

SALIENT ACHIEVEMENTS :

- Development & release of Hraswa, the first extra short duration red kernelled rice variety in India maturing in 75-80 days & 3 short duration rice varieties Ahalya, Manupriya and HS-16 for Kole Lands
- Development of rice high yielding culture of various durations which are in pre-release stage
- Development of agro - techniques for Kole Land rice cultivation
- Fertilizer application @ N:P:K 90:35:45 kg/ha for short duration and 110:45:55 kg/ha for medium duration rice varieties in Kole lands
- Identification of four promising varieties of aromatic rice with good aroma and high yield
- Design and fabrication of a motorized paddy winnower cum cleaner with an efficiency of cleaning 1000 kg of grain or 600 kg of seed per day
- Popularisation of rice paddy transplanter, Combine harvesters and Paddy straw balers through working demonstrations and adaptive trials
- Large scale production of foundation and truthfully labeled seeds of rice and vegetables
- Development of medium long, high yielding white fruited snake gourd variety 'Manusree'
- Formulation of a modified package of practices for cultivation of cool season vegetables in plains of Kerala
- Identification of tropical genotypes of cool season vegetables for cultivation in the plains of Kerala
- Cowpea variety Kanakamani, Blackgram variety PU-9 and Green gram variety S-8 recommended for upper reaches of Kole Lands
- Groundnut varieties TG-3, TG-4 and 'Spanish Improved' recommended for general cultivation in the state
- Development and maintenance of germplasm of jack, mango and cashew and progeny orchards of mango, sapota, jack and other fruit trees
- Production of planting materials of fruits, ornamentals, plantation crops and Spices
- Large scale production of coconut hybrid 'Kerasree'
- Procurement and demonstration of all improved farm implements and agro - machinery for mechanized cultivation
- Ninety days stipendiary training on Commercial Nursery Management and Vegetable Production Technology to SC youths under the scheme SCA to SCP sponsored by the District Collector Thrissur - completed 5 batches of 15 trainees each.
- Regular conduct of Farmer-Scientist Interaction and Farm days
- Bonus linked vegetable production programme
- Vocational training for mechanised transplanting
- Development of technology for mat nursery preparation in rice
- Adaptive trials and front line demonstrations on various crop production technologies
- Developed 'Kera Suraksha' Coconut climber
- Conceptualization and institutionalization of 'Food Security Army', 'Green Cadet Corps' projects and regular conduct of vocational training on Agricultural Mechanization as Food Security Army training.
- Institution of AMOSE, MAMTU, MAMRSU and FMFC
- Implementation of macro level Paddy Mechanization project - ' Operation Ponnamutha 300/5'
- Introduction of Paddy Straw baling system
- Large scale demonstration of paddy mat nursery production using automatic paddy mat nursery sowing machine in Kole lands
- Development of Kera Suraksha Coconut Climber

- Development of Coconut palm basin digger
- Introduction of new generation farm machinery

CROP IMPROVEMENT

Research : Crop improvement activities in rice at ARS, Mannuthy resulted in the release of four rice varieties viz., Hraswa, Ahalya, Manupriya and Manuratna suited to Kole lands and other areas of rice cultivation. Manuratna is a short duration rice culture developed through reselection in rice variety Hraswa, maturing in 95-100 days. Average yield recorded by the culture is 5.6 t/ha with high per day productivity and is suitable for all the three seasons of Kerala. This culture is of much importance in the present situation of water scarcity, where very early varieties can act a pivotal role.

Other cultures in pipe line are E39 and E 56-2 in the early duration group and Cul. 6-08 and Cul.2-08 in the medium duration group. Aromatic varieties collected from different parts of India were evaluated at this station to find out aromatic varieties suitable for Kerala. Four varieties (Pusa Sugandh-2, Pusa Sugandh-4, Sugandhamati and Rasacadam) were identified to have high yield potential of above 5 t/ha with good aroma, milling and cooking qualities. Variety Hraswa is further refined to Hraswa-I, HS-13 & HS-16

Transfer Of Technology : The performance of the coconut hybrid, Kerasree produced by Kerala Agricultural University and Kerasankara produced by CPCRI are highly appreciated by farmers and they are in high demand in Thrissur and neighbouring districts. The above coconut hybrids are produced on farmer participatory activity and being sold to the farmers, under RF mode. About 25,000 hybrid seedlings are distributed annually.

Farm Trials and Demonstration plots of different rice varieties and cultures were conducted in farmers' fields at different locations throughout Kerala.

In rice the seeds of Hraswa and Manurathna were produced under farmer participatory mode and being sold to farmers.

CROP PRODUCTION

Research : A state plan project entitled "Kole Land Crop Productivity Centre" and "Crop Security Intelligence Wing Centre" were completed in Kole Lands of Thrissur. The project aimed at monitoring of soil, plant, water, atmosphere and biotic changes with respect to time and season of planting and making concurrent changes. Paddy was raised in the project area and soil changes and plant growth were monitored in relation to different cultural operations like land preparation, weed control and water management. Another work in kole lands is studies on secondary and micronutrient deficiencies and their amelioration. Works on standardization of agro technologies for precision farming and validation of organic farming techniques are going on.

Transfer Of Technology : A state plan project 'Kole Land Crop Security Intelligence Centre'

completed. The project aimed at transfer of proven technologies to the Kole land farmers. Fifteen Kole land crop security Intelligence personnel deployed for the purpose, conducted keen observations of the field, soil and water and made timely reporting of important changes if any. This facilitated providing early warnings on pest and disease problems so that farmers can take immediate steps to protect the crop. The project is continued as Pest and Disease surveillance and management in Kole lands and Strengthening Research in Kole Lands. An automatic weather station was also installed in Kole lands as part of the project.

The CSIW Officers regularly visited the paddy fields and recorded soil, crop, atmosphere and water related parameters with respect to pests, diseases, physiological disorders, soil and water quality parameters. Based on the analysis, they reported the conditions as well as provided technical messages to farmers on tackling problems. Due to frequent visits and interventions by CSIW Officers, an awareness could be created among farmers regarding the misuse of poisonous pesticides and to go for a safe crop production without using high quantity of pesticides. Farmers reduce unscrupulous use of pesticides and fungicides and non judicial use of chemical fertilizers due to their intervention in Kole lands. This also enabled us for the grass root level understanding of the constraints in Kole land cultivation and to come out with management and technical outputs to overcome these situations.

The Project "Rain Water Harvesting" is aimed at increasing the water availability of farm by introducing bunding, trenching, terracing etc. Soil is also conserved. The programme seems as a good demonstration piece to visiting farmers and students. The organic farm also attracts many visitors.

The scientists work as advisory committee members of research scholars.

Provides technical consultancy for ATMA, Kole Land Development Agency, Command Area Development Agency etc.

RKVY Project on "Enhancing Rice Production in Kerala and attaining partial Self Sufficiency" was also undertaken by the station with the objectives of monitoring and analysis of plant productivity under double cropping w.r.t. change in climate, soil and region in Kole lands, developing management options at macro level towards sustaining high productivity in Kole lands and providing service support system for farmers for sustained cultivation of Kole lands through the services of Food Security Army.

HORTICULTURE RESEARCH & SERVICES

Research :

- Identified cabbage, cauliflower, carrot and radish varieties suitable for cultivation in the plains of Kerala
- Standardized package of practices for Cabbage and Cauliflower cultivation in the plains of Kerala. The technological package and the varieties identified are accepted for inclusion in the KAU Package of Practices.
- Standardized technology for large scale production of disease free vegetable transplants
- Around 35 promising collections of jack fruit were identified from Central Travancore and budded saplings of the elite germplasm were planted in Agricultural Research Station, Mannuthy and a gene sanctuary of Jack was established.

- Standardized technology for grafting in vegetables
- Developed F1 hybrids in Brinjal
- Two promising bacterial wilt resistant tomato genotypes LE 1-2 and LE 66 having high fruit size (> 60 g) were developed. Farm trials of these genotypes have been completed and the two genotypes are now on the verge of release.
- Developed a high yielding, medium long, white fruited snakegourd variety 'Manusree' and a high yielding bacterial wilt resistant varieties of tomato "Manulakshmi" and "Manuprabha"
- Standardises precision farming technologies for important vegetable crops

Transfer Of Technology :

- The varieties and technologies recommended by ARS Mannuthy for cultivation of cool season vegetables in the plains of Kerala was widely accepted by the farming community and the Government agencies like VFPC is now supplying close to 25 lakhs seedlings of these crops every year. Besides Agricultural Research Station, Mannuthy, several other stations of Kerala Agricultural University like College of Agriculture, Padannakkad; PRS, Panniyoor; KVK Panniyoor; ARS, Anakkayam; KVK, Tavanur; RARS, Pattambi; ARS, Chalakkudy and ARS, Thiruvalla are supplying seedlings in large quantities to farmers every year. The Station is also supplying grafted vegetable seedlings to the tune of 1 lakh to Kerala, Karnataka, Tamil Nadu, etc
- Completed six months training to VHSE qualified persons under Food Security Army - Garden force. All the aspects of gardening were covered during the period, including practical experience in various crop production as well as management aspects. Now, most of them are engaged either as Skilled Assistants in various projects or in the field in ARS nursery
- A SHM sponsored project ' Training for Supervisors in Gardening ' for a period of one year duration is completed. The trainees are trained in gardening aspects, plant care, precision farming techniques & nursery techniques
- The technology for large scale production of virus free seedlings also got wide acceptance among farmers. The Agricultural Research Station, Mannuthy has supplied 3.50 Lakhs seedlings of various vegetables like tomato, brinjal, chilly, cucumber, pumpkin, ash gourd, bottle gourd, bitter gourd and snake gourd besides cabbage and cauliflower to the farmers during the current year. The supply of good quality seedlings in sufficient quantity at the correct time has in fact revolutionized the cultivation of cabbage and cauliflower in Kerala.
- Providing technological support and consultancy services for Precision farming initiatives throughout the state. Provided technical support to precision farming ventures in Perumatty panchayath of Palakkad District and Thaniyam Panchayath of Thrissur District. These two projects have today become role models for precision farming in the state.
- Providing technical consultancy for various new initiatives like ATMA, Sevana Haritham Project in Thrissur Collectorate, Haritha Padam in Govt. College, Trichur, Precision Farming project of Kodakara Block, seed production programme of cool season vegetables at Vattavada and Kanthallur with the support of VFPC, Vegetable cultivation programme of Venkitangu Panchayat in bunds of Kole lands etc.
- Providing technical support to VFPC, KVKs and farmer groups involved in vegetable production.

AGRO MACHINERY SERVICES

The Former Station Head Dr. U. Jaikumaran conceptualized and organized the most prestigious and innovative programmes viz "Food Security Army Service Centre Development Programme, Keralam" (RKVY funded) and "Green Cadet Corps". These programmes have brought several laurel to the

University and Station. The concepts and institution of programmes of Agro Machinery Operation Service Centre (AMOSC), Mobile Agro Machinery Training Unit (MAMTU), Mobile Agro Machinery Repair & Service Unit (MAMRSU) and Farm Machinery Facilitation Centre (FMFC) organized at the Station encouraged initiation of several similar programmes in the State by Local Self Government as well as Govt. of Kerala. AMOSE was (Agro Machinery Operation Service Executive) created by providing apprenticeship training at this station for the Food Security Army programmes launched by the station. Three hundred and sixty batches of Food Security Army training on Agricultural Mechanisation has been completed and 3950 men and 3370 women are trained (as of Dec, 2019 list).

The station has a huge repository of agro machinery collection worth more than Rs. 150 lakhs and these serve as training material. Seven units of MAMTU is arranged to provide training to 175 trainees at a time. The station acts as a model for 'Agro Machinery Operation Extension Services' and has taken up the venture of establishing 14 Model Agro Service Centres, one each in each district in state, as a Govt. of Kerala assisted programme. The station is also conducting trainings outside the state. The station has set up a training core for flawless training to be conducted as and when needed at any place. FSA trainings are conducted inside as well as outside the state using MAMTU. "A Centre of Excellence in Agricultural Machanisation Extension Services, Research and Development" has been awarded. "Kera Suraksha Coconut Climber", "Coconut Palm Basin Digger", "Mini Portable Saw Mill", "Family Farming Tiller", "Mesh Type & Nylon Foldable Type Coconut Cradles", "One Hand Operated Brush Cutter", and "Remote Control Power Tiller" are developed.

" ARS Mannuthy - Research Activities, Highlights & Achievements " --- Slide Show

