

The research initiatives undertaken in the University are focused on increasing the productivity of crops, livestock and fish currently grown in the state.

This is achieved through

- manipulation of the genetic base responsible both for yield enhancement and overcoming biotic and abiotic stresses
- improvements in the management practices
- control and management of pests, diseases and parasites
- increasing the efficiency of the biophysical and human resources, and inputs as well, used in production
- the introduction of new crops, animals, and machines
- evaluating and designing policies, programmes, institutions and infrastructure, and analysing and appraising the value systems
- the gender equation which are conducive or inhibitory to the adoption of technologies and innovations evolved through research.

Recognising the significance of location specific research, given the highly heterogeneous biophysical resource base of the state as a consequence of high rainfall coupled with undulating topography, research agenda is organised into six agroecological zones based agroecological homogeneity, and conducted in six Regional Research Stations. For each of the given biophysical resource endowment, a system approach incorporating crop, livestock, forestry and fishery activities in resource use and management so as to maximise income on a sustainable basis, is pursued in research. Commodity research is focused on thrust areas, which have been identified as critical in alleviating abiotic and biotic constraints and in optimising potentials.

The research agenda is set through consultations with the farming community and the extension personnel as well as based on need assessment by the faculty, and the state and national agencies and institutions engaged in development and research. Prioritisation and relevance are set by the Faculty Research Committees. The Research Council comprised of eminent scientists and representatives of various interest groups including farmers and agribusiness, apart from providing guidance and linkages with institutions engaged in research but also opportunities for sharing experience guides in setting the research agenda and prioritisation. Research Review Committee constituted by the Executive Committee provides overseeing. Task forces and crisis management groups are set up for the timely intervention for solving the sudden outbursts of field problems. Rapid Action Groups linking KAU research institutions and the development departments with territories identified monitor incidence of pests or diseases or other natural outbreaks and to take timely remedial action at various levels of the Government and the University.

Recommendations on crop, livestock, fishery and forestry production technologies emerging from research within the institutions under the University and sister research organisation are compiled, discussed and evaluated jointly the extension agencies and other interest groups, and published periodically at 4-5 year intervals as compendia known as Package of Practice Recommendations which are recognised as the most authentic documentation of research outputs.

Research activities are organised and conducted at :

- Six Regional Research Stations
- 26 Research Stations
- Three Centres of Advanced Studies (Animal Breeding and Genetics, Veterinary Pathology, and Poultry Science)
- One Centre in Agricultural Biotechnology and Molecular Biology
- 10 Instructional Farms
- and Facilities and in the laboratories of various departments of the Colleges.

In addition six centres of research and studies (Gender Concerns in Agriculture, Land resources Research and Management, Information Technology, Farming Culture, Elephant Study, and Conservation of Vechchoor Cattle). are in advanced stages of formation. Location specific research projects are carried out in farmers' fields also.

The research support for the sustainable development of the agriculture sector of the state is rendered in the partnership mode in close association with the research institutions managed by the Indian Council of Agricultural Research, Development and Commodity Boards, and Departments of the State and Central governments. Over 700 research projects are currently in operation including 34 All India Research Co-ordinated Research Projects/ Network projects in the various fields of agriculture, horticulture, forestry, animal sciences and fisheries and externally aided projects funded by ICAR, ICFR, DST, DBT, NWDPR, DoE&F, STEC, PPIC, BARC etc.

Research undertaken in the University covers all economically important crops grown in the State with focus on :

- Rice
- Vegetables
- Banana
- Pine apple
- Pepper
- Coconut
- Cashew
- Cardamom
- Medicinal and aromatic plants
- Animals (cattle, goats, pigs and poultry including ducks, elephant)
- Culture fisheries
- Farm machines and implements
- Crop and animal production and management
- Introduction of new crops and animals
- Farming systems especially integrated homestead farming
- Conservation of plant and animal germplasm for preserving biodiversity
- Meat technology
- Processing of farm products economics of crop production and
- Commodity marketing.

Some of the research findings and outputs of major economic significance from the fields and laboratories of the Kerala Agricultural University since it came into being as an entity with an identity are :

- Over one hundred varieties of crops among them 70 during the nineties, which are high yielding and capable of withstanding biotic and abiotic stresses under a variety of biophysical resource environments
- Two nationally acclaimed breeds of poultry (Athulya and Gramalekshmi);
- Biological control and suppression of the water weed popularly known African paayal (Salvinia

molesta) that rendered rice production in the rice bowl Kuttanattu using the tiny weevil *Cyrtobagus salviniae*

- Technology with focus on underground drainage for the reclamation of low productive highly acid sulphate soils of the low wetlands
  - Standardisation of protocols for large scale multiplication by in vitro techniques in several crops
  - Packages of management practices for the rehabilitation of coconuts in the dreaded coconut root (wilt) and black pepper phytophthora foot rot disease affected areas that would help sustain reasonable levels of income
  - Control of coconut mite
  - Germplasm collections in rice, coconut, cocoa, pepper, medicinal and aromatic plants
  - Conservation of the near extinct Vechchoor cattle; permanent manurial trials on coconut and paddy; high density planting in pine apple and cashew
  - Increasing fertilizer use efficiency and thereby the availability of nutrients through slow release nitrogen fertilizers
  - Development of technology for the commercial production of cashew apple syrup
  - Development of commercially viable technology for the hatchery production of seeds of the giant fresh water prawn (*Macrobrachium rosenbergii*) and its dissemination through consultancy service
  - Standardisation of integrated fish-rice culture; designing and developing a simple coconut husking tool
  - Designing and testing of underground check dam for the conservation and preservation of water suitable to hilly areas
  - Standardisation of isoelectric focussing for the identification of meat from various species of animals
  - Development of a cell culture duck plague vaccine from a local isolate and recommendation for simultaneous vaccination with duck pasteurellosis
  - Development of a new mesogenic vaccine strain (RDV-M) for ranikhet disease for commercial use
  - Evaluation of over 50 unconventional feeds and fodders and their incorporation in commercial feed mixes
  - Standardisation and wide-spread chemical tranquilization and control of elephants and other captive and wild animals
  - Evolving of a milk recording system to predict 305 day's milk yield with a few point observations
  - Preparation of seventeen blood-group antigens for grouping of cattle for progeny testing programme
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