Cropping Systems Research Centre, Karamana

Cropping Systems Research Centre, Karamana, Thiruvananthapuram - 695 002

Phone : 0471-2343586 Mobile: 
Email : csrc@kau.in Website: 

<table>
<thead>
<tr>
<th>Station Head</th>
<th>Dr. P. Sukumari, Professor and Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitude</td>
<td>77º E</td>
</tr>
<tr>
<td>Latitude</td>
<td>11º N</td>
</tr>
<tr>
<td>Nearest City/Town</td>
<td>Thiruvananthapuram.</td>
</tr>
<tr>
<td>Nearest Railway Station</td>
<td>Thiruvananthapuram.</td>
</tr>
<tr>
<td>Nearest AirPort</td>
<td>Thiruvananthapuram.</td>
</tr>
<tr>
<td>Domestic</td>
<td>Thiruvananthapuram.</td>
</tr>
<tr>
<td>International</td>
<td>Thiruvananthapuram.</td>
</tr>
</tbody>
</table>

About Station

The Station was started in the year 1955 as Model Agronomic Centre under the Fertilizer Use and Soil Fertility Project envisaged in the Stewart scheme of Simple Fertiliser Trials on Cultivators Field and sponsored by ICAR. It was also functioning as a regional centre of the Central Rice Research Station, Pattambi. Subsequently the station came under the All India Co-ordinated Agronomic Experiments Scheme (AICAES) with which the Fertilizer Use and Soil Fertility Project merged in 1956-57. The station was given the name Model Agronomic Research Centre in 1968 when both the schemes of Fertilizer Use and Soil Fertility Project and AICAES merged with the All India Co-ordinated Agronomic Research Project. The set up of the station underwent a change both in its technical programme and staff pattern in 1968. In 1972 with the formation of Kerala Agricultural university the station was upgraded to the status of a research station and post graduate study centre. In 1989 the station was redesignated as Cropping Systems Research Centre, under the All India Coordinated Research Project on Cropping Systems which was converted to AICRP on Integrated Farming Systems (AICRP on IFS) in 2009. CSRC Karamana is the main Centre of AICRP-IFS in Kerala with one sub centre (On Farm Research Centre- OFRC) presently in Thiruvalla. The OFRC (earlier ECF) is under the administrative control of the main centre. The district covered by OFRC changes once in 5 years. OFRC conducts trials in farmers’ field.
Objectives

• Characterisation of the existing farming systems to know the productivity, viability and constraints.
• To develop and validate region-specific Integrated Farming System models for enhanced system productivity, profitability and sustainability.
• To assess relative efficiency of the IFS models in terms of economics, resource use and energy.
• To optimize individual components of IFS in regional perspective.
• Capacity building of stakeholders in Integrated Farming Systems through appropriate trainings.
• Post harvest management and value addition.
• To study the performance of different cropping sequences in rice based integrated farming system involving fish component in terms of soil fertility, energetics and economics.
• To develop a suitable integrated nutrient supply system for a cereal based crop sequence.
• To critically evaluate organic farming vis-à-vis farming with integrated nutrient and pest management systems.
• To design and identify economically viable and efficient farming practices for resource conservation and counteracting adverse effects of climate change.
• To study the effects of resource conservation technologies on photosynthetic efficiency, biomass production, economic yield, soil hydro thermal regimes and soil health.

Vision

• Develop the station into a nodal centre for advanced research on Integrated Farming Systems.
• Develop the station as a centre for research on urban periurban agriculture.
• Establish a training centre to provide training on IFS models, urban periurban agriculture, terrace gardening, mushroom culture, vermicompost production etc.
• Function as a single window facility for the urban/periurban farming community of Thiruvananthapuram District (in collaboration with CoA, Vellayani) by establishing
  ♦ A training Centre for IFS
  ♦ An Agri-Diagnostic Cum Guidance Center and Bio-Pharmacy
  ♦ Sales outlet (planting material and quality bio-inputs of KAU)
  ♦ A mobile sales unit for capital city (KEPCO model)
• Construction of one Modern Guest House cum Conference hall as an university amenity in the capital city.
Mission

- Developing and validating region-specific integrated farming system models ((Rice based and coconut based) for enhanced system productivity, profitability and sustainability.
- Conducting multi-location trials on integrated production systems, bio-energy conversion and organic recycling.
- Create awareness and interest among urban and periurban population including school children, on homestead farming, terrace garden, mushroom production, kitchen garden etc.

Achievements

- Permanent plot experiment on integrated nutrient supply system for cereal based sequence showed that fertilizer requirement can be reduced to 25 per cent during rabi season rice by substitution of 25 per cent RDN as organics during kharif. Substitution of 50% RDN as organics during Kharif season enhanced the yield in sequential cropping of rice (Included in POP).
- Experiment on multiple use of cowpea and nutrient balance in a rice based cropping system showed that raising green manure crop of sunhemp or cowpea significantly enhanced the yield of subsequent crop of rice. Growing grain or vegetable cowpea also resulted in a similar increase in rice yield.
- Study on integrated weed management in rice based cropping systems showed that summer crop of bhindi or green manure crop of daincha enhanced the yield of subsequent rice crop. Depending on the length of growing period a short duration cassava can also be taken as summer crop without any reduction in the yield of subsequent rice crop. After three year cropping cycle a significant decline in major weed species Echinochloa crusgalli was observed.
- In the experiment conducted for developing organic package for system based high value crops REY (Rice Equivalent Yield) of 21 t/ha/annum was obtained in INM treatment. REY of organic farming treatment varied from 16 to 19.2 t/ha/annum. The highest REY was obtained from the second crop of cucumber due to its higher productivity in raised paddy field.
- Use of Machette, Stam F-34 and 2,4-D sodium salt were recommended for weed control in rice studies. Treatment with Azospirillum @ 2.5 kg/ha (mixed with sand or compost in the ratio 1:25) helped in reducing the rate of fertilizer nitrogen application by about 25%.
- Sodium as common salt could substitute potassium as Muriate of potash to the extent of 25% for rice in well drained wetland soils.
Studies on integrated nutrient supply system in a cereal based crop sequence had shown that the rate of chemical fertilizer application could be reduced to half by applying green manures, farm yard manure, green leaf manure etc.

The results of a study on long range effect of continuous cropping and manuring in a rice based cropping sequence revealed that continuous skipping of phosphorus fertilizers results in a significant reduction in grain yield, stunted growth, reduced tillering and delayed flowering by about two weeks, leading to an increase in crop duration and delayed harvest.

Publications including books, book chapters, research papers etc.

Books


---

### Book Chapters


Other Publications (2005-2012):

- Technical Bulletin : 1
- Total Research papers : 61
- Reports for Govt : 10

Dr. Jacob John developed an interactive CD (Malayalam and English) for diagnosis and management of diseases, insects pests and nutritional disorders in coconut, arecanut, banana, cocoa, pepper, vanilla and nutmeg. Distributed to the State Department of Agriculture in all Districts of Kerala. Uploaded on site of Kissan Kerala, Dept of Agriculture.
Sub Projects:

I. Homestead based IFS (0.2 ha)
II. Coconut based IFS for upland 0.1 ha and wetland 0.1 ha (0.2 ha)
III. Rice based IFS-model in wetland (0.2 ha)- model I
IV. Rice based IFS –model in reclaimed wet land (0.2 ha)- model II

2. Permanent Plot experiment on Integrated nutrient supply system for cereal based crop sequence

3. Development of organic farming package for system based high value crops

4. Investigating rice based farming systems involving fish through suitable land modifications vis-à-vis conventional rice based cropping systems

5. Development of innovative farming practices to mitigate the effect of climate change

EAPs

6. Optimisation of organic component in the fertilizer recommendation of amaranthus

7. Classification and characterization of farming systems in district wise agroecological zones of Kerala.

8. Network project on characterization and management of soil fertility with respect to secondary and micronutrients for agro-ecosystems of Kerala - State Plan Project

9. “Participatory development and evaluation of model terrace gardens in urban homesteads

10. “Developing systems recommendation for nutrient, disease and insect pest management in major cropping systems of Kerala”

11. “Developing user friendly weather based calendars for various crops in different agroecological zones of Kerala”
12. “Socioeconomic analysis and farmer participatory development of homestead farms of Kerala”