



संवादपत्र NEWSLETTER

गोवा के लिए भा.कृ.अनु.प. का अनुसंधान परिसर
(भारतीय कृषि अनुसंधान परिषद)

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भारतीय कृषि अनुसंधान परिषद

Agrisearch with a human touch

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Personalia

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From Director's Desk...

Fish assumes greater significance to the people of Goa and it forms an integral part of Govan life and culture as it forms one of the most important food sources for more than 90% per cent of population. Goa is the state with a coast line of 104 km with numerous bays and headlands. The fisheries sector contributes to about 2.5% of the total GDP (third position after West Bengal and Andhra Pradesh) and 17.1% of the agricultural GDP of Goa. Goa contributes to about 1.85% of the total marine fish landings of our country. Marine fisheries provides livelihood to a large number of people in Goa with more than 5% of total working population is engaged in fishing and allied activities. Moreover, fisheries industry including fishing, marketing and processing forms the second largest industry both in terms of employment and income.



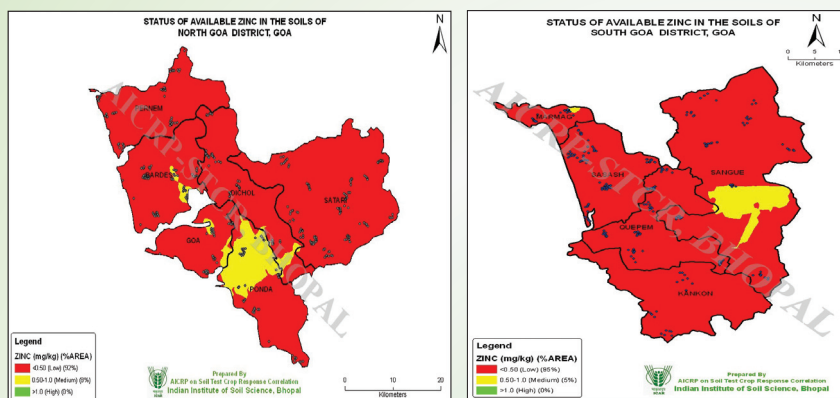
The state holds a huge scope for fisheries development, particularly through brackish water and marine fish production. The validations of Potential Fishing Zone advisories show that there is huge scope for the precision fishing based on satellite based chlorophyll and sea surface temperature data. The ecosystem based fishery management is the best choice for replenishment of the degraded demersal ecosystem as well as fishery resources. In this line, the artificial fish habitats in near shore waters can augment the fish biodiversity and fishery. These structures will help to establish an ecosystem, breeding grounds and spawning grounds for aquatic flora and fauna. Apart from these, participatory approach in fishery regulations by employing co-management will also help in maintaining the sustainability of marine fisheries in the state.

The State along with large number of calm bays and lagoons offer good scope to develop mariculture or sea farming. Presently, coastal farming is confined to green mussels as well recently initiated finfish cage culture of cobia and seabass in coastal areas. There is a need for improvisation, intensification and dissemination of the technology to the beneficiaries. Ornamental fish farming holds good scope in the future with the rich diversity of marine and fresh water ornamental fishes in the state. The export potential of ornamental fish is huge and now it is only restricted to breeding and culture of some common exotic fishes. Around 40-50 species of attractive freshwater ornamental fishes are available in the state, especially in the biodiversity rich Western Ghats (e.g. loaches, barbs, etc). Thus an integrated approach for enhancing various fishery resources will ensure the demand based supply of fish in the state.

(Narendra Pratap Singh)

RESEARCH HIGHLIGHTS

Soil available micronutrient maps for Goa



As a part of DAC sponsored project on 'preparation of GPS and GIS based soil fertility maps for selected districts of the country', soil available micronutrient (iron, manganese, copper and zinc) status of the two districts of Goa has been analyzed and maps have been prepared. In general, the soils were sufficient in soil available iron, manganese and copper. All the Talukas except Ponda were found deficient in soil available zinc.

Study on the genomics of *R. solanacearum* infecting solanaceous vegetables

Though bacterial wilt is severe in India, no genomic sequence is available. Hence, based on the diversity analysis, two *Ralstonia solanacearum* strains viz., Rs-09-161 and Rs-10-244, isolated from eggplant in West Coast region and chilli grown in Andaman Islands, respectively were sequenced. Both strains belong to biovar 3, Phylotype I of race 1.

The nucleotide sequences of genomes were obtained from a paired end library using Illumina HiSeq 2000. The trimmed reads were assembled into contigs by using SOAP denovo (1.05) and Velvet (1.2.07). Meta assembly was done using progressiveMauve (2.3.1)

with *R. solanacearum* strain GMI1000 as the reference genome. Structural annotation was carried out using EuGene-P with *R. solanacearum* strain GMI1000 as the reference proteome. Compared with the published *R. solanacearum* genomes our genomes are most closely related to GMI 1000 and FQY_4. T3E genes present in these genomes are identified according to the latest nomenclature. This Whole Genome Shotgun project has been deposited at GenBank under the accession numbers JHBO00000000 and JHAM00000000 and the work is published. This is the first report of whole genome sequence of *R. solanacearum* from India.

Study on the etiology of mortality of papaya plants and nature of damage

Papaya in Goa is reported to be affected by a sudden collapse of the plant from flowering to fruit bearing stage. No clear information on cause of the problem and nature of damage was available. In most cases, the collapsing of the leaves starts from the top one third. Various types of symptoms were associated with the mortality of the plants and plants die due to multiple, mixed infections. These include bacterial lesions, Papaya ring spot virus (PRSV), and general decline. Mortality starts after three months of planting, flowering stage and continued even in the

peak fruiting stage. Species of soft rot bacteria viz. *Pectobacterium* and *Pantoea* were isolated from bacterial lesions. Almost 100% of the plants infected with PRSV, distorted leaf symptoms visible from the emergence of secondary leaves from the nodes.



Isolation, identification and performance of two Entomopathogenic fungus

Rice crop in Canacona and Sanguem taluk was found to be affected by hairy caterpillar. During our field surveys, we observed the natural infection of larvae and pupae of caterpillar with some entomopathogenic fungus. The entomopathogenic fungus were isolated and characterized from the insect samples. The two isolated fungus culture were sent to Agharkar Research Institute, Pune for morphological and molecular identification. The entomopathogenic fungus was identified as *Isaria fumosorosea* Wize and *Mucor indicus*. Two types of Bioassays were conducted against rice hairy caterpillar under laboratory conditions. In leaf tip bioassay, feed material was treated with fungus spores and then the caterpillar was introduced. In larval tip bioassay, the entire larvae were immersed in fungus spores and allowed to feed on normal food. In both the



Infection caused by the entomopathogenic fungus on hairy caterpillar

bioassays, the fungus was able to kill the caterpillar within 4 days after treatment.

Identification of coconut germplasm and submission for registration

Coconut palms of benaulim variety with firm tepals and fruits were identified and submitted to CPCRI Kasaragod for conservation. The variety is also submitted to NBPGR for registration as genetic stock. Benaulim pani, a coconut palm of benaulim variety was identified with excellent water qualities for tender coconut (high water/nut, TSS, pH) and high yield. Nuts of 5, 6 and 7 months of age were harvested and

analysed for tender coconut traits and were found to be superior along with good taste (measured by organoleptic score). A farmer's variety of arecanut with excellent fruit qualities was identified at Candola village. Wisdom of the farmer who follows stringent seed and mother palm selection procedures were documented.

Introduction and evaluation of tapioca varieties as an intercrop in coconut plantation

Seven tapioca varieties viz., Sree Vijaya, Sree Jaya, Cambodia, CMR-1, Kalpaka, Sree Harsha, M-4 were introduced from CTCRI, Thiruvananthapuram for evaluation under Coconut plantation as an inter crop. The varieties were primarily evaluated for tuber yield under coconut as inter crop along with heliconia and

as a solo crop. As intercrop, Sree Vijaya recorded the highest tuber yield (2.77 kg/plant) followed by Sree Jaya (2.02kg/plant). As solo crop, Sree Vijaya recorded the highest tuber yield (4.77 kg/plant) followed by Sree Harsha (2.94 kg/plant). The edible qualities after boiling were acceptable for all the varieties.



Heliconia germplasm resources in Goa

Heliconia is an important exotic flower crop grown throughout the tropical countries. Due to its exotic appearance and brilliant colours, it fetches premium price in the market. Hence, collection, conservation and evaluation of different heliconia types were initiated at the institute since 2008. At present, 47 types/varieties have been collected, maintained and evaluated under coconut plantation for different morphological and floral traits.



Extension of vase life of cut flower stalks of Heliconia

Experiments were laid out separately to investigate the effect of different chemical treatments on vase life of two different varieties of Heliconia viz., Kenya Red and Kauwochi in completely randomized design. The cut flower stalks were subjected to ten chemical treatments and replicated thrice. It has been proved that a consumer can keep the cut flower stalk of Heliconia viz., Kenya Red after harvest for 11.83 days by holding them in solution containing 8HQS (200 ppm) + GA₃ (25 ppm). The results of vase life experiments in Heliconia Cv. Kauwochi revealed that vase life could be significantly improved by 14.85 days after harvest if kept in solution containing 8HQS (200 ppm) + GA₃ (25 ppm) + AgNO₃ (50ppm) + Citric acid (50 ppm) + Sucrose (3%).



Propagation Potentials of different types of Stem Cuttings in *Centratherum intermedium*

The study was undertaken to develop appropriate techniques for mass production of planting materials through stem-cutting in order to maintain genetic purity and uniformity and meet the demand for high - quality planting material of *Centratherum intermedium* at commercial scale. It is commonly known as Brazilian button flower or 'Pineapple Sangria'. It is a herbaceous perennial with oval, serrated, green leaves and double, fluffy, lavender-blue flowers belonging to the family Asteraceae which hold promise for landscaping and also as a filler plant. These plants have profuse vegetative growth, while the number of seeds produced per plant is very low with limited viability. Three types of segments were chosen and utilized from mother stock plant viz., herbaceous (tip), softwood (tender growing stems) and semi-hardwood (current season's growth but fairly matured). Significantly higher survival percentage (86

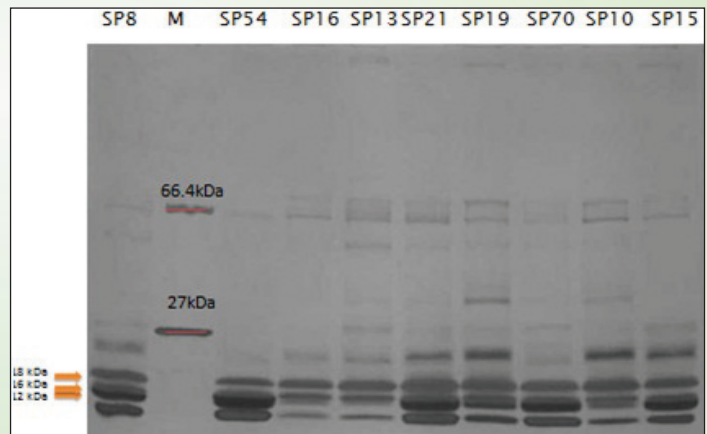
%), root length (19.00 cm), shoot length (35.24 cm) and maximum number (11.20) of fully developed leaves per cutting was recorded in herbaceous tip cuttings treated with IBA (indole butyric acid). The study proved that herbaceous tip cuttings treated with IBA could be used to produce high-quality planting material of *Centratherum intermedium* commercially.



Centratherum intermedium

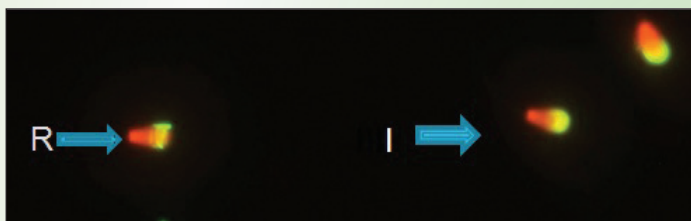
Seminal plasma profile in Murrah buffalo bulls and their relationship with sperm functions

A short research work carried out at Reproductive Physiology Lab, NIANP, Bangalore as a part of professional attachment training. Semen samples from 13 Murrah buffalo bulls were collected for the study. Seminal plasma proteins were separated according to the molecular weight in 6%-16% gradient polyacrylamide gel. Staining was done with silver nitrate to detect proteins after electrophoresis. The molecular weight, raw volume and quantity of separated proteins were analysed by using Gene tool for quantifying the changes in intensity of various bands. The seminal plasma proteins from animals which differ in expression profiles under SDS PAGE were selected for two dimensional electrophoresis. Gels were stained with silver nitrate, scanned and analysed using software (Dymension Software from Syngene).



Representative figure of buffalo seminal plasma protein profile separated by SDS-PAGE.

Motility and velocity parameters, plasmalemma integrity, mitochondrial membrane potential, DNA integrity, acrosome integrity were carried out in all seminal plasma samples. Differential expression profiles of seminal plasma protein in SDS PAGE and two dimensional electrophoresis was observed in different buffalo bulls. The lower molecular protein bands showed major quantitative differences. There was significant correlation between lower molecular weight seminal plasma proteins and sperm functions.



Fluorescent staining for acrosome integrity of spermatozoa (R-Acrosome reacted, I- Acrosome intact)

Record of a rare species of squid, *Loliolus investigatoris* in traditional gillnet fishery of Goa

A rare species of squid, *Loliolus investigatoris* was observed in the traditional gill net fishery along Siridao coast off Goa during May, 2014. The species is generally not reported from traditional gillnet fishery. The species was landed in considerably good quantities of about 5-10 kg/boat and the majority of the catch was juveniles. It fetches about ₹70-90/ kg in retail markets. The size was found to be from 2 cm to 6 cm of mantle length. The species was caught in gill nets of 35 mm mesh size from 2 km offshore fishing grounds along Siridao.

The fishermen were happy with the observation of the species in the catch because of its demand in hotels and restaurants of Goa being a tourist destination. The length and weight measurements were taken for about 80 samples at the landing site for further analysis. The fishery management of the species can be carried out using the mesh size and effort restriction in the coastal fishery to optimize the production.



Indian squid (*Loliolus investigatoris*)

Demonstration of a new technology for cashew stem and root borer management

Stem and root borer is the most serious pest on cashew. Its damage results in death of trees. A product 'Sealer cum Healer' has been developed by Indian Institute of Horticultural Research, Bengaluru for management of mango stem borer. On field demonstration was given for CSRB management at Bharsa Gaondongari, Canacona in collaboration with IIHR Scientists. The product contains essential micronutrients and herbal drugs which initiate the re-growth of the damaged tissue. The preparation, application of product and precaution to be taken was demonstrated to the local farmers of that village. Nearly 30 farmers witnessed the demonstration.



Demonstration of heliconia and other exotic flowers as commercial cut flower crops in Goa

Collection, conservation and evaluation of different varieties/types of heliconia, ginger lilly *etc.* were attempted at the Institute for the past four years. The outcome of the project was satisfactory under Goa condition for floriculture purpose. Hence, an attempt was made to demonstrate and popularize heliconia types as cut flower under Goa condition. Accordingly, 6 varieties of Heliconia *viz.*, Shee, Jacuni, Iris Benochi, Kauwachi, Sexy Pink, Tempress were planted in a coconut farm at Bicholim. The total area was 4000 m² for different heliconia types. Planting was taken up during November-December, 2012 and flower production is started from November, 2013 for commercial purpose. It was demonstrated at the farmers plot that Heliconia can be successfully cultivated as cut flower crop under coconut plantation.



Hands on training for use of coconut climbing device to women farmers of Sangolda, Goa



On the request of KVK, North Goa and Green Growth Institute, Bardez, Goa, hands on training for farm women of Sangolda to use the coconut climbing device to harvest coconuts was given. Dr. Mathala Juliet Gupta, Scientist, gave a demonstration of the use of the coconut climber to 18 farm women of Sangolda, North Goa. The women farmers were sensitized and given hands on training to the use of the device. They understood about the usefulness of the device and appreciated the institute for organizing such a demonstration.

NEW INITIATIVES

A project on characterization of rice landraces of Goa

Department of Science, Technology and Environment (DST&E), Govt. of Goa has sanctioned a research project on 'Agro-morphological characterization and DNA fingerprinting of rice landraces of Goa'. The project aims at collection, conservation and characterization

of rice land races and their wild relatives of Goa State. The work includes characterizing the germplasm for various qualitative and quantitative agro-morphological descriptors and DNA fingerprinting with the help of molecular markers.

Technology demonstration project on mariculture

A project on "Technology demonstration on mariculture for improving the livelihood status of youth and women in Goa" has been sanctioned to Ms. Manju Lekshmi N. Scientist (FRM) under the 'Technology Upgradation

Scheme' of National Fisheries Development Board, Hyderabad on 28th February, 2014. This project will be focusing on demonstration of mussel culture units in a participatory mode with youth and women in Goa.

MAJOR EVENTS

Mid interface meeting

An Interface meeting was held between ICAR Research Complex for Goa and Directorate of Agriculture, Government of Goa on 23rd January, 2014 at ICAR Research Complex for Goa, Old Goa. The meeting was chaired by Dr. Narendra Pratap Singh, Director, ICAR Research Complex for Goa and attended by Shri P. Tufani, Director, Directorate of Agriculture, Government of Goa, officials from Directorate of Agriculture, Scientists of ICAR RC, Goa and Subject matter Specialists from KVK. The officials of the Institute and Directorate interacted on the problems faced by the farmers and the technologies available to tackle the problems.



Awareness programme on "Clean milk production and Prevention of bovine mastitis"



An awareness programme on "Clean milk production and prevention of bovine mastitis" was organized

under the aegis of Tribal Sub Plan programme and a project sponsored by Department of Biotechnology, Government of India under societal development programme on "Approaches towards combating zoonotic and foodborne infections through community participation" at Colvale Village Panchayat in collaboration with Goa State Cooperative Milk Producers' Union Ltd., Curti on 31st January, 2014. Over fifty farmers from different dairy cooperative societies participated in the programme. Dr. N. P. Singh, Director, ICAR Research Complex for Goa, Dr. N. C. Sawant, Managing Director, Goa Dairy, Dr. S. K.

Das, Principal Scientist, Dr. E. B. Chakurkar, Principal Scientist, Dr. S. B. Barbudde, Principal Scientist and PI of the project, Dr. R. B. Dhuri, Manager, Animal health, Goa Dairy and Dr. Z. B. Dubal, Scientist

participated in the deliberations. Talks on clean milk production, foodborne infections, infertility in dairy animals and prevention of bovine mastitis were delivered.

AQUA Goa Mega Fish Festival 2014

Fishery Science Section of ICAR Research complex for Goa actively participated with a scientific exhibition stall in AQUA Goa Mega Fish Festival 2014 organized by Directorate of Fisheries, Government of Goa in collaboration with the National Fisheries Development Board, Hyderabad at Navelim from 31st January to 2nd February, 2014. Governor of Goa Bharat Vir Wanchoo inaugurated the time organised event in Goa. The Section exhibited various technologies through scientific posters. The sale of fresh water ornamental fish seeds and display of indigenous ornamental fishes of Goa had also been arranged by the section.



Participation in Krishi Vasant 2014



The Institute participated in Krishi Vasant 2014, the biggest ever agricultural exhibition, held at CICR, Nagpur during 9th to 13th February, 2014. A team of scientists, subject matter specialists and technical officers led by Dr. Narendra Pratap Singh, Director participated in the event. Dr. S. Ayyappan, Secretary, DARE and Hon. Director General, ICAR, New Delhi visited the stall on 9th February, 2014. Over 60,000 people visited the stall and they sought information on agro-tourism, pig farming, rabbit farming, integrated farming systems, post harvest management of crops, etc.

Training programme on finfish cage culture and bivalve farming

A Training programme on finfish cage culture and bivalve farming was conducted by the Fishery Science Section of ICAR Research Complex for Goa in collaboration with Karwar Research Centre of CMFRI on 11th to 12th February 2014. About twenty farmers and entrepreneurs from different parts of North and South Goa participated in the programme. The training has given emphasis on open sea cage culture, small cages in estuaries, oyster culture and mussel culture. The scientific experts from Karwar Research centre of CMFRI have shared their knowledge on open sea cage farming, health management in cage cultured fin fishes, nursery rearing of cage cultured fin fishes, water quality management and growth monitoring and cage mooring, cage management and net exchange.



Besides, the scientific experts from Mangalore Research Centre of CMFRI have given their expertise on cage farming in the estuaries and brackish water bodies, site selection, cage operation and management of estuarine cages and mussel farming in the estuaries and brackish water bodies.

Visit of Deputy Director General (Animal Science), ICAR, New Delhi

Dr. K. M. L Pathak, DDG (Animal Science), ICAR, New Delhi and Dr. C. S. Prasad, Director, NIANP, Bangalore visited the institute during 23rd to 25th February, 2014. During the visit they reviewed the research work in the Animal Sciences Section and provided inputs for the future research programs. The DDG also visited laboratories, experimental units of the institute and KVK. Foundation of Experimental Pig Unit was laid by the DDG (Animal Sciences) in the presence of Dr. C. S. Prasad, Director, NIANP and Dr. Narendra Pratap Singh, Director ICAR Research Complex for Goa. Dr. Pathak also visited the farmers pig units holding crossbred pigs. He appreciated the Institutes effort for conserving Agonda Goan pigs.



Training on Artificial Insemination in pigs



Artificial Insemination (AI) can bring quick genetic progress by using higher genetic value boars in swine production. There is saving of space and maintenance

costs by means of reduced number of boars to be maintained. The use of animals with different body size and weight in breeding is possible. AI reduces the reproductive disease incidence.

Training on “Artificial Insemination in pigs” was organized on 24th February, 2014. Pig growers (44) from Goa, Maharashtra and Karnataka have participated actively in the training. This training was organized as part of DBT project “Augmentation of rural pig production for socio-economic upliftment of the rural poor in Goa through Artificial Insemination”. Apart from the lectures, practical demonstration on semen collection, semen evaluation, Artificial Insemination and pregnancy diagnosis were undertaken.

Workshop on “Methods for isolation of *Listeria monocytogenes*”

A workshop on “Methods for isolation of *Listeria monocytogenes* from foods and clinical samples” was organized at ICAR Research Complex for Goa, Old Goa under the aegis of Centre of Excellence and Innovation in Biotechnology project on “Translational Centre for Molecular Epidemiology of *Listeria monocytogenes* (TranceLis) sponsored by Department of Biotechnology, Government of India on 28th February to 1st March, 2014. The aim of the workshop was to demonstrate the methods of detection of *Listeria* from food and clinical samples.



Twenty four participants from various institutions participated in the programme.

Training programme on Fresh water and mariculture technologies



A Training programme on fresh water and mariculture technologies was organised at ICAR Research Complex for Goa on 11th to 12th March, 2014.

Undergraduate students of Zoology and faculty from Parvatibai Chowgule College of Arts and Science were participated in the programme. Ms. Manju Lekshmi N., Scientist (Fisheries Resource Management) co-ordinated the training programme. Dr. Narendra Pratap Singh, Director, ICAR Research Complex for Goa welcomed the participants and mentioned about the importance of fisheries and agricultural graduates in Goa. The training has given emphasis on fresh water aquarium fabrication, maintenance and management, integrated aquaculture, mariculture technologies like small cages in estuaries, oyster culture and mussel culture. The programme highlighted the importance of mariculture in Goa with particular reference to mussel and oyster culture.

Training-cum-Awareness programme on 'Protection of Plant Varieties and Farmers' Rights Act, 2001

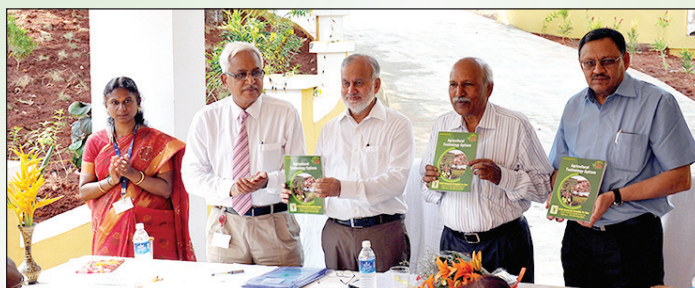
Two farmer's training-cum-awareness programmes on 'Protection of Plant Varieties and Farmers Rights Act' were organized at this Institute and in Gaodongri Village of South Goa District in collaboration with Protection of Plant Varieties and Farmers' Rights Authority, New Delhi on 25th and 27th March, 2014, respectively. The training programme at Institute was inaugurated by Dr. N. D. Jambhale, Ex-ADG (Seeds), ICAR New Delhi. Shri P. Tufani, Director, Department of Agriculture was the Guest of Honour. Dr. N. P. Singh, Director, presided over the function. Dr. Manohara

K. K., Scientist (Genetics and Plant Breeding) was the organizing secretary. About 100 farmers from different parts of Goa attended the training programme.



Visit of DG, ICAR and Brainstorming session on coastal agricultural research

Dr. S. Ayyappan, Secretary (DARE) and Director General (ICAR), New Delhi and Dr. A. K. Sikka, DDG (NRM) visited the Institute on 9th April, 2014. The Honourable DG inaugurated the newly constructed Zuari Guest House and the Renovated Lab-Cum Administrative Building. A brainstorming session on 'Coastal Agricultural Research' was conducted in the Institute which was presided by Dr. S. Ayyappan. The objective of the brain storming session was to expand the mandate of this Institute and rename it into Central Coastal Agricultural Research Institute (CCARI). DG, DDG and other dignitaries deliberated and discussed on the subject. Three technical bulletins viz. "Agricultural



Technology Options", "Genetic diversity of Kokum (*Garcinia indica*) in Goa-Tree and fruit characters" and "Manual on Diagnosis of insect pests and diseases of plantation and spice crops of Goa" were released by Director General.

National Level Training Programme on Cashew Production and Processing Technologies

A National Level Training Programme on Cashew Production and Processing Technologies” was jointly organized by ICAR Research Complex for Goa in collaboration with Directorate of Cashewnut and Cocoa Development, Kochi, Kerala from 22nd to 24th April, 2014. The programme was inaugurated by Shri Bharat Vir Wanchoo, the Honourable Governor of Goa, who emphasized the role of agriculture in food security. Dr S. K. Malhotra, Horticulture Commissioner, Government of India pointed the availability of more than forty varieties of cashews for different regions of India. Dr. Narendra Pratap Singh, Director of ICAR institute briefed about the institute especially the cashew production in the State. Shri Hubballi,



Director, DCCD, Kochi told about the trade related issues of cashew. In this programme, 50 officers from different departments, corporations, Universities and NGOs representing the cashew growing states across the country participated in the training.

Training programme on Diagnosis of insect pests and diseases of plantation and spice crops of Goa



A training programme on “Diagnosis of insect pests and diseases of plantation and spice crops of Goa” was conducted by ICAR Research Complex for Goa, Old Goa on 25th April, 2014. Over fifty people participated in the programme. The participants include Zonal Agricultural Officers, Agricultural Officers from Directorate of

Agriculture, extension personnel from NGOs, Private companies and progressive farmers from Goa. The training was inaugurated by Shri. P. Tufani, Director, Directorate of Agriculture, Govt. of Goa. Shri. Tufani highlighted the important insect pests and diseases of plantation and spice crops of Goa and the associated practical problems in the control of pests and diseases. Dr. Narendra Pratap Singh, Director, ICAR Research Complex for Goa stressed the need for early detection and proper diagnosis of the insect pests and diseases. Detailed presentation and deliberations were conducted during the training by Dr. R. Ramesh, Senior Scientist (Plant Pathology) and Dr. R. Maruthadurai, Scientist (Agricultural Entomology), the course coordinators.

वार्षिक हिन्दी पत्रिका प्रज्ञा को गणेश शंकर विद्यार्थी हिन्दी कृषि पत्रिका पुरस्कार

हमारे संस्थान द्वारा प्रकाशित हिन्दी की गृहपुस्तिका प्रज्ञा को भारतीय कृषि अनुसंधान परिषद द्वारा वर्ष २०१२ - १३ के गणेश शंकर हिन्दी कृषि पत्रिका पुरस्कार के प्रथम पुरस्कार से सम्मानित किया गया है। यह पुरस्कार मुख्यालयद्वारा दिनांक २८.०४.२०१४ को नई दिल्ली में निदेशकों की बैठक में महानिदेशकद्वारा संस्थान के निदेशक को प्रदान किया गया। परिषद मुख्यालयने पत्रिका की मुक्त कंठ से प्रशंसा की तथा संस्थान के निदेशक डॉ नरेंद्र प्रताप सिंह व पत्रिका की मुख्य संपादक डॉ मतला जूलिएट गुप्ता द्वारा किए गए कार्य विशेष की सराहना की। ज्ञात हो की संस्थानद्वारा प्रकाशित हिन्दी गृहपुस्तिका प्रज्ञा का यह प्रथम संस्करण था। पत्रिका में कृषिक्षेत्रपर विभिन्न सारगर्भित लेख सम्मालित किए गए थे। प्रज्ञा के प्रकाशन हेतु संपादक मण्डल के सभी सदस्य विशेष सराहना व बधाई के पात्र हैं।



IPR CELL ACTIVITIES

Technology and Business Awareness Camp

“Technology and Business Awareness Camp” was organized at this Institute jointly by the ITMU of ICAR Complex for Goa and ITMU and Business Planning and Development Unit, Central Plantation Crops Research Institute, Kasaragod on 20th March, 2014. As a chief guest of the programme, Dr. N. P. Singh, Director and Chairman ITMU, ICAR Research Complex for Goa in his inaugural speech highlighted the need for commercializing the technologies developed by ICAR institutes. Dr. K. Muralidharan, Head, Social Sciences, CPCRI, Kasaragod, showcased the various commercializable technologies developed at CPCRI, Kasaragod while Shri Nitin Srivastav, Business Manager, CPCRI, Kasaragod highlighted the prospects of commercialisation of the technologies. Various



stakeholders *viz.* representatives of Goa Bagayatdar society, agro-ecotourism centres, and prospective enterprising farmers besides all the scientists of the Institute and SMS KVK participated in the camp.

Workshops/seminars/symposia/trainings attended

Date	Name	Programme	Venue
30 th November to 25 th March, 2014	Dr. Binsila B. Krishnan	Professional attachment training for Agricultural Research Services on the topic “Assisted reproductive technologies”	Reproductive Physiology Lab, NIANP, Bangalore, Karnataka
4 th January, 2014	Dr. S. B. Barbudde	Brainstorming session on Zoonoses	Municipal corporation of Nagpur, Nagpur, Maharashtra
8 th January, 2014	Dr. N. P. Singh	State level seminar on agricultural growth in Goa-present trends and future prospects	Govind Poy Raiturcar College of Commerce and Economics, Farmagudi, Ponda, Goa
8 th to 10 th January, 2014	Dr. K. K. Manohara	Review and monitoring meeting of foreign aided projects of Natural Resources Management Division	Krishi Anusandhan Bhavan, New Delhi
13 th January to 28 th March, 2014	Dr. S. Priya Devi	Training in the area of Genome Resource Conservation (Natural Resource Management)	Lab of Dr. Simon Southerton, CSIRO Plant Industry, GPO Box 1600, Canberra ACT 2601, Australia
21 st January to 10 th February, 2014	Dr. K. Muniswamy	CAFT Training programme on computational and statistical advances in bioinformatics for Omics Data	IASRI, New Delhi
23 rd January, 2014	Dr. B. L. Manjunath, Dr. P. K. Naik	Brainstorming session on mitigating micronutrient deficiencies in fodder crops	RRS-IGFRI, Dharwad, Karnataka
30 th January, 2014	Dr. M. Thangam	Memorial Seminar on Floriculture in Goa: Status and Prospects by Dr. Anand Kurade	Central Library, Panaji, Goa

1 st to 2 nd February, 2014	Dr.S. B. Barbuddhe	Indo-UK Workshop on molecular epidemiology and functional genomics to underpin the development of novel interventions to combat bovine <i>Staphylococcus aureus</i>	NIVEDI, Bangalore, Karnataka
3 rd to 15 th February, 2014	Dr. P. K. Naik	Refresher course on agricultural research management	NAARM, Hyderabad, Andhra Pradesh
4 th to 5 th February, 2014	Dr. Z. B. Dubal	National symposium on biomedical concerns on Food safety, zoonoses and Environmental Sustainability	College of veterinary science, Khanapara, Guwahati, Assam
6 th to 7 th February, 2014	Dr. S.K.Das	Capacity building programme on “Commodity Future Market”	NABARD, Panjim, Goa
9 th to 13 th February, 2014	Dr. N. P. Singh Dr. E. B. Chakurkar Dr. S. B. Barbuddhe Dr. G. R. Mahajan S. K. Marathe Mr. Edward Crasto Mr. Chidanand Prabhu	Krishi vasant-2014 - National agriculture fair cum exhibition	CICR, Nagpur, Maharashtra
15 th February, 2014	Dr. S. A. Safeena	Seminar on “Commercial Cultivation of Vegetables and Flowers in Goa” organised by Agriculture Committee of Goa Chamber of Commerce and Industry and Directorate of Agriculture	Krishi Bhavan, Panjim, Goa
15 th February, 2014	Dr. M. Thangam	Seminar on Commercial cultivation of vegetables and Flowers organized by GCCI, Goa and Directorate of Agriculture (NHM)	Krishi Bhavan, Panjim, Goa
20 th February, 2014	Dr. A. R. Desai	Review meeting of finalizing the technical programme and action plan of ICAR Seed Project (Horticulture Component) XII Five Year Plan.	IIHR, Bangalore, Karnataka
21 st to 22 nd February, 2014	Dr. S. K. Das	National Seminar on “Sheep and Goat Biodiversity and Breeding Policies- Issues and Perspective” and Annual Conference, organized by ISSGPU and KNP College of Veterinary Science, Shirwal, Satara, Maharashtra.	Mahabaleswar, Maharashtra
21 st to 23 rd February, 2014	Dr. M. J. Gupta	48 th ISAE Convention and Symposium on Engineering Interventions in Conservation Agriculture	College of Technology and Engineering, MPUAT, Udaipur, Rajasthan.
22 nd February, 2014	Dr. K. Muniswamy	Sensitizing workshop on poultry seed projects	DPR, Hyderabad, Andhra Pradesh
19 th to 21 st March, 2014	Dr. S. B. Barbuddhe	Indo-German workshop on diagnostics and translational genome sequencing in clinical and public health microbiology	Madras Medical Mission, Chennai, Tamil Nadu

20 th to 22 nd April 2014	Dr. P. K. Naik	Global Animal Nutrition Conference (GLANCE-2014) on Climate Resilient Livestock Feeding Systems for Global Food Security	Bengaluru, India
20 th to 25 th April, 2014	Dr. V. Arunachalam	Technology commercialization and Entrepreneurship Workshop organised by FICCI-Stanford Graduate Business School -DST-Lockheed Martin India Innovation growth program.	Hotel Marriott, Panjim, Goa

APPOINTMENT/TRANSFER

- Shri Nitin Naik joined as a Skilled Support Staff w.e.f. 06-01-2014.
- Shri Mayur N. Mandrekar joined as a Skilled Support Staff w.e.f. 06-01-2014.
- Smt. Swati R. Khandeparkar joined as a Skilled Support Staff w.e.f. 07-01-2014.
- Shri Prallad Zambaulikar joined as a Skilled Support Staff w.e.f. 08-01-2014.
- Shri Raghav Kiran Kumar joined as a Stenographer Grade III w.e.f. 08-01-2014.
- Miss. Sarita T. Zaro joined as a Skilled Support Staff w.e.f. 17-01-2014.
- Miss. Sujata Kamble joined as a Lower Divisional Clerk w.e.f. 25-2-2014.
- Dr. S. B. Barbuddhe, Principal Scientist (Veterinary Public Health) transferred to NIBSM, Raipur, Chattisgarh w.e.f. 29-03-2014.

DEPUTATION

Dr. (Mrs) S. Priya Devi, Senior Scientist (Horticulture- Fruit Sciences) was deputed to CSIRO, Canberra, Australia as visiting Scientist under Genome Resource Conservation, funded by NAIP, Component-I Programme. She carried out research on "Genome analysis of *Eucalyptus cladocalyx*, especially on identification of SNPs".

AWARDS AND RECOGNITION

Dr. Narendra Pratap Singh

Bharat Excellence award for outstanding and extra-ordinary achievements in the chosen field of activity and services rendered to promote greater friendship and Indian international cooperation received from the hands of Dr. Randhir Chowdhury, Ex. Governor of Sikkim on 29th March, 2014 at New Delhi

Dr. V. Arunachalam

Computer program for DNA marker discovery developed by Dr V Arunachalam (Principal Scientist) is adjudged as one of the top 45 innovations under India Innovation growth program 2014 of DST- Lockheed Martin-FICCI-IUSSTF-TIE-IC2 Institute University of Texas at Austin-Stanford Graduate Business School.

Dr. P. K. Naik

Awarded the 'Best Poster Award (First Place)' for presenting the research paper 'Low Cost Devices for Hydroponics Fodder Production: Case Studies of Farmers of Satara District, Maharashtra' at Global Animal Nutrition Conference (GLANCE-2014) on 'Climate Resilient Livestock Feeding Systems for Global Food Security' held from 20-22 April, 2014 at Bengaluru, India.

Dr. Mathala Juliet Gupta

Elected as Vice President (West Zone) of the Central Executive Committee off ARSSF, India.

Dr. G. R. Mahajan

Second prize in nitrogen category in the International Plant Nutrition Institute's (IPNI) 2013 photo contest for crop nutrient deficiency symptoms.