

NOTABLE ACHIEVEMENTS OF RARS/RESEARCH STATION/AICRP SCHEME/KVK

S. No.	Description	
1	Name of RARS/Research station/ AICRP/KVK	: ARS, Perumallapalle
2	Year of establishment	: 1964
3	Mandate crops	: Sugarcane and Millets
4	Notable achievements (in bullets)	Two sugarcane clones (Co T 8201 and Swarnamukhi), one bajra composite (Balaji) and five finger millet varieties (Kalyani, Padmavathi, Sapthagiri, Vakula and Tirumala) were released from ARS, Perumallapalle. Sugarcane: ➤ Six clones viz., 2005 T 16 (Co T 10367), 2006 T 3 (Co T 12366), 2009 T 5 (Co T 14366), 2005 T 50 (Co T 10369), 2011 T 70 and 2012 T 58 (Co T 17366) were contributed to National Hybridization Garden, Sugarcane Breeding Institute, Coimbatore. ➤ Five YLD resistant somaclones were developed and among them 2016 T 7 developed from 2003 V 46 performed better for yield and sucrose than its parent. Four entries are being popularized in sugar factory zones. ➤ 2003 T121: Early variety with 115t/ha yield, 20% juice sucrose, resistant to red rot and smut and non-flowering. ➤ 2005 T 16: Early variety with 120 t/ha cane yield, 20 % juice sucrose, resistant to red rot and Smut, non -lodging and suitable for delayed harvesting. ➤ 2005 T 50: Mid late variety with 100 t/ha cane yield, 18 % juice sucrose, resistant to red rot and smut and non- lodging. ➤ 2006 T 3: Early variety with 120 t/ha cane yield, 18% Juice sucrose, moderate resistance to red rot and resistant to smut ➤ Planting time: Planting in February followed by January gave maximum cane and sugar yield. Delayed planting from March to May decreased cane yield by 6.77 t/ ha and sugar yield by 0.9 t/ ha.

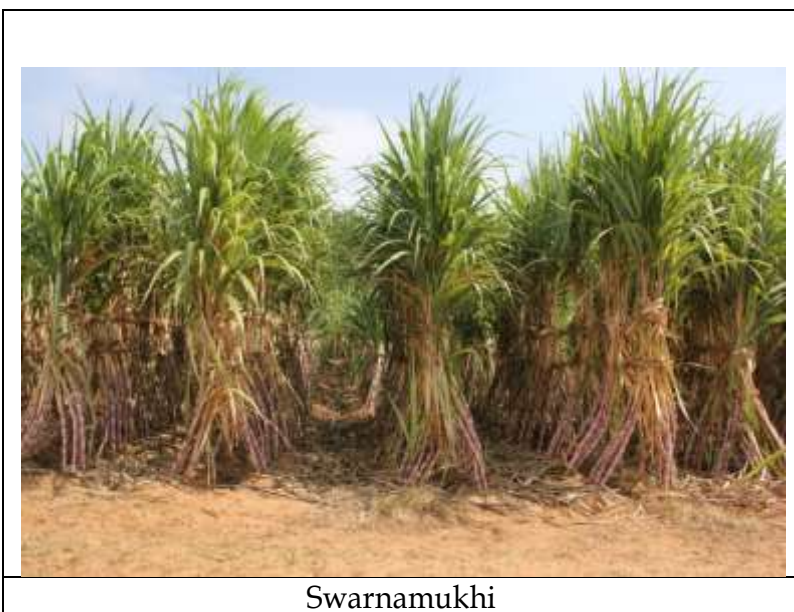
		➤ Seed Material: Higher cane yield was obtained by using three budded setts as planting material. Planting of three budded setts recorded highest number of millable canes/ha compared to bud chip seedlings and two budded setts under drought situation and in July planting. ➤ Among type of seedlings, single node seedlings recorded higher cane yield (95.2 t/ha) compared to bud chip seedlings (89.2 t/ha). Among three different months of planting, (January, February, March), January month of planting recorded higher cane yield (94.7 t/ha). Among two doses of nitrogen 125 % RDN at four splits recorded higher cane yield (91.7 t/ha) compared to 100 % RDN at four splits (90.8 t/ha). ➤ Among fertigation treatments 125% RDN + 125 % RDK in 12 equal splits through drip from 30-150 DAP recorded the highest cane yield (107 t/ha). Cane yield was increased by 13% when urea and muriate of potash were applied through fertigation and 25 % of recommended N and K were saved when compared to soil application. ➤ In sugarcane foliar spray of micronutrient mixture @ 2% along with 100% RDF is optimum dose for higher cane yields. ➤ Intercropping: Sugarcane inter cropped with green gram, cowpea, cluster bean were found to be remunerative with high net returns. ➤ Spacing: For early varieties 80 cm spacing and for mid late varieties 90 cm spacing was found to be optimum. ➤ Planting methods: Paired row planting (60 cm / 120 cm) was better than normal, wide row and pit method of planting. ➤ Weed management: Atrazine @ 2 kg a.i./ ha was found to be effective as pre emergence herbicide. Metribuzine @ 1.25 kg/ha + 2,4-D Sodium salt @ 5 kg/ha was found to be effective for controlling of creeper weeds in sugarcane. ➤ Drought mitigation: Trash mulching @ 3 t/ha and irrigation in alternate furrows mitigate drought effectively. Lime soaking of seed material + gypsum application (500 kg/ha) in furrows +Urea (2%) and KCL @2% foliar spray each at 90,105 and 120 DAP was effective to mitigate drought. ➤ Drip irrigation: Surface drip which resulted in 29.5% water saving and 33.7%increased yield was superior over furrow method of furrow irrigation.
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		➤ Nitrogen: Application of 224 kg N/ha in two equal splits, at 45 DAP and 90 DAP has recorded higher cane yield. ➤ Sulphur: Application of Sulphur @ 80 kg/ha in the form of gypsum (500 kg/ha) enhanced cane yield and improved quality of jaggery (sucrose & colour). ➤ Integrated nutrient management: Application of 50% recommended dose of fertilizers + press mud cake (12.5 t/ha) / farm yard manure (25 t/ha) + Azospirillum @ 10 kg /ha, phosphorus solubilizing bacteria (PSB) @ 10 kg/ha were found beneficial. ➤ Fertilizer use efficiency: 2003 V 46 was identified as high fertilizer use efficient variety and recommended to low input management. ➤ Biofertilizers: Azospirillum@ 10 kg/ha and VAM @ 12.5 kg/ha along with 75% RDF saved 25% of chemical fertilizers. ➤ Organic farming: Among different sources of organic manures tested, application of PMC @12.5 t/ha as basal + Azotobacter (5Kg/ha)+ PSB (10Kg/ha) resulted in highest cane yield. ➤ Sett treatment: Malathion (2ml/l) + Bavistin (0.5 g/l) controlled early pest incidence and sett borne diseases. Dipping in Tilt (1 ml/l) for 15 min. controlled smut. ➤ Testing of non traditional crops: Sweet sorghum and foxtail millet during Kharif and sweet potato and sweet corn during rabi were found to be remunerative and alternative non traditional crops to ground nut crop with high benefit cost ratio. ➤ Revisiting of fertilizer schedule in sugarcane: Application of 125% RDN, RDP, RDZn and 100% RDK recorded higher cane yield and economically feasible than 100% RDF. (On farm testing). ➤ Characterized Yellow Leaf Virus from 2003V46 through RT-PCR and deposited the sequences of coat protein and replicase protein of the virus in NCBI, USA with accession numbers, JX287508 and JX287509. Millet: ➤ Application of 100% RDF + Zn SO₄ @ 50 kg ha⁻¹ recorded the highest grain yield (24.18 %) in finger millet.
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ANGRAU TECHNOLOGIES <i>(Restrict to one page for each technology)</i>			
	Category of Technology (Select one)		Crop Improvement/Crop Production/ Crop Protection/Biotechnology/Nano Technology/Farm Mechanization/Post Harvest Engineering & Technology/Land & Water Management/Community Science
i	Name of the Technology	:	
ii	Description of Technology (attach relevant photo if any)	:	
iii	Application/Use	:	
iv	Unit cost of operation	:	
v	Status of commercialization	:	Yes/No, if Yes
	Addresses of Licensees or Manufacturer	:	
vi	Contact Address for further details	:	<Address of research station>



1	Crop	Sugarcane
2	Variety	Co T 8201
3	Parentage	Co 740 x Co 775
4	Breeding Method	Hybridisation followed by clonal selection.
5	Year of release	1982
6	Release through CVRC/SVRC	SVRC
7	Crop duration	Midlate: 12 months
8	Season	December - January
9	Potential yield	110 – 120 t/ha
10	Area suitability	Suitable for Rayalaseema districts
11	Salient features	• High sucrose content (17-18%). • Resistant to red rot and smut diseases. • Tolerance to salinity.



1	Crop	Sugarcane
2	Variety	Swarnamukhi (2005T16/CoT10367)
3	Parentage	CoH 110 GC
4	Breeding Method	Open pollination of female parent, CoH 110 followed by clonal selection.
5	Year of release	2018
6	Release through CVRC/SVRC	SVRC
7	Crop duration	Early - 10 months
8	Season	January - February
9	Potential yield	120 – 130 t/ha Cane yield, 19%-20% Juice sucrose and 12.5 t/ha CCS yield.
10	Area suitability	Andhra Pradesh
11	Salient features	➤ Moderately resistant to resistant against red rot, smut, wilt and pokkah boeing. ➤ It is a good ratooner yielding good quality jaggery.

1	Crop	Pearl millet
2	Variety	Balaji composite
3	Parentage	--
4	Breeding Method	Composite breeding
5	Year of release	1976
6	Release through CVRC/SVRC	SVRC
7	Crop duration	75-80 days
8	Season	Kharif and summer
9	Potential yield	15-20 q/ha
10	Area suitability	Southern zone of Andhra Pradesh
11	Salient features	It grows to a height of 150-200 cm having 20 cm long, cylindrical and compact ear heads with light grey bold grain. It matures in and gives grain yield.



Kalyani

1	Crop	Finger millet
2	Variety	Kalyani
3	Parentage	Selection from Naidupet local (CR 562)
4	Breeding Method	Pure line selection
5	Year of release	1979
6	Release through CVRC/SVRC	SVRC
7	Crop duration	100-105
8	Season	Kharif and Rabi
9	Potential yield	25-30 q/ha
10	Area suitability	General cultivation in Rayalaseema & Telangana
11	Salient features	Mean plant height is 75 cm. Erect plant type and determinate in growth habit. Good tillering. Nodes have purple pigmentation. Ear heads have light purple pigmentation. Leaf sheath is greenish white. Compact and medium length panicle with top curved fingers. The panicle has 8-9 fingers. Brown colour seed.



1	Crop	Finger millet
2	Variety	Padmavathi (PR 2350)
3	Parentage	Selection from Tirupati local
4	Breeding Method	Pure line selection
5	Year of release	1993
6	Release through CVRC/SVRC	SVRC
7	Crop duration	100-105
8	Season	Suitable for late plantings in Kharif and matures earlier by week under rainfed conditions. Suitable for irrigated rabi season.
9	Potential yield	25-30 q/ha
10	Area suitability	Andhra Pradesh
11	Salient features	Plant grows to a height of 80 cm with determinate growth. Anthocyanin pigmentation is present at nodes, glumes and leaf sheath. Medium long internode. Leaf blade is glabrous with erect flag leaf. Semi compact panicle 7-8 incurved fingers. Brown colour seed



1	Crop	Finger millet
2	Variety	Saptagiri(PPR 2614)
3	Parentage	MR -1 x Kalyani
4	Breeding Method	Pedigree method of breeding
5	Year of release	1995
6	Release through CVRC/SVRC	SVRC
7	Crop duration	105-110
8	Season	Kharif and Rabi
9	Potential yield	25-30 q/ha
10	Area suitability	Andhra Pradesh
11	Salient features	Suitable for early planting situations; Non-lodging; tolerant to water logging as well as drought situations. The mean plant height is 90 cm. Plant is determinate in growth habit with purple pigmentation at nodes. The ears have light purple pigmentation. Semi compact long panicle with top curved fingers. Brown colour seed



1	Crop	Finger millet
2	Variety	Vakula (PPR 2700)
3	Parentage	KM 55 x U 22/B
4	Breeding Method	Pedigree method of breeding
5	Year of release	2012
6	Release through CVRC/SVRC	SVRC
7	Crop duration	100-105
8	Season	Kharif and Rabi
9	Potential yield	30-35 q/ha
10	Area suitability	Andhra Pradesh. Suitable for early and late Kharif situations and irrigated Rabi situations in all ragi growing areas.
11	Salient features	Semi dwarf nature of plant. At flowering, light purple pigmentation was observed at leaf sheath. Compact and clumpy ear head. Tolerant to leaf blast and drought; Lodging resistant due to culm strength. Large compact ear head.



1	Crop	Finger millet (PPR 1012)
2	Variety	Tirumala
3	Parentage	AE 3077 X Ratnagiri
4	Breeding Method	Pedigree method of breeding
5	Year of release	2018
6	Release through CVRC/SVRC	SVRC
7	Crop duration	115-120
8	Season	Kharif and Rabi
9	Potential yield	30-35 q/ha
10	Area suitability	Ragi growing districts of Andhra Pradesh under rainfed conditions during Kharif and irrigated conditions in Rabi and summer.
11	Salient features	Purple pigmentation on nodes, leaf juncture and glumes. Lengthy fingers with tips incurved in nature. Stay green nature of the plant at harvest. It is tolerant to all the three types of blast viz., leaf blast, neck blast and finger blast. Grain quality is good. Medium bold brown colour grain. High fodder yield.