

2.2. Agricultural Research and Education

Agricultural Research and Education

Agricultural research and education are very essential for agricultural development. There is an imperative need to enhance agriculture and livestock productivity, profitability and sustainability coupled with quality to face the challenges of liberalisation. To keep pace with the development process, triggering continuous flow of new educational technology is a prerequisite to suit the fast changing scenario.

Tamil Nadu Agricultural University (TNAU)

The Tamil Nadu Agricultural University has been constantly orienting its activities of agricultural education, research and extension towards the goal of sustainable increase in agricultural growth in the State through holistic development of vital resource potential of the State. To achieve this goal, new research programmes for developing wastelands and dry lands through micro watershed approach and other soil and water conservation techniques will be pursued further. New crop varieties and agronomic practices, which are suitable for dry lands and wastelands will be evolved so as to increase the productive potential of these under utilized lands. Research is also being undertaken to augment agricultural marketing.

Breeders Seeds

Tamil Nadu Agricultural University is engaged in the production of breeders seeds on a scientific basis. The breeders seed production is being taken up in 26 Centres of TNAU, 39 State Seed Farms and also in one Co-operative Farm (TANCOF, Thirunelveli). The Tamil Nadu Agricultural University is committed to supply the breeders seeds of all improved crop varieties and parental seeds of hybrid, which it evolves at its Research Stations and supplies to the Development departments for further multiplication at agriculture and horticulture farms.

Agricultural Research

Tamil Nadu Agricultural University is taking up research on all major agricultural problems in the State. The University has undertaken research in its 10 teaching colleges, 34 research stations, 14 Krishi Vikas Kendra (KVK) transfer of technology centres and 5 plant clinic centres. These research projects are undertaken with the funds provided by the State and Central Government, External aid and Private Agencies funding.

The details of the varieties, implements and machineries and management technologies developed and released for adoption during 2008 are given below:

Varieties

- Rice – CO (R) 49
- Ragi – Paiyur (Ra) 2
- Groundnut – VRI (Gn) 7
- Brinjal – PLR (B) 2
- Cumbu Napier Hybrid Grass – CO (CN) 4
- Green Manure Kolingi – MDU (Ko) 1
- Manila Tamarind – PKM (MT) 1
- Casuarina – MTP (CA) 1

Farm Implements

- Battery Operated Portable Wetland Weeder
- Tractor Operated Fruit-Shake Harvester
- Tractor Operated Rotary Spading Machine
- Tractor Operated Subsoil Coir Pith Applicator

Technologies

- Botanical based Silkworm Uzi-fly Ovipositional Deterrent
- IPM for the Management of Serpentine Leaf Minor *Liriomyza trifoli*, Minor Burgess in Vegetables
- Slope Stabilization Technology
- TNAU Panchagavya Technology
- High Density Planting in Mango

Action has been taken to establish a Floriculture Research Station at Thovalai in Kanyakumari District under the Special grant.

The following few important Research areas are being focused upon:

- Under the National Agricultural Development Programme the TNAU will be focusing its activities namely, Upscaling Precision

Farming, Establishment of Agri Clinics cum Mini Soil Testing Laboratories, Agricultural Mechanisation, Establishment of Automatic Weather Stations (AWS), Land Resources Inventory and GIS Database for Farm Village and Block Level Planning, Dry land Development and Popularisation of Minor Millets, Organic Manure production and e-Agriculture through 'Agritech' portal.

- Increasing the productivity of crops: More focus on development of crop hybrids and transgenic crops, development of Thermo sensitive genetic male sterile (TGMS) lines and hybrids under two line system and development of new Cytoplasmic Male Sterile (CMS) and restorer lines in rice.
- Research on new crop varieties especially developing drought tolerant crop varieties and their agronomic practices for increasing the productivity in dry lands and wastelands.
- Nanotechnology application in agriculture.
- Minimising post harvest losses by strengthening post harvest research and protected cultivation.

Education

Ten colleges are located in seven different campuses in Tamil Nadu. Two affiliated colleges one at Karaikal, Pondicherry State and another at Vellore district and three other institutions offering Diploma Course in Agriculture in Tamil Nadu are functioning under the control of TNAU. Under-graduate education is given in 8 faculties, besides Master's degree programme in 22 disciplines. Ph.D programme in 20 disciplines are also being offered in the University. Apart from the regular degree programmes, self-supporting Bachelor of Technology programmes in Food Processing Engineering, Horticulture and Agri-Biotechnology are also offered. In order to inculcate practical know-how and encourage self confidence among the graduates, commercial agricultural courses like mushroom cultivation, nursery technology, poultry production, dairying, production of bio-pesticides and bio-fertilisers, bee keeping, urban entomology and tissue culture are offered. E-education has been introduced for all undergraduate programme.

Extension

The Directorate of Extension Education of TNAU is vested with the responsibility of disseminating the latest technologies emerging from the research programmes to the farming community through Transfer of Technology Centres

as well as through the extension personnels of the State Agricultural Department, through its 6 Krishi Vigyan Kendras (KVKs), 5 Plant Clinic Centres, a Communication Centre and Training Division. Totally 14 KVKs are functioning in the State with ICAR funding. Through these KVKs, efforts are being made to popularise, disseminate knowledge and technologies on micro irrigation, precision farming, System of Rice Intensification (SRI), vermicomposting, Use of IT in agriculture- Technology dissemination through internet, problem solving through audio and video conference etc.

Tamil Nadu Veterinary and Animal Sciences University (TANUVAS)

As the mandate of TANUVAS is to impart education in different branches of Veterinary and Animal Sciences and Fisheries Sciences, conduct of research and undertake extension service to the rural people, the plan outlay is required for the strengthening of infrastructure for teaching, research and extension. The research findings of this University have direct bearing on the livestock farmers and enable them to enhance their production and income. The research includes the species of cattle, buffaloes, sheep, goat, poultry, piggery, pet animals and fish to cover the various aspects of management, nutrition, diagnosis, prevention and control of diseases, development of diagnostic kits and vaccines and development of value added products from livestock and fishes.

Tamil Nadu Veterinary and Animal Sciences University has 3 Constituent Colleges, 5 Research Stations for production research, 17 University Training and Research Centres, 3 Farmers Training Centres, 3 Krishi Vigyan Kendras and one Agricultural Technology Information Centre to carry out outreach programmes. The Research Service Laboratories such as Avian Disease Diagnostic Laboratories, Animal Feed Analytical and Quality Control Laboratory, Central University Laboratory, Leptospira Diagnostic Laboratory, Shrimp Disease Diagnostic Laboratory, Central Animal Feed and Food Residue Laboratory, Viral Vaccine Laboratory and Bacterial Vaccine Laboratory are serving the health needs of the livestock, poultry and fish. Further the Institute of Food and Dairy Technology as well as Institute of Animal Nutrition cater to the needs of the livestock farmers and entrepreneurs.

Education

Research programmes have been undertaken in the emerging areas like Assisted reproductive technologies, Molecular genetics and genetic engineering, Characterization and conservation of native breeds of cattle, Sheep and goat in the animal production front and Stem cell therapy and fisheries sector.

Research

Indian Council of Agriculture Research (ICAR), New Delhi has sanctioned the following new schemes to the tune of Rs.228.97 lakh to this University for implementation of Molecular diagnosis for emerging avian viral diseases and their immunopathogenesis at a cost of Rs.60 lakh; Development of e-course for B.V.Sc. & A.H. Degree programme at a cost of Rs.168.97 lakh.

Some of the important research programmes undertaken on animal production and health front are: Molecular Characterisation of Nilagiri Sheep, Disposal and utilization of dead birds by aerobic composting, Nutritive value of sugarcane tops and its effect on reproductive performance in cattle, Seroepidemiological Studies on Brucellosis in Sheep and Goats in suburban of Chennai, Production, evaluation and standardization of Vero cell adapted live attenuated peste des petits ruminants virus vaccine under field conditions, Development of Safe and potent anthrax vaccine for small ruminants, Development of cell culture based vaccine for sheep pox, Development of inactivated pentavalent bluetongue vaccine using Bluetongue vaccine (BTV) serotypes 1, 2, 15, 18 and 23, Establishment of canine artificial insemination unit, Resource Mapping for Livestock Development in Tamil Nadu – A GIS Approach, Rural women empowerment and employment through technology based poultry development and fodder production.

Extension

The Veterinary University disseminates latest extension know – how through its three Krishi Vigyan Kendras and one Agricultural Technology Information Centre (ATIC) to the farmers.

Preparation and Distribution of Micronutrient Mixtures

Most of the soils in Tamil Nadu are deficit in Micro Nutrient content and the farmers are advocated to apply Micro Nutrients based on the soil test recommendation and also based on the tract specific recommendation of the Tamil Nadu Agricultural University. The Micro Nutrient Production Centre at Kudumiyamalai is producing 1,400 metric tonnes of Micro Nutrient Mixtures of 14 types for different crops annually. The Micro Nutrient Mixtures are distributed through the Agricultural Extension Centres. During 2009-10, 1,400 MTs of Micro nutrient mixtures will be produced and distributed.

National Agricultural Development Programme (NADP) / Rashtriya Krishi Vikas Yojana (RKVY)

The National Agricultural Development Programme / Rashtriya Krishi Vikas Yojana is a new state plan scheme, however fully funded by the Central Government. One of the major objectives of the scheme is to bring about quantifiable changes in the production and productivity of various components of Agriculture and allied sectors by addressing them in a holistic manner. This objective cannot be achieved unless adequate attention is paid to Agricultural Research especially to reduce the yield gaps of important crops through focused intervention. Efforts are also undertaken to address the key issues in Veterinary Research.

Plan Outlay for 2009-10

An amount of Rs.121.39 crore is approved for Agricultural Research and Education programme for the year 2009-10.