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ICAR RESEARCH COMPLEX FOR GOA - AT A GLANCE -



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ELA, OLD GOA - 403402, GOA.

ICAR RESEARCH COMPLEX FOR GOA

Indian Council of Agricultural Research (ICAR) established ICAR Research Complex for Goa in April, 1976, as a research centre, initially for a short spell under the administrative control of ICAR Research Complex for North East Region, Shillong and then under Central Plantation Crop Research Institute, Kasaragod, until it was elevated to the status of independent Institute in April, 1989.

The Complex started functioning in the present location at Old Goa, since 1982. To intensify the transfer of farm technology and to impart grass root level vocational training to the farmers and unemployed youth, a Krishi Vigyan Kendra was established in this complex during the year 1983 which has been functioning also as the extension wing of the Institute. Government of Goa had handed over to this complex 19.73 ha of land initially during 1984 and an additional area of 33.64 ha land during 1987 for the conduct of research, field demonstrations and training activities. In the absence of an Agricultural University in Goa State, the Institute will also cater to the education and training needs of the farmers and the adjoining coastal region.

OBJECTIVES

To conduct strategic and applied research on potential agricultural and horticultural crops, livestock and fisheries relevant to natural resource base of Goa and adjoining areas for sustainable productivity

To collaborate with national and international institutes/agencies in developing and transferring new technologies

To act as a repository of information on Western Ghat agricultural system

To disseminate improved technology developed

To act as a centre for training in updated technologies

To generate nucleus planting materials

To provide consultancy services

RESEARCH PROGRAMMES

ICAR Research Complex for Goa is a multidisciplinary and multi-commodity region based research Institute with a mandate to conduct applied and strategic research. The research programme of the Institute is carried out based on the holistic requirements of different agro climatic situations and farming needs of the region through the multidisciplinary team of Scientists. The Institute conducts its research on rice, cereals, oilseeds, soil and nutritional requirements of crops, pest and disease management and bio-technological aspects under field crops (eight ongoing projects), fruit and plantation crops, flowers, vegetables and spices under horticultural crops (seven ongoing projects), animal nutrition and health management, embryo transfer, management of pigs, rabbit, goat, mastitis and its control and poultry under animal science (three ongoing projects), fish and different fish farming systems (two ongoing projects), formulation of locally available fish feeds under aquaculture (two ongoing projects) and dissemination of information on agricultural system of Goa under ARIS.

Under National Agricultural Technology Project, the Institute had taken up seven projects under different disciplines, including an AICRP on Pig.

SALIENT RESEARCH ACHIEVEMENTS AND TECHNOLOGIES IDENTIFIED/ POULARISED

CROPS SCIENCE

Rice

- * Short duration rice variety Annada (Goa-1) recommended and become popular in morad land.
- * Rice hybrids Sahyadri (7.42 t/ha) and KRH-2 (6.88 t/ha) were found suitable for the local agro-climatic situations.
- * Fine grained scented rice varieties like Pusa Basmati-1 yielded better yields with reasonably good aroma.
- * Salt tolerant rice varieties CSR-10 and CSR-27 found suitable for saline lands in the local situation.

Sugarcane

- * High yielding varieties Co-90009, CoC - 671 and Co-86032 proved better with high cane yield and sugar recovery.

Groundnut

- * High yielding and drought tolerant varieties Dh-3-30 and Dh-40 tested and recommended as rabi crop in rice fallows.
- * High yielding short duration variety TAG-24 which yielded higher was recommended for large scale cultivation in Goa.

Cowpea

- * High yielding cowpea varieties V-118 and local selections identified.

Mine reject soil management

- * Suitable species for rehabilitation of mine reject soil along with soil and water conservation measures identified.

Soil and water conservation engineering

- * Contour trenching with vegetative barriers was identified as suitable soil and water conservation measure for cashew grown in sloppy lands.

Plant Protection

- * Developed a pheromone based IPM strategy for the management of red palm weevil in coconut.
- * Bio-control agents namely *Trichoderma* spp., *Pseudomonas fluorescens* were effective in the management of damping off in vegetable nurseries.

ARIS

- * The agricultural database of Goa including meteorology and related aspects is being created. The web page of the Institute : <http://icargoa.nic.in> has been created.

Technologies standardised / transferred

1. Groundnut, cowpea and vegetables like brinjal as suitable crops for rice fallows.
2. Production technology for groundnut including polythene mulching standardised.
3. Integrated pest management practices in rice, sweet potato and coconut.
4. High yielding medium and short duration rice varieties for Kher and morod lands, respectively, fine grained scented rice varieties and salt tolerant rice varieties for Khazan lands.
5. High yielding forage grasses for inter-cropping in coconut identified.

HORTICULTURE

Coconut

- * Super palms of local varieties (Benaulim and Calangute) identified, promising cultivars and hybrids (DxT) introduced and varietal blocks maintained.

Coconut based cropping/ farming systems

- * High density cropping system in coconut with inclusion of crops like banana (Grandain Williams), pineapple (Giant Iow), pepper (Panniyur -1) resulted in highest net returns and cost benefit ratio with better utilization of resources.
- * Intercropping of coconut with high yielding forage grasses (PBN-16, NB-21 and Co-3) and integration with dairy has shown to bring the highest gross and net returns, employment opportunities and sustainability to the system.

Cashew

- * A cashew germplasm collections of 166 accessions is being maintained. A local accession Balli- 2 was released for large scale cultivation as Goa-1 (with 3.72 kg nut yield/plant) for the state of Goa. Accessions such as Dhawe-3, Karapur-1, Tiswadi 3 and 7 are also performing well, which are being monitored.

Mango

- * A mango germplasm bank was established with 102 varieties of which 77 are local. Promising local selections include Cardozo Mankurad and Hilario, besides introduced hybrid Amrapali which weigh upto 700 g fruit with higher yield

Other fruits

- * Introduced potential/ high yielding varieties viz. Coorg Honeydew, Solo and Thailand in papaya, Giant Kew and Mauritius in pineapple and Allahabad Safed in guava besides chickoo and banana. Promising collections of minor fruits including carambola, rose apple, jamun, breadfruit, jagoma, etc., were collected and evaluated.

Oil palm

- * Five Tenera hybrids have been evaluated and demonstration block maintained.

Vegetables

- * Local accessions of brinjal, vegetable cowpea, chillies and snap melon have been collected and studies on characterization are in progress. Local germplasm of Bhendi was collected and described.

Spices

- * Suitable varieties in pepper, nutmeg, kokum, vanilla and turmeric have been screened and blocks established for the local agro-climatic situations. Krishna variety of turmeric gave the highest yield (3.17 kg/five plants). Rooted cuttings of vanilla are being established under coconut with Glyricidia as a support plant.

Flowers

- * Local germplasm of marigold, jasmine and crossandra were collected and described. Gladiolus was evaluated and recommended for the year round production.

Mushrooms

- * Introduced oyster mushroom species *Pleurotus florida* and *P. sojar caju* and standardised technique for year round cultivation and spawn production.

Technologies standardised / transferred

1. A local promising accession Balli-2 selected for its desirable traits of nut and apple yields released as Goa-1 for large scale cultivation in Goa state.
2. Top working technique in cashew was standardized to rejuvenate the poor yielding trees into high yielding ones.
3. Promising seedling selections namely Cardozo Mankurad and RC-MS-1 (Bemcorado) were identified for desirable fruit quality, colour and regular bearing habit for Goa.

High yielding improved mango varieties namely, Amrapali, Ratna and Kesar were introduced, evaluated and popularised. High yielding Arecanut varieties Mangla, Mohitnagar and Hirahalli were introduced and popularised. Technology for commercial cultivation and spawn production of oyster mushroom was standardized under Goa conditions and popularised for commercial endeavor/enterprise. Year round gladiolus cultivation recommended which became popular.

ANIMAL SCIENCE

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Nutritional, reproduction and disease investigation aspects of local as well as Large White Yorkshire pigs are conducted. Low cost rations using locally available byproducts are formulated and tested under field conditions. Reproductive efficiency was enhanced through modified management and using chemotherapeutic agents.

abbits

Meat type rabbits Soviet Chinchilla and New Zeland White are maintained. Package of practices standardised and nucleus breeding stock were sold to farmers.

oultry

Vanaraja a dual purpose breed of chicken and broiler Japanese quails are introduced and performance studies are under progress.

airy

Experimental dairy unit covering cross breed cows and Surti buffaloes is being maintained for demonstration. Livestock disease diagnostic facilities have been setup. Studies on bovine mastitis, infertility and zoonotic diseases are being carried out.

oat

Osmanabadi breed and cross breeds are introduced and performance of studies under stall fed conditions are conducted.

Technologies standardised / transferred

Rabbit housing for overcoming the problems of agalactia and reduction in the mortality of young one modified.

Complete package of practices for rabbit rearing under humid tropical conditions have been standardised and recommended for adoption.

Improved artificial vagina for rabbit semen collection was designed.

Techniques for microbial degradation of agro-wastes with mushroom spawn (*Pleurotus spp.*) for livestock feed has been standardized.

Pelleting machine for small scale production of pellet feed for rabbits, small animals and fish was fabricated.

Formulated economic rations with local by-products for pigs, cattle and broiler chicken.

Incidence and nature of bovine infertility problems were identified.

Fodder preservation and enrichment techniques were standardized.

Locally available coir dust was identified as a deep litter material for rearing of broiler chickens.

FISHERY SCIENCE

Integrated fish farming systems

Package of practices including economics were evolved for the integrated fish farming systems: Rice- fish, Duck-fish and

Chicken- fish combinations. Fish production rates were 3500 to 4100 kg/ha/16 months under poultry-fish and 1250 kg/ha/8 months under rice-fish integrations, without pond fertilization and fish feeding, besides livestock and rice produces. Production enhancement under rabbit-fish integration being worked out.

Deepwater rice

* Vytilla- 1 identified suitable for rice- fish integration with yield potential upto 3 to 6 t /ha during kharif and rabi, respectively

Use of neem based pesticide in eradication of weed fishes

* Bioneem was found to be effective in the eradication of minnow and cat fish.

Low cost feed formulation

* Carp starter feed and feeds with incorporation of probiotics, enzymes, spirulina, beef liver and yeast as growth promoters were tested on carp fry and ornamental fishes and the optimum levels for growth performance were tested.

Technologies standardised

1. Rice-fish integrated farming system suitable for low-lying rice fields.
2. Duck-fish integrated farming system in freshwater ponds.
3. Chicken-fish integrated farming system.
4. Feed formulation for carp and ornamental fishes involving locally available cheap/alternate feed ingredients.
5. Method for eradication of weed fishes using neem base pesticides.

FUTURE THRUST

Institute being the multi- commodity, multi-disciplinary region based one, the future thrust and researchable issues of prime importance suitable for coastal agro-ecosystems will be under the following areas:

1. Farming system research
2. Organic farming
3. Eco-Tourism
4. Land use planning
5. Socio - Economics
6. Marine fish stock forecasting
7. Watershed based holistic approach
8. Location specific model
9. Post harvest processing and value addition

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