ul style="list-style-type: none"> Development of high yielding insect pest & disease tolerant varieties in pulses, jowar and evolving climate resilient suitable agro-techniques. 	<ul style="list-style-type: none"> Development of blackgram, greengram and redgram varieties with high yield and tolerance to insect pests and diseases. Development of sorghum varieties suitable for rabi rainfed conditions. Research on sorghum based cropping systems. Development of climate resilient agro techniques. 	<ul style="list-style-type: none"> Testing and identification of suitable groundnut varieties for the tract. Evaluation of fodder sorghum, sunflower and gingelly varieties/hybrids. Seed production in pulses, jowar and groundnut.
25.	Agricultural Research Station, Kavali, Nellore District.	<ul style="list-style-type: none"> Agro-forestry research 	<ul style="list-style-type: none"> Evaluation of different agro-forestry species including eucalyptus, casuarina, Malabar vepa and red sanders clones. 	<ul style="list-style-type: none"> Evaluation/identification of varieties in rice, pulses and groundnut.
26.	Agricultural Research Station, Utukur, Y.S. R. Kadapa District	<ul style="list-style-type: none"> Rice and rice based cropping systems, water management and STCR research. 	<ul style="list-style-type: none"> Rice and rice based cropping systems. Water management and dryland agriculture. Mass multiplication of bio-fertilizers. Basic and strategic research on soils. Evaluation of fertilizer schedules for major crops. 	<ul style="list-style-type: none"> Identification of suitable oilseed and pulses.
V. Scarce Rainfall Zone				
27.	Regional Agricultural Research Station, Nandyal, Kurnool District	<ul style="list-style-type: none"> Development/ identification and popularization of suitable crops/ cropping systems, varieties and technologies pertaining to cotton, rice, jowar, small millets, chickpea, sunflower and tobacco. 	<ul style="list-style-type: none"> Development of climate resilient varieties/hybrids in cotton, rice, jowar, small millets, chickpea, sunflower and tobacco. Research on climate smart technologies to cope up with the weather aberrations in mandate crops. Intensification of research for innovative and small farmer friendly mechanization for mandatory crops. 	<ul style="list-style-type: none"> Evaluation of varieties/ technologies of upcoming crops like maize, redgram, blackgram, soybean, safflower, mustard and castor.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
			<ul style="list-style-type: none"> • Soil health management in major crops/cropping systems. • Development of water smart technologies in major crops/ cropping systems. • To intensify quality seed production of newly released varieties of mandatory crops. • Working out organic production package of practices for small millets and blackgram. • Introduce hybrid rice research. • Weather based agro advisories to farmers. • Research on socio-economic aspects of farming community. 	<ul style="list-style-type: none"> • Development of Agro techniques for rice fallow sorghum.
28.	Agricultural Research Station, Anantapuramu, Anantapuramu District	<ul style="list-style-type: none"> • Development and popularization of climate smart sustainable dryland agriculture technologies and groundnut, bajra integrated farming systems and extending weather based agro advisory services. 	<ul style="list-style-type: none"> • Development of climate resilient technologies in groundnut and other major rainfed crops/cropping systems. • Strengthening the research on climate smart technologies to cope up with weather aberrations in rainfed crops. • Intensification of research for innovative and small farmer friendly mechanization in rainfed crops. • Development of integrated farming system models for rainfed agriculture. • Soil health management under rainfed situations. • Development and evaluation of climate resilient varieties/hybrids in pearl millet and arid legumes. • Development of crop - weather-pest relationships and dissemination of Agro advisories. 	<ul style="list-style-type: none"> • Evaluation of varieties of sorghum castor, foxtail millet, redgram, horsegram and field bean.

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
29.	Agricultural Research Station, Reddipalli, Anantapuramu District	<ul style="list-style-type: none"> Development and popularization of climate and water smart sustainable oilseed crop based cropping systems. 	<ul style="list-style-type: none"> Development of climate resilient technologies in oilseed crops/ cropping systems. Soil health management for oilseed crops. Development of water smart technologies for oilseed crops/ cropping systems. 	<ul style="list-style-type: none"> Evaluation of varieties/ hybrids of oilseed crops, rice and redgram. Transfer of technologies through OFTs
30.	Agricultural Research Station, Kadiri, Anantapuramu District	<ul style="list-style-type: none"> Development and popularization of suitable groundnut varieties and climate smart groundnut based cropping systems. 	<ul style="list-style-type: none"> Development of climate smart groundnut varieties for different situations. Evolving of efficient and sustainable production technologies. Screening of groundnut varieties for major pests and diseases. Development of management strategies for major pests and diseases in groundnut. Intensification of seed research and quality seed production of newly released groundnut varieties. Basic studies on management of viral diseases in groundnut. 	<ul style="list-style-type: none"> Evaluation of redgram, arid legumes and sunflower varieties/hybrids
VI. High Altitude and Tribal Area Zone				
31.	Regional Agricultural Research Station, Chintapalle, Visakhapatnam District.	<ul style="list-style-type: none"> Development/identification and popularization of suitable crop varieties and technologies on watershed basis for improving the livelihood of tribal farmers 	<ul style="list-style-type: none"> Research on rajamash and niger. Evaluation of varieties/hybrids in upland rice, maize, wheat, millets, sugarcane & redgram. Development/evaluation of soil and water conservation practices. Development of integrated farming system models. Improving organic / natural farming practices. Weather based Agro advisories to farmers. Research on socio-economic aspects of farming community. 	—

S. No.	Zone/Research Station	Functions		
		Main	Priorities	Verification
32.	Agricultural Research Station, Seethampeta, Srikakulam District.	<ul style="list-style-type: none"> • Identification and popularization of suitable crops/ crop varieties/ cropping systems and development & popularization of technologies on watershed basis for improving the live hood of tribal farmers. 	<ul style="list-style-type: none"> • Testing the performance of improved varieties of cereals, millets, pulses, oil seeds and fodder crops. • Soil and water conservation in the agency area. • Development of organic/natural farming package for major crops in the agency areas. • Identification of profitable and non-traditional crops and cropping systems. • Integrated farming system research for economic upliftment of tribal • Promotion of processing and storage of millets. 	<ul style="list-style-type: none"> • Identification of profitable cropping/ farming system.

ANNEXURE VII

LIST OF ICAR COORDINATED RESEARCH NETWORK PROJECTS OPERATED IN RESEARCH STATIONS OF ANGRAU

I. NORTH COASTAL ZONE

1. AICRP on Sugarcane, RARS, Anakapalle
2. AICRP on PHE and Technology, RARS, Anakapalle
3. AICRP on Biological Control, RARS, Anakapalle
4. AICRP on Small Millets, ARS, Vizianagaram
5. AICRP on Jute and Allied Fibers, ARS, Amadalavalasa
6. AICRP on IFS, ARS, Vizianagaram

II. GODAVARI ZONE

7. AICRP on Rice, RARS, Maruteru
8. AICRP on Cropping System Research (MAE), RARS, Maruteru
9. AINP on Vertebrate Pests, RARS, Maruteru
10. AICRP on Honey Bee Research & Training, ARS, Vijayarai
11. AICRP on Maize, ARS, Peddapuram.

III. KRISHNA ZONE

12. AICRP on Pulses, MULLaRP, RARS, Lam
13. AICRP on Cotton, Main Centre, RARS, Lam
14. AICRP on Pulses (Pigeonpea), RARS, Lam
15. AICRP on Management of Salt Affected Soils and Use of Saline Water, Bapatla
16. AICRP on Post-Harvest Technology, Bapatla
17. AICRP on Farm Implements and Machinery, Bapatla
18. AINP on Soil Biodiversity & Biofertilizers, ARS, Amaravathi
19. AICRP on MULLaRP, ARS, Ghantasala
20. AICRP on Dryland Agriculture, Voluntary Centre, ARS, Darsi

IV. SOUTHERN ZONE

21. AICRP on Groundnut Sub Centre, RARS, Tirupati
22. AICRP on Forage crops (Voluntary Centre), RARS, Tirupati
23. AICRP on Sesamum, RARS, Tirupati
24. AICRP on Rice, ARS, Nellore
25. AINP on Pesticide Residue (Voluntary Centre), RARS, Tirupati

V. SCARCE RAINFALL ZONE

26. AICRP on Cotton, Sub-Centre, RARS, Nandyal
27. AICRP on Improvement of Small Millets, RARS, Nandyal
28. All India Network Project on Tobacco, RARS, Nandyal
29. AICRP on Oilseeds, Sub-Centre on Sunflower, RARS, Nandyal
30. AICRP on Chickpea, RARS, Nandyal
31. AICRP on Sorghum, RARS, Nandyal
32. AICRP on Dryland Agriculture, ARS, Anantapuramu
33. AICRP on Pearl Millet Improvement Project, ARS, Anantapuramu
34. AICRP on Agrometeorology, ARS, Anantapuramu
35. AICRP on Castor, ARS, Anantapuramu
36. AICRP on Oilseeds, Main Centre for Groundnut, ARS, Kadiri

IX. HIGH ALTITUDE AND TRIBAL ZONE

37. AICRP on Niger, RARS, Chintapalle

ANNEXURE VIII

LIST OF EXTENSION CENTRES KRISHI VIGYAN KENDRAS (KVKS) (13)

<p>Krishi Vigyan Kendra Amadalavalasa – 532 185 Srikakulam District.</p>	<p>Krishi Vigyan Kendra Agricultural Research Station Nellore – 524 004 SPS Nellore District.</p>
<p>Krishi Vigyan Kendra Rastakuntabai – 535 523 (via) Gummalaanipuram Vizianagaram District.</p>	<p>Krishi Vigyan Kendra Kalikiri – 517 234 Chittoor District.</p>
<p>Krishi Vigyan Kendra Kondempudi, Dr. No. 6-89 Opp: to Sakha Grandhalayam Main Road, Ravikanatham Visakhapatnam – 531 025 Visakhapatnam District.</p>	<p>Krishi Vigyan Kendra Agricultural Research Station Utukur – 516 003 YSR (Kadapa) District.</p>
<p>Krishi Vigyan Kendra Undi – 534 199 West Godavari District.</p>	<p>Krishi Vigyan Kendra Banavasi, Yemmiganur Kurnool – 518 003 Kurnool District.</p>
<p>Dr K L Rao Krishi Vigyan Kendra Garikapadu – 521 175 Krishna District.</p>	<p>Krishi Vigyan Kendra Garudapuram, Kalyandurg – 515 761 Anantapuramu District.</p>
<p>Krishi Vigyan Kendra Ghantasala - 521133 Krishna District.</p>	<p>Krishi Vigyan Kendra Bukkarayasamudram Reddipalli Anantapuramu – 515 001 Anantapuramu District.</p>
<p>Krishi Vigyan Kendra Agricultural Research Station Darsi – 523 247 Prakasam District.</p>	

DISTRICT AGRICULTURAL ADVISORY & TRANSFER OF TECHNOLOGY CENTRES (DAATCs) (13)

District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Amadalavalasa – 532 185, Srikakulam District	District Agricultural Advisory & Transfer of Technology Centre Agricultural Research Station Premises Gajularega – 535 003, Vizianagaram District.
District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Kondempudi – 531026, Visakhapatnam Dist.	District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises B.V.Nagar, Nellore – 524 004 SPSR Nellore District.
District Agricultural Advisory & Transfer of Technology Centre Agricultural Research Station Premises Peddapuram – 533 437, East Godavari District	District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Kalikiri – 517 234, Chittoor District.
District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Undi – 534 199, Bhimavaram Road, West Godavari District	District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Utukur, Kadapa – 516 001 YSR Kadapa District
District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Ghantasala – 521 133 Krishna District	District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Banavasi, Yemmiganur – 518 360 Kurnool District.
District Agricultural Advisory & Transfer of Technology Centre Regional Agricultural Research Station Premises Lam, Guntur – 522 034, Guntur Dist.	District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Reddipalle – 515 701 Anantapuramu District
District Agricultural Advisory & Transfer of Technology Centre Krishi Vigyan Kendra Premises Daisi – 523 247, Prakasam District	

OTHERS

Farmers Call Centre Toll Free No.1800 425 0430 Guntur – 522 034 Guntur District.	Agricultural Information & Communication Centre (AI&CC) Flat 402, Srinivasa Citadel Opp: Hosanna Mandir Guntur – 522 034 Guntur District.
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Mega Display of ANGRAU Rice Varieties at RARS, Maruteru on 08-04-2021



Extension team conducting on-farm group discussion with farmers



Hon'ble Vice Chancellor, ANGRAU, Dr. A. Vishnuvardhan Reddy receiving ICAR Awards for securing 2nd position in PG scholarships in AIEEA-2019 and 2020.