



संवादपत्र NEWSLETTER

भाकृअनुप- केंद्रीय तटीय कृषि अनुसंधान संस्थान
(भारतीय कृषि अनुसंधान परिषद)

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(Indian Council of Agricultural Research)



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भारतीय कृषि अनुसंधान परिषद

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From Director's Desk...

Goa encompasses wide diversity of crop plants. These crops are grown both for domestic and commercial purposes. Major food crops of the state include rice, ragi, maize, sugarcane and pulses. Rice and fish being the staple diet of the people in Goa, paddy becomes the principal crop in the scenario of agriculture in Goa. With a long history in Goan agriculture, rice occupies a cultivated area of 45,000 ha and presently the cultivated area is declining. The different rice ecologies prevailing in the state are rainfed shallow lowland, coastal saline soils and rainfed upland conditions.

Rainfed shallow lowland is the predominant rice growing ecology occupying 1/3rd of rice area in the state. Continuous water stagnation ranging from 30-50 cm coupled with biotic problems like pest and diseases are the major challenge to the farmers. Farmers prefer medium duration rice varieties with semi tall type having lodging resistance. Jaya, Jyothi and few traditional rice varieties are widely grown and their yield potential is slowly declining over a period of time. Efforts at ICAR-CCARI to introduce new high yielding varieties to this ecology were successful with the introduction of Karajt-3, a medium slender grain rice variety of medium duration. The variety is capable of giving 5.0 to 5.5 t/ha with a high head rice recovery suiting to both raw and parboiled rice. This has now occupied substantial area in the farmers' field.

Goa state has 18,000 ha land affected by coastal salinity which includes rice cultivation to the tune of 12,000 ha. Farmers still grow traditional landrace Korgut in these areas which tolerate salinity as well as other associated problems prevailing in such areas. The effort at improving this landrace through pure-line selection was quite successful with the selection of two promising selections KS-12 and KS-17. The selections are able to yield 50-100% more compared to the original Korgut.

Rainfed upland rice ecology is another rice growing condition where intermittent drought spells for 10-15 days affects the rice yield. Further, the cultivation of non-drought tolerant rice varieties due to lack of awareness results in poor yields. The introduction of drought tolerant rice variety Sahabhazi-dhan from ICAR-Central Rice Research Institute, Cuttack, has shown its potential to perform in such areas. The front line demonstration conducted on Sahabhazi-dhan for two years demonstrated its superiority over the existing varieties. Sahabhazi-dhan recorded average yield of 5.0 t/ha which is 45 to 50% more compared to the check varieties.

Goa being located amidst Western Ghats has huge diversity in rice genetic resources. There is enormous diversity in respect of local germplasm which include landraces and wild relatives. Traditional rice varieties or landraces of rice are still part of the rice cultivation. They are cultivated till date due to their specific utility to the farming community. Goan farmers have grown, selected and evolved a series of rice varieties to meet their specific demands. Due to the introduction of high yielding varieties and also due to the lack of encouragement for farmers to grow these traditional varieties, cultivation of these decreased to a great extent. This has resulted not only in loss of the important germplasm, but also the various important genes which could aid in development of improved varieties. Efforts at the institute to collect and conserve all the available rice genetic resources resulted in the collection of 20 different landraces and 25 wild relatives. Systematic characterization of these landraces is being carried out for their proper cataloguing and future utilisation.



N.P. Singh

(Narendra Pratap Singh)



RESEARCH HIGHLIGHTS

Progeny test in coconut and arecanut

(Dr. V Arunachalam)

Selection of mother palms is usually carried out using the yield and phenotypic traits of parental palms. We investigate the suitability of supplementing the progeny test to complement the process of identifying elite mother palms. About 450 open pollinated seedling progenies of 19 mother palms of

four varieties of coconut (Benaulim, Goa Benaulim Pani, COD, MYD) were scored for eight DUS traits. The study has led to the identification of further superior mother palms among the selected ones. Similar effort is in progress in Mangala and Hirehalli Dwarf varieties of Arecanut.

Performance of rose varieties under open field conditions of Goa

(Dr. SA Safeena)

A total of 21 cultivars were evaluated for their performance for loose flower purpose under open field conditions of Goa. Significant variation was noticed for various floral quality and yield parameters. Neck length, stalk girth, neck girth, no. of petals/ flower, petal length, petal width, flower diameter and vase life varied from 2.96 to 6.67 cm, 0.16cm to 0.33 cm, 0.17cm to 0.42cm, 13.33 to 29.67, 1.47 to 3.53cm, 1.30 to 4.17cm, 1.83 to 8.50cm, 2.67 to 6.0 days respectively. Jubileums performed well with respect to floral characters which recorded maximum stalk girth (0.33 cm), petal length (3.53 cm) and vase life (6 days) followed by Restless with neck length (6.67 cm), stalk girth (0.32 cm), neck girth (0.42 cm), flower diameter (6.17 cm) and vase life (4.67 days) and Brisbane blush with maximum no. of petals/ flower (29.67) and better vase life (4.33 days). Month

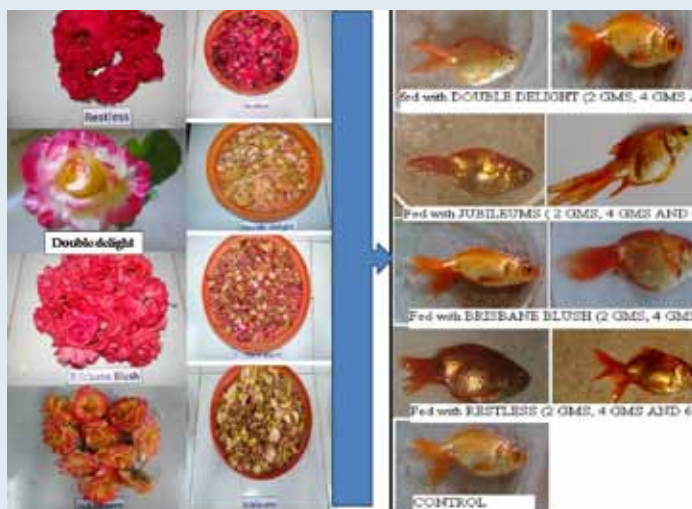


wise flower production as well as total yield of flowers after pruning was highest in Jubileums, Restless and Brisbane blush. Considering the results, these three varieties can be suggested for cultivation.

Rose petals as natural dietary carotenoid source for pigmentation in cyprinid fishes

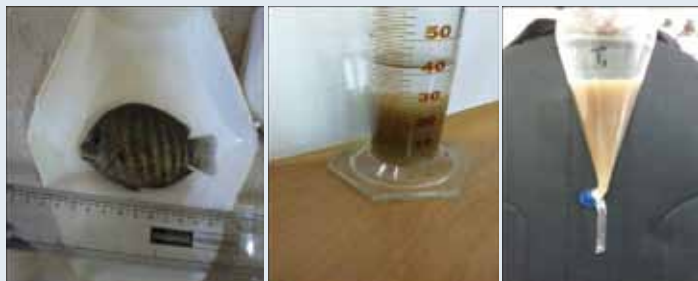
(Dr. SA Safeena and N Manju Lekshmi)

Gold fish, *Carassius auratus* was fed with Petal-meal from four different rose varieties viz., Double-Delight, Jubileums, Brisbane-Blush and Restless, were incorporated in control-feed at three different concentrations (2g, 4g, 6g/kg of diet) for 45 days. Maximum carotenoid content was observed with feed prepared out of variety Restless followed by Jubileums. There was a significant increase in length, weight and pigmentation of fishes fed with experimental diet, with maximum values were obtained at highest concentrations (6g) of petal-meal and for rose variety Restless followed by Jubileums, Brisbane Blush and Double Delight. Thus colouration and growth in goldfish could be enhanced by using natural carotenoid in fish feed.



Effect of biofloc on growth, proximate composition and digestive enzyme activities of *Etroplus suratensis*

(N Manju Lekshmi and GB Sreekanth)



A biofloc based experiment was conducted including two treatments (T1-wheat flour + formulated feed (2% of fish biomass) and T2-wheat flour) and a control (formulated feed) with triplicates. The fingerlings of Pearlsport, *Etroplus suratensis* with an

average body weight of 9.2 ± 0.2 g were stocked at a rate of 50 /tank and cultured for a period of 161 days. Specific growth rates (SGR), composition of crude protein, fibre and lipid and enzyme activities were significantly higher in T1 followed by T2 and control. Besides, lower pH values were recorded in biofloc tanks attributed to the higher rate of nitrification and respiration by microbes. Besides, the addition of carbohydrate significantly reduced the total ammonia nitrogen and nitrate-nitrogen in water. Thus, it should be noted that the use of wheat flour (carbohydrate source) along with formulated feed has enhanced the growth, proximate composition and enzyme activity in pearlspot.

Low-cost capture based multispecies culture system for Goa

(N Manju Lekshmi and GB Sreekanth)

A low-cost multispecies capture based culture system was experimented in coastal waters off Goa and in this system; finfishes like red snapper (*Lutjanus argentimaculatus*) and pearlspot (*Etroplus suratensis*) were cultured in combination with a shellfish species, Green mussel, *Perna viridis* for a period of 8 months. Finfish seeds obtained as a by-catch during the normal fishing operations (Average size: Pearlsport-50 mm, Red snapper-200 mm) were separately stocked in nylon (2m*1.5m*2 m) positioned with bamboo poles. Mussel seeds (Average size-32 mm) collected from the wild were stocked (1kg/bag) in 15 pre-stitched cotton mosquito net bags with nylon rope and hung from the bamboo poles. Red snapper was fed with chopped discards, pearlspot fed on periphyton and mussels with plankton. The total cost and returns



from the culture system were Rs. 0.14 lakh and Rs. 0.54 lakh respectively. Thus, this system can function as a source of alternate livelihood for youth.

NEW INITIATIVES

Live fish gene bank of freshwater fish resources of Goa

(GB Sreekanth, N Manju Lekshmi and VS Basheer)

As a result of the research project on freshwater fish diversity of Goa (ICAR-NBFGR and ICAR-CCARI), a live fish gene bank of forty indigenous fresh water fishes of Goa was established at the institute farm pond facility and regular monitoring and enrichment of the stocks are undertaken.



MAJOR EVENTS

A one day program on Soil testing and fertilizer recommendation using PUSA STFR meter under TSP

A one day program on 'Soil testing and fertilizer recommendation using PUSA STFR meter under TSP' was organized on 25th May, 2015. Dr. NP Singh, Director, in his inaugural address, emphasized on the use of the kit for soil health management and employment generation. The portable PUSA STFR meter is capable of analyzing soil pH, EC, organic carbon, phosphorus, sulphur, boron and zinc and recommending fertilizers for selected crops. The five kits will be distributed to five ST SHGs of Goa. The hands on training were attended by farmers and officials of soil testing laboratories of the Department of Agriculture, Govt of Goa. By making use of the PUSA STFR meters farmers can get the soils analyzed



and fertilizer recommendation in the village in a very short span of time. Additionally it will generate employment opportunities for rural youth.

24th Annual Group Meeting of AICRP on Palms



24th Annual Group Meeting of All India Coordinated Research Project on Palms is being held at ICAR-Central Coastal Agricultural Research Institute (ICAR

- CCARI), Old Goa from 26th to 29th May, 2015. The Chief Guest of the programme, Mr. Manoj Kumar Sahoo, IAS, Secretary (Agriculture), the gathering Govt of Goa addressed involved in the project with various issues on palms research in the country. Dr. NP Singh, Director, ICAR-CCARI emphasized the need and scope for palm research in the coastal region. Dr. SK Sharma, (Director, ICAR-CIAH), Dr. PL Saroj (Director, ICAR-DCR) and Dr. AS Kumaraswamy (Former Dean (Education), UAHS, Shivamogga) also addressed the gathering. Dr. HP Maheshwarappa, Project Co-ordinator (Palms) presented the technical report of the program and highlighted significant achievements.

हिन्दी गृह पुस्तिका प्रज्ञा को भाकृअनुप द्वारा वर्ष २०१३ - १४ के 'गणेश शंकर विद्यार्थी हिन्दी कृषि पत्रिका पुरस्कार' का प्रथम पुरस्कार

हमारे संस्थान द्वारा प्रकाशित हिन्दी की गृह पुस्तिका प्रज्ञा को भारतीय कृषि अनुसंधान परिषद द्वारा वर्ष २०१३ - १४ के 'गणेश शंकर विद्यार्थी हिन्दी कृषि पत्रिका पुरस्कार' के प्रथम पुरस्कार से सम्मानित किया गया है। यह पुरस्कार मुख्यालय द्वारा भाकृअनुप के विभिन्न संस्थानों के निदेशकों की बैठक में महानिदेशक द्वारा संस्थान के निदेशक को प्रदान किया गया। परिषद मुख्यालय ने 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 संस्थान द्वारा प्रकाशित हिन्दी गृह पुस्तिका प्रज्ञा का यह प्रथम संस्करण था। पत्रिका में कृषि क्षेत्र पर विभिन्न सारगर्भित लेख सम्मालित किए गए थे। प्रज्ञा के प्रकाशन हेतु संपादक मण्डल के सभी सदस्य विशेष सराहना व बधाई के पात्र हैं।



Distribution of Turmeric rhizomes under TSP to Tribal farmers at Cotigao

A programme on Turmeric rhizomes Distribution to tribal farmers was organised in the fore noon of 11th June, 2015 at Cotigao village, Canacona, South Goa District. The function was chaired by Dr. NP Singh, Director, ICAR-CCARI. He interacted with tribal farmers and inquired about their requirements for better farming. Six tonnes of turmeric rhizomes were distributed to 30 farmers for an area of 4 ha. Cotigao



panchayat president, Mrs. Meena Gaonkar was also present in this programme.

Agricultural Machinery distribution to Tribal Farmers of Goa under TSP



Agricultural machinery comprising of Mini Pulveriser (4 nos.), Power Tiller-13.5 HP (1 no.), Water pump-

1.5 HP (1 no.), Pusa SRFR meter (5 nos.), Grass cutter (4 nos.), Portable Vermicompost unit (5 nos.), Knapsack sprayer (1 no.) and Power sprayer (2 nos.) were distributed to the different tribal SHG's from Canacona, Quepem, Bicholim, Tiswadi, Ponda talukes of Goa on 20th June, 2015. Shri. Pramod Sawant, MLA and Chairman, GSIDC was the chief guest during the function and Dr. NP Singh, Director of the institute presided over the function.

National Workshop on "Hydroponic Maize Fodder Production and Use of Bypass Fat in Dairy Animals"

With the support from Rashtriya Krishi Vikas Yojana (RKVY), a two day National workshop on "Hydroponic maize fodder production and Use of Bypass fat in dairy animals" was organised during 29-30th June, 2015 at ICAR- CCARI. The workshop was inaugurated by Shri. Narendra K Sawaikar. Hon'ble MP (South Goa and about 60 progressive farmers from Goa and other states participated. On-field demonstrations were organised to disseminate the production technology of hydroponic green fodder and bypass fat. The occasion was graced by Dr. NC Sawant, Managing Director, Goa Dairy and Dr. RB Dhuri, Manager, Goa Dairy. Dr. NP Singh, Director, ICAR-CCARI presided



over the function and emphasized the importance of the production of hydroponic green fodder and bypass fat. Dr. PK Naik, expert from ICAR-CARI, Bhubaneswar has given a lecture on the Hydroponic fodder and bypass fat production.

Training on value addition in jack fruit



A total of 132 tribal farm women were trained on value addition in jack fruit in five different training programmes organised at Cotigaon and Surla from 10th June to 13th July, 2015. Hands-on training on preparation of value added products like papad, chips, leather, puree, halwa, pickle, fruit puree, jack bhaji and jack seed payasam were given to farmers. A recipe competition was also held during the training programme and best local recipes were identified and prizes were given.



ICAR-CCARI observes its silver jubilee

ICAR-Central Coastal Agricultural Institute celebrated its silver jubilee on 21st July, 2015. This occasion was blessed with the presence of Chief Guest Smt. Mridula Sinha, Hon. Governor of Goa and Guest of Honour, Smt. Nila Mohanan, IAS, District Magistrate and Collector, North Goa). Dr. B Mohan Kumar, Assistant Director General (AAF&CC), Dr. VS Korikanthimath and Dr. PG Adsule (Former Directors of the institute) were also present during the event. The former staff members of the institute were also invited for the silver jubilee celebrations. During the inaugural session, welcoming the invitees, Dr. Narendra Pratap Singh, Director, ICAR-CCARI highlighted the journey of the institute from a research station to a full-fledged central institute. A brief presentation of the research achievements of the institute was followed. The institute honoured the former staff members and the present members with more than 25 years of service. There was release of silver jubilee publications (Souvenir, 25 Year Research Achievements and History of the institute) during the event. The logo of the institute was also



officially released during the function. Smt. Mridula Sinha and Smt. Nila Mohanan congratulated the whole team of ICAR-CCARI for their team work, salient achievements and ensured whole hearted support for the institute in future. Dr. B Mohan Kumar appreciated the staff of the institute for its successful journey of 25 years. The former directors of the institute, Dr. VS Korikanthimath and Dr. PG Adsule briefed about the research and development activities that the institute has carried out during the last twenty five years and they also recommended research opportunities for the institute as an ambassador for agricultural research in the coastal region.

Independence Day celebrations

ICAR-CCARI celebrated the 69th Independence Day on 15th August 2015. On the occasion, Dr. NP Singh, Director stressed on the working culture in the organization, and urged all the employees to strive hard to take the Institute to new heights in the field of research and extension. He also briefed about the achievements of the Institute and congratulated

everyone for the same. He also congratulated those who received prestigious recognition from the Indian Council of Agricultural Research for their contributions in the last period. A cleanliness drive was also observed at the institute from 10th August to 15th August in connection with the Independence Day celebrations.

10th Annual Review Meeting of ICAR Seed Project

10th Annual Review Meeting of ICAR Seed Project was held on 24th to 25th August, 2015 at ICAR-CCARI and Shri. Pratap Singh Raoji Rane, Former Chief Minister of Goa was the chief guest. The other dignitaries were Dr. JS Sandhu (DDG (Crops), ICAR), Dr. RR Hanchinal (Chairperson, PPV&FRA), Dr JS Chauhan (ADG (Seeds), ICAR) and Dr S Rajendra Prasad (PD, DSR, Mau). Dr. NP Singh, Director, ICAR-CCARI explained the activities and achievements of the institute. Dr. JS Chauhan, ADG (Seed) presented the insights of the ICAR Seed Project. Decadal progress of ICAR Seed Project was presented by Dr. S. Rajendra Prasad (PD, DSR). Shri. Pratap Singh Raoji Rane emphasized on the research aspects of salt tolerant varieties for Low lying lands in the state of Goa. Guest of Honour Dr. RR Hanchinal congratulated all the scientists involved



in this project for making tremendous improvement in producing and making available the quality seed of newly released varieties to the farming community of the country. In the Presidential address, Dr. JS Sandhu highlighted the importance of Seed Project mentioned the use of biodiversity in improving the existing varieties.



IPR CELL ACTIVITIES

Copyright Application

Application for copyright registration of the software entitled "Soil Test Based Fertilizer Recommendation Goa (STFR-GOA) is sent to Inventillect Consultancy Services Pvt. Ltd., Pune, and is admitted before the Copyright Office with Sr. No. 5028/2015CO/SW.

Patent Filing

- An application for technology entitled "Process For Fermentation of Cashew Apple Juice Using Microbial Consortium" with (Patent No. 150/MUM/2014) has been published in official journal of the Indian Patent Office on 28th August 2015.
- Application for filing of provisional patent application for technology entitled "Extender for Preservation of Boar Semen" has been recorded by the Indian Patent Office on 11th August, 2015 ("Priority Date") at permanent serial No. 3037/MUM/2015 and further procedure is under process.

Meetings with DIVEGOA

A meeting of ITMU members and all scientists was conducted on 5th August, 2015 with personnel from DIVEGOA, Diveshop and Training Centre, Goa in order to explore specific research activities in the light of signing of MoU for research purpose. Mr. Ajay Patil, Director, DIVEGOA presented detail activities that are undertaken by DIVEGOA before ITMU members and all the scientists.

IPR Meetings Conducted

Two meetings of Institute Technology Management Unit (ITMU) were conducted during the period (Dates: 1-7-2015, and 5-8-2015)



Workshop/Seminar/Symposia/Training attended

Date	Name of Scientist	Programme	Venue
14 th to 16 th May, 2015	Dr. NP Singh	Meeting of Vice Chancellors of AUS and ICAR Directors	NASC Complex, New Delhi
4 th June, 2015	Dr. NP Singh	State level Executive Committee meeting on Soil Health Card Scheme under National mission of Sustainable Agriculture	Secretariat, Porvorim, Goa
22 nd June, 2015	Dr. NP Singh	Task Force on Agriculture development	Secretariat, Porvorim, Goa
25 th June, 2015	Dr. NP Singh	SLSC meeting of Rashtriya Krishi Vikas Yojana	Secretariat, Porvorim, Goa
25 th to 27 th July, 2015	Dr. NP Singh	ICAR Foundation Day and National Conference on KVKs	Sri Krishna Memorial Hall, Patna, Bihar
14 th May to 14 th August, 2015	Ms. SR Maneesha	Professional Attachment Training on "Molecular marker techniques in mango and cashew"	NBPGR, New Delhi
4 th to 5 th August, 2015	Dr. R Ramesh	Workshop of nodal officers of ICAR on KRISHI portal and Research Data Repository	NASC Complex, New Delhi



9 th to 11 th August, 2015	Ms. SR Maneesha	National symposium on Germplasm to gene: Harnessing biotechnology for food security and Health	NASC complex, New Delhi
20 th August, 2015	Dr. S. Priya Devi	One day Workshop on Garcinia	CHES, Chetali, Karnataka
21 st to 22 nd August, 2015	Dr. R Ramesh	NABS National seminar on Biological products for crop, animal and human health- problems and prospects	University of Mysore, Karnataka
26 th August, 2015	Dr. NP Singh	Task Force on Nutmeg at College of Horticulture	Mulde, Sindhurg, Maharashtra
29 th August, 2015	Dr. NP Singh	24 th Annual festival of Plants and flowers	St. Francis Xavier's High School, Siolim, Goa

PERSONALIA

Awards/Recognition

Dr. R. Ramesh

- Conferred Fellow of National Academy of Biological Sciences (FNABS) by the President, NABS on 22nd August, 2015 to honour the significant contributions in research, extension and academics in the field of Agriculture-Plant Pathology



Smt. Lizette Noronha

- Received the award for the Administrative Category Employees of ICAR at the hands of the Hon. Union Minister of State for Agriculture Dr. Sanjeev Kumar Balyan and Shri Mohan Bhai Kundariya in the presence of Dr. S. Ayyappan, Hon. Secretary DARE & Director General ICAR and Shri R. Rajagopal, Additional Secretary, DARE & Secretary, ICAR, New Delhi.



Promotions

- Shri. Rahul Kulkarni** promoted to Senior Technical Officer. (T-6)
- Granted financial upgradation to the following Skilled Support Staff on completion of 30 years of service under the MACPS.

Sr.No.	Name & designation
1	Shri Subhash Mellekar, Skilled Support Staff
2	Shri Gokuldas Kaskar, Skilled Support Staff
3	Smt. Rukma R Naik, Skilled Support Staff
4	Shri Daku Kankonkar, Skilled Support Staff
5	Shri Dugu Khandeparkar, Skilled Support Staff
6	Smt. Farida B Jabbarkhan, Skilled Support Staff

Superannuation

Shri. VY Gaonkar, Subject Matter Specialist (Horticulture) superannuated w.e.f 31st July, 2015.

