

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

S.No.	Description		
1	Name of RARS/ Research station/ AICRP/ KVK		ARS, Ananthapuramu
2	Year of establishment		31-3-1964
3	Mandate crops		
	Development and popularization of climate smart sustainable dryland agriculture technologies in groundnut, pearl millet, castor, integrated farming systems and extending weather based agro advisory services. ✓ 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, castor and arid legumes. ✓ Development of crop-weather, pest relationships and dissemination of Agro advisories. ✓ Evaluation of varieties of sorghum, foxtail millet, redgram, horsegram and field bean.		
4	Notable achievements (in bullets)		
	Major research findings: • June – July is the optimum time for sowing of groundnut. • Using small and medium seeds for sowing in groundnut instead of bold seeds will reduce seed cost without reduction in pod yield. • Intercropping of groundnut + mixed pulses in 15:1 ratio reduced runoff loss and increase the net returns by 18-22%. • Contour bunding and Contour cultivation practice proved better for higher groundnut yield compared to cultivation along the slope. • Dead furrow at an interval of 3.6 m in groundnut proved to be suitable soil moisture conservation measure. • Groundnut + Pigeonpea (11:1) and Groundnut + Castor (15:1) found to be suitable inter cropping systems under rainfed conditions. Even, if groundnut crop fails due to drought, redgram crop will give net profit of Rs.3000/ha.		

	• Early sowing of redgram and castor during the month of June will give better yields compared to delayed sowing. • Castor, redgram, korra and sorghum were identified as alternate crops for groundnut. • Horsegram/Pearl millet/Sorghum/Fodder Sorghum/Cowpea/Greengram are the suitable contingent crops under delayed onset of monsoon. • Groundnut (1 ha) + Sheep rearing (10 Rams) found to be remunerative farming system for small and marginal farmers of dry lands. • Sheep penning @ 1sheep/sq.m/one night resulted in increase in pod yield of groundnut by 13% and haulm yield by 41%. Sheep penning recorded increase in available potassium, Iron and Zinc in the soil. • Soil test based phosphatic and potassium fertilizer application for groundnut crop reduced the cost of inorganic fertilizers and increased the groundnut yield by 5-22% apart from reducing micro nutrient deficiencies in shallow arid alfilsols. • “Organic farming” found to be effective in utilization of locally available resources for sustainable dryland Agriculture. • Application of sand @ 40t/ha in shallow red soils improved the soil physical parameters and groundnut yield. • Application of 20 – 40 – 40 kg NPK/ha found suitable for groundnut and the same dose of fertilizers was also found sufficient for groundnut + Redgram intercropping. • Integrated nutrient management with 50% of recommended dose of nutrients through inorganic fertilizers and 50% through FYM/groundnut shells improved soil physical, chemical properties, soil quality index, sustainable yield index and groundnut yields. • Application of zinc sulphate @ 25kg/ha for each crop or 50 kg/ha once after three crops is recommended for higher yields in groundnut. • Foliar application of ferrous sulphate @ 2g/l is recommended for control of iron deficiency and increase in groundnut yield. • Farm Pond (soil & cement lined in the ratio of 6:1) of 10mx10mx2.5m found to be cost effective to provide supplemental irrigation (10mm) through sprinkler at critical stages in groundnut. • Supplemental irrigation with sprinklers using the water stored in farm pond increased groundnut yields by 25-30%. • Developed EenatiGorru, Bullock drawn automatic seed drill, Tractor drawn Anantha Planter, Aqua-Planter, Tractor drawn boom sprayer for simultaneous sowing as well as herbicide application, Anantha Tractor drawn inter cultivator, ANGRAU Blade Guntaka for groundnut harvesting, machinery for groundnut decortication, dry and wet pod threshing. • Threshing of groundnut crop should be completed within 5 days after harvest of the crop conveniently skipping the heaping operation using peg type groundnut thresher to save labour costs. • Deep ploughing with sub soiler at 40-50 cm once in 3 years helps in breaking of sub soil hard pan and water infiltration and increases the groundnut yield. • Developed Integrated Pest Management Module in groundnut. • Developed Pheromone mediated mass trapping of groundnut leaf miner (20 traps/ha) resulted in reduced incidence of leaf miner and increased the net income (Rs.5000/ha). • Modified atmospheric storage with 20% carbon dioxide resulted in no incidence of <i>Carrydon serratus</i> in stored groundnut. • Developed weather based forewarning system for Red Hairy Caterpillar (RHC), late leaf spot (LLS), Groundnut Leaf Miner (GLM) and Peanut Stem Necrosis Disease (PSND). • Spray carbendazim @ 0.1 + Mancozeb 0.2% or Hezconazole (2ml/l) around seventy
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	daysage of the crop, coinciding first fortnight of October to control late leaf spot disease and for higher economic returns. • For managing PSND grow 4 rows of tall growing sorghum or pearl millet as boarder crop and also remove all weeds especially Parthenium on field bunds, on road sides and in fallow lands adjacent to the groundnut field. • Collected mandal wise rainfall details and developed mandal wise rainfall database of Andhra Pradesh. • Prepared Climatic Classification Maps for Ananthapuramu and Kurnool Districts of scarce rainfall zone. • Delineated arid mandals in Andhra Pradesh. • Conducted awareness programmes on climate change in various districts of Andhra Pradesh for creating awareness in the farmers regarding ill effects of climate change. Important crop varieties/hybrids released • Released ABV -04 in Pearl millet and ATPHG-11 in Horsegram
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ANGRAUTECHNOLOGIES (Restrict to one page for each technology)			
	Category of Technology		Farm mechanization
i	Name of the technology		Ananta Planter
ii	Description of technology (attach relevant photo if any)		Tractor drawn Ananta planter (8 rows) developed to mechanize the groundnut sowing for timely operation with mechanical advantage and intercropping facility. A 5 cm width covering blade is also fitted behind the furrow openers to cover the furrows after seed placement. The inclined disc plate seed metering mechanism gives correct seed to seed distance and maintains the recommended seed rate of 90 to 100 kg/ha. The seed damage is negligible and placement of seed is at proper depth of 4-5 cm. The field capacity is 6 to 7 ha/day and can cover large area before the soil moisture is dried up. The germination and optimum plant population was possible.
iii	Application/use		The intercropping of redgram or castor can also be sown using Ananta planter along with groundnut sowing. The spring type cultivator of this planter facilitates to sow in stony and pebble slopy soils. Ananta planter can also be used with mechanical adjustments for sowing Castor, redgram and chickpea with distinct row to row and seed to seed spacing. Groundnut + redgram Anantha Planter is suitable for groundnut and redgram sowing in 8:1 row arrangement.
iv	Unit cost of operation		The cost of Ananta planter is about Rs.65,000.
v	Status of commercialization Addresses of Licencees or Manufacturer		KBN Engineering works, RTC Bus stand Road, Ananthapuramu-515001 Mobile No.9440920417
vi	Contact address for further details		Principal Scientist (Dryland Agriculture) ARS, Ananthapuramu-515001 Mobile :9989625222

ANGRAUTECHNOLOGIES (Restrict to one page for each technology)		
	Category of Technology (Select one)	Land & water Management
i	Name of the technology	Farm pond technology
ii	Description of technology (attach relevant photo if any) 	Rainwater collection and storage for subsequent use is known as water harvesting. Water harvesting in farm ponds and subsequent use as supplemental irrigation helps in increasing the yields of rainfed crops. Runoff constitutes 25 % of rainfall in red soils. Water harvested from catchment area of 1.0 ha can be used to irrigate one hectare. Lining of farm ponds can reduce seepage losses. Lining with soil + cement at 6:1 ratio is found reduce seepage losses considerably. A farm pond with dimensions of 10 m x 10 m x 2.5 m can store 250 m ³ of runoff water, which can be used for giving supplemental irrigation.
iii	Application/use	Supplemental irrigation of 20 mm through sprinklers at moisture stress during critical stages can increase groundnut pod yield by 25 - 30 %.
iv	Unit cost of operation	Farm Pond size :10 X 10X2.5 m = Rs.50000
v	Status of commercialization Addresses of Licencees or Manufacturer	Adopted by the Govt of Andhra Pradesh under MGNREGA scheme entitled “ <i>Panta sanjeevini</i> ”
vi	Contact address for further details	Principal Scientist (Dryland Agriculture) ARS, Ananthapuramu-515001 Mobile :9989625222