संवादपत्र
NEWSLETTER

भाकृअनुप - केंद्रीय तटीय कृषि अनुसंधान संस्थान

(भारतीय कृषि अनुसंधान परिषद)

ICAR-Central Coastal Agricultural Research Institute

(Indian Council of Agricultural Research)

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हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

Agrisearch with a human touch

In this issue

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Director's Desk

Kokum, botanically *Garcinia indica* Choisy (Thours) is a commercially under-utilized perennial tree found wide spread as a native species in Western Ghats of the country. Efforts have been taken by our institute to identify promising/ mother trees of kokum, those are early bearers (March-early May), high yielders (tree yield 150-200 kg/tree/year) and with best quality characters for processing into squash (amrut kokum), salted digestive drink (agal), dried rind (sola) etc. The accessions were also clustered and promising genotypes identified. Softwood grafts have been made out of the mother trees and planted in germplasm bank for evaluation, which also acts as an *ex-situ* gene bank. The IC numbers have been obtained from NBPGR for six local accessions.

Subsequently, work on Development of DUS guidelines for kokum was initiated, along with BSKKV, Dapoli. Variation in fruiting season, sex of trees, types of flowers and fruit characters were studied in more than hundred trees of *Garcinia indica* from nine different populations geographically distributed in Goa by assessing the sexual dimorphism in floral traits and phenotypical variations of fruit. Besides this, the value addition in kokum is also promoted as an enterprise, among farmers of Goa.

Kokum has got multiple uses and therefore finds an inevitable place in lifestyle of local population. It has got anti-scorbutic, astringent, demulcent and antiseptic properties. The fruit juice is used for preparation of syrup, squash, RTS, agal (salted juice) etc. The fruit rind is a rich source of alpha-HCA (hydroxy citric acid) which has been proven to inhibit fat accumulation in mammalian body cells. The rind is also a rich source of anthocyanin that can be used as natural food colour. The fruit rind is shred into pieces and sun dried and subsequently preserved by soaking in concentrated kokum juice along with salt. This produce, locally termed as 'amsul/ sola' is used as a principle souring agent in the Goan cuisine. The seeds of kokum fruits are rich sources of edible fat called "Kokum butter". It is used as a component in cosmetic, pharmaceutical and confectionery industries, besides culinary purposes.

DIRECTOR

RESEARCH HIGHLIGHTS

Effect of salinity tolerant bioformulation application on the rice plant growth and yield under coastal saline soils

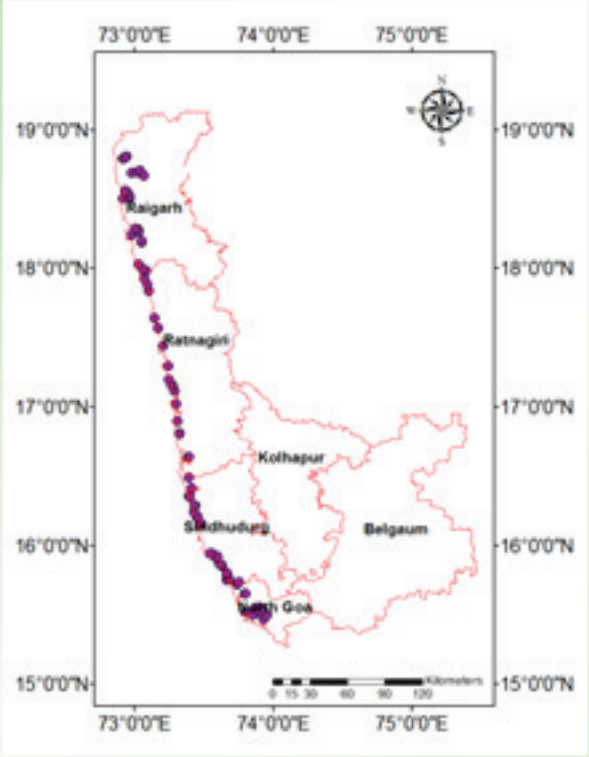
(Mahajan GR and Ramesh R)

The application of the salinity tolerant bioformulation improves the rice (variety Korgut, salinity tolerant local land race) grain and straw yield significantly ($p<0.05$) under field condition. During primary investigation, under controlled condition (pot experiment) *Bacillus methylotrophicus* strain STC-4 was found to improve the rice plant growth and soil biological activity. The application of the strain STC-4 two times - at sowing and 7 days after sowing could result in grain and straw yield of 1.19 and 1.615 t/ha, respectively as compared to the untreated control with corresponding values 0.91 and 1.578 t/ha. The grain yield difference between the nursery treatment of bioformulation and its field application was insignificant. This result has practical utility as the field application of bioformulation depends on the rainfall and waterlogging and also adds to labor cost. Further, combined application of bioformulation with farmyard manure and recommended doses of fertilizer improved the rice grain and straw yield significantly over untreated control and nursery treatment. Highest grain and straw yield of 1.317 and 2.51 t/ha, respectively was recorded in treatment with combined application of recommended dose of fertilizer and bioformulation.

Characterization of coastal saline soils of west coast of India

(Mahajan GR)

The descriptive statistics of the soil chemical properties of the coastal saline soils (number of soil samples 240, GPS based) of the coastal districts of Maharashtra and Goa revealed that, there is a co-existence of the acidic soil reaction (<7.0) and high soil salinity (electrical conductivity (Mean $EC_{1:2.5}$ = 13.55 dS/m and EC_e= 24.66 dS/m). This is a unique characteristic of these soils unlike high pH and high EC in the soils affected with secondary salinization. Due to fallowing and heavy salinity tolerant vegetation cover the soil carbon status of these soils is high (1%) with an appreciable soil organic carbon stock of 20.11 t/ha up to a depth of 0.15 m. These soils are deficient with respect to soil available nitrogen (218 kg/ha) and sufficient in soil available phosphorus (43.40 kg/ha), potassium (1469 kg/ha) and sulphur (50.38 kg/ha). Thus, the soils are fertile but not productive. The correlation matrix of salinity and soil biological activity revealed depressive effect of the salinity levels on dehydrogenase ($r=-0.66$, $p\leq0.05$) , urease ($r=-0.69$, $p\leq0.05$) activity and basal soil respiration ($r=-0.72$, $p\leq0.05$).



GPS locations of sampling site in Maharashtra and Goa

Integrated nutrient management in banana and papaya

(Maneesha SR and Mahajan GR)

For the sustainable fruit crop production in coastal regions, Integrated Nutrient Management (INM) practices should be included in the production technology. An integrated nutrient management experiment with different management practices was initiated in banana (Variety: Velchi and Saldatti) and Papaya (Madhu bindhu) at the institute farm C. Initial soil reactions and soil nutrient parameters were analyzed before planting. The soil is Red laterite type with pH of 5.25. Electrical conductivity of the soil is 0.8 dS/m. The soil contains good amount of organic carbon (1.8%). Available Nitrogen, Phosphorus and Potassium in the soil were 208.5 kg/ ha, 25.39 kg/ ha and 290.37 kg/ ha respectively. The treatments for this experiment are T1: Absolute control, T2: RDF alone, T3: RDF +INM mixture, T4: RDF+ Commercially available mixture and T5: Organic cultivation practices.

Diversity of Kokum Flowering Behaviour in Goa

(Priya Devi S.)

Sexual variation was estimated in about hundred trees of *Garcinia indica (*Kokum) from 9 different populations geographically distributed in Goa. To determine the extent of variation among and within the populations, several floral traits were studied to assess the sexual dimorphism in floral traits. Flowers are either male or female or bisexual which occur separately on different plants (dioecious or hermaphrodite) or appear together on the same plant (monoecious/andromonoecious/ trioecious). The male buds are short and roundish (0.2 mm to 0.5 mm), whereas, the female buds are oval in shape and vary in size (0.5 mm to 1.63 mm). Female flowers are solitary or occasionally in clusters developed at the both terminal and axillary buds. Primary parts of the flowers in kokum comprised four sepals and four petals which were different in size, colour and rarely in number. Many stamens, both filamentous and sessile anthers, are observed in both male and female flowers in different locations. The number of anthers, ovary locules and stigmatic lobes varied from 20 to 60, 4 to 9 and 1 to 6, respectively.

Characterization of fish community structure on a shipwreck in Goa

(Sreekanth GB, Manju Lekshmi N and Ajey Patil)

Through underwater visual census (UVC), total of 62 fish species was recorded from shipwreck, SS Rita in Grande Island and the most abundant species were *Pempheris multiradiata, Ostorhichus compressus, Lutjanus indicus, Heniochus acuminatus, L. fulvus, Epinephelus coioides, Pomadasys guoraca, P. furcatus, Odonus niger, E. erythrurus* and *Monodactylus argenteus*. Fishes from all trophic levels (herbivores, planktivores, carnivores, omnivores) were observed on the wreck. The high diversity and abundance of important fish species on the wreck site compared to natural reefs indicated that it support the local fisheries. There were 32 ecologically less resilient fish species and 23 vulnerable fish species observed on the wreck. This underlines that the wreck act as a refuge for the vulnerable fish species. The higher habitat complexity on the wreck site might have attracted the fish assemblages on the shipwreck.

NEW INITIATIVES

Fertigation and flower induction studies in Pineapple

(Maneesha SR)

Standardization of fertigation levels and flower induction treatments in pineapple (*Ananas comosus* (L.) Merr.) variety 'Giant Kew' was initiated in the institute. The programme is guided by Dr. R.M. Vijayakumar, Professor and Head, Department of Fruit crops, TNAU, Coimbatore as the Chairman and Dr. S. Priya Devi, Senior Scientist (Fruit Science), Horticultural Sciences, ICAR-CCARI as the Co-chairperson. The objectives of the study are to find out the effect of different levels of fertigation and different chemicals in flower induction, growth, yield and quality of pineapple variety Giant Kew under the agro climatic situations of West Coast India.

Colchicine induced tetraploids of banana

(V Arunachalam)

Banana is an important fruit crop in most districts of coastal India. *Musa acuminata* (AA) and *Musa balbisiana* (BB) are the two wild progenitors of modern cultivated banana and plantains. Synthetic tetraploid bananas are rare and have scope in genetic improvement. Growing shoot tips of banana suckers were treated with colchicine 0.2 % solution to induce polyploidy during last year. The attempt was made in the Goan Velchi cultivar with diploid AB genome. 19 putative tetraploid plants along with 7 untreated diploid check plants of the variety are evaluated. One each of the putative polyploidy and untreated diploid banana plant initiated flowering during the period of report. The plants were scored using 15 diagnostic traits to ascertain the ploidy level and genomic constitution. Similar efforts were made on the wild progenitors *Musa balbisiana* (BB) of cv. Rupa (BB) so as to obtain BBBB plants.

Visit of Dr. Trilochan Mohapatra, Secretary (DARE) & DG (ICAR), New Delhi

Dr. Trilochan Mohapatra, Secretary (DARE) & DG (ICAR), New Delhi along with Shri. Chhabilendra Roul IAS, Additional Secretary, (DARE) & Secretary, (ICAR), Dr. K Alagusundaram, DDG (Agril. Engineering and NRM), Dr. H Rahman, DDG (Animal Sciences), Dr. JK Jena, DDG (Fisheries Science), Dr. NS Rathore, DDG (Education) and Dr. AK Singh, DDG (Agril. Extension) visited this Institute on 07th September, 2016. Dr. Trilochan Mohapatra, laid the foundation stone for the construction of farmers training cum community hall. The dignitaries visited the field and experimental plots, laboratories of ICAR-CCARI and KVK, North Goa. During the interaction meet, Dr. NP Singh, Director, ICAR-CCARI welcomed dignitaries and made a brief presentation about the research achievements. DDG (Agril. Engg and NRM.) and Additional Secretary (DARE) addressed the gathering and emphasized the need of site specific research programmes and techno-economic analysis of research output and technologies. During his address, DG, appreciated the efforts from the Director, scientific, technical, administrative and supporting staff for significant achievements in research and extension programmes. Further, he urged that the Institute should carry out focused research programmes for the coastal regions in a collaborative mode including other crop specific institutions to avoid duplication of the activities.

Farm Input Distribution Programme in Ibrahmpur Village

A farm input distribution programme (bypass fat and poultry birds) to around 20 farmers were organised by hands of Mr. Ashok Dhawaskar, Surpanch, Ibrahmpur, on 23rd September, 2016. This Programme was organised under the collaborative project with ICAR-CIWA, Bhubaneswar. Mr. Viswanatha Reddy K, Scientist (Agril. Economics) briefly introduced about the project and forms of interventions -nutrition and livelihood interventions and Mr. Ashok Dhawaskar, Surpanch, Ibrahmpur explained the action plans and schemes of Goa government regarding the development of livestock. The presentation on latest fodder production technology was made by Dr. Sanjaykumar Udharwar, SMS, Animal Science. KVK, North Goa. Impact of these farm interventions on nutrition, livelihood and income of farmer beneficiaries will be evaluated in the next phase of the project.

हिन्दी पख़वाडा कार्यक्रम

भा.कृ.अनु.प. केन्द्रीय तटीय कृषी अनुसंधान संस्थान, इला, ओल्ड गोवा में सितम्बर 14–28, 2016 के दौरान हिन्दी पख़वाड़ा का आयोजन बड़े उत्साह एवं सुनिष्ठित रुप से किया गया। सितम्बर 14, 2016 को पख़वाड़े का उद्घाटन करते हुए निदेशकजी डॉ. (श्री.) ई.बी. चाकुरकर ने सभी कर्मिकों को पख़वाड़ा कार्यक्रम में उत्सुकता से भाग लेने के लिए प्रेरित किया। डॉ. मतला जूलियट गुप्ता, प्रभारी, राजभाषा ने पख़वाड़ा कार्यक्रम की रुपरेखा प्रस्तुत किया एवं सभी कर्मचारियों को उत्साह से पख़वाड़ा कार्यक्रम में भाग लेने का अनुरोध किया।

ICAR-CCARI conducted the Swachhta Campaign

Institute conducted Swachhta Campaign on 2nd October, 2016 under the dynamic leadership of Dr. EB Chakurkar, Director to commemorate the Swachh Bharat Mission of Govt. of India. The cleanliness drive has covered cleaning the areas in the institute and KVK campus. All the scientific staff of the Institute along with contractual staff, SRF's, RA's whole-heartedly participated in the cleanliness drive. stitute.

Visit of Shri. Parshottam Rupala, Honourable Union Minister of State for Agriculture and Farmers Welfare to the Institute

Shri. Parshottam Rupala, Honourable Union Minister of State for Agriculture and Farmers Welfare, Govt of India, visited the Institute on 4th October 2016 to review the research activities and different schemes for farmers by Department of Agriculture, Govt. of Goa. Shri. Vineet Verma, Director, Department of Agriculture and Cooperation, Ministry of Agriculture, Govt. of India, Shri. BR Singh, Secretary (Agriculture), Govt. of Goa, Dr. EB Chakurkar, Director, ICAR-CCARI, Shri. Ulhas Pai Kakode, Director, Dept of Agriculture, Govt. of Goa, officials and staff of ICAR CCARI and Department of Agriculture were present. Dr. EB Chakurkar presented the research activities undertaken and other information of the Institute. Honourable minister and other dignitaries appreciated the efforts of the ICAR-CCARI and Department and congratulated for receiving the national level award 'Krishi Karman Award 2014-15'.

Visit of Dr. C. D. Mayee, Ex-Chairman, Agricultural Scientists Recruitment Board

Dr. CD Mayee, Ex-Chairman, ASRB visited the Institute on 5th October, 2016. Dr. EB Chakurkar, Director and Scientists of the Institute welcomed him and explained the research activities being carried out in the Institute. He visited all the experimental units and laboratories. He appreciated the efforts of the Scientists and complemented the Director and staff for the work being carried out at the Institute.

III AAHP Convention and National Symposium on Poultry Health and Welfare

Association of Avian Health Professionals (AAHP) in collaboration with ICAR-CCARI, Old Goa organised a two days national symposium on Poultry Health and Welfare during 20th to 21st October, 2016 at Hotel Fidalgo, Goa. This symposium was an occasion in which researchers and industry personnel from India and abroad assembled to find out solutions for the poultry health and welfare. During the inaugural session of the function on 20th October, 2016, Dr. EB Chakurkar, Director, ICAR-CCARI welcomed all the delegates for the symposium. Shri. Francis D'Souza, Hon. Deputy. CM, Govt. of Goa inaugurated the National symposium. He highlighted the importance and scope of rural backyard poultry sector in Goa. He also stressed that the exchange of information and ideas about poultry health and welfare among industry people and researchers will definitely help in the management of diseases in poultry sector. Dr. NP Singh (Director, ICAR-NIASM), Dr. J M Kataria (Director, ICAR-CARI), Dr. Santhosh Desai (Director, Animal Husbandry and Veterinary Services, Govt of Goa) and Dr. MR Reddy (Principal Scientist, ICAR-DPR) were present during the inaugural session. Two eminent scientists Dr. RNS Gowda and Dr. JM Kataria were felicitated with Life time achievement award of AAHP for their significant contribution to the vaccines and diagnostics in the poultry sector. In this symposium, officials from ICAR institutes, NABARD, Department of Animal husbandry, Agriculture and other agencies were present. Dr. RS Rajkumar (Scientist,ICAR-CCARI) was organising secretary of the symposium.

During the symposium, a Scientist-Industry interface meeting was conducted to deliberate on various issues pertinent to poultry production, health, welfare and antibiotic use in food producing animals. The proceeding and the recommendations of the conference will be sent to the appropriate agencies. During the symposium, awards were conferred for best oral and poster presentations.

"Swachha Bharat Awareness Camp" held in Collaboration with Old Goa Panchayat

A Swachha Bharat Awareness Camp under ''Swachhata Pakhwada'' was organised by the Institute in Collaboration with Old Goa Panchayat near Old Goa Educational Society at Katya Bhat on 23rd October, 2016. Dr. EB Chakurkar, Director in his opening address emphasised on the use of toilets to avoid the unhygienic surroundings. He also said that segregation of the garbage, waste material is very important at individual level before handing over to the garbage collecting workers for proper garbage management. Guest speaker Dr. PB Usgaonkar, Medical Officer discussed the importance of cleanliness of surroundings and its impact on personal hygiene. Shri Vinayak Fadte, Sarpanch, Se Old Goa chaired the programme and interacted with the participants and discussed the issues related to the toilets construction, garbage collection. A Cleanliness drive was also undertaken wholeheartedly by all the participants at the venue after the programme. Shri Vinod Ubarhande, Farm Superintendent, ICAR CCARI hoisted the programme. Shri Edward Crasta, Shri Vishwajeet Prajapati and officials form panchayat side also participated in the programme.

Lecture on "How to keep our environment clean and the different ways cleanliness impacts on productivity in the office"

Shri KD Sadhale, Environmentalist, Nirmal Vishwa was the "Chief Guest" and he delivered a lecture on "How to keep our environment clean and the different ways cleanliness impacts on productivity in the office" on 22nd October, 2016. Mr. Sadhale explained that garbage management should be a local initiative wherein small groups dispose their biodegradable garbage on their own. As far as plastic is concerned, Mr. Sadhale preaches the four Rs - Refuse, Reduce, Repair, Recycle. Smt. Rekha Joshi also gave talk on Waste Management & Protecting Environment. She also demonstrated a coal stove which is environment friendly and also economical.

Vigilance Awareness Week celebrated

the Vigilance awareness week was organised during 31st October to 5th November, 2016 at the institute with a main focus "Public participation in promoting integrity and eradicating corruption". In this connection, pledge was taken on 31st October, 2016. Dr EB Chakurkar, Director (A) and Dr V Arunachalam, Vigilance Officer of the institute and other scientists, staff of the institute along with Dr NP Singh, Director ICAR-NIASM Baramati and delegates of the ICAR Short course on agro-ecotourism participated in the pledge.

A short Course on "Agro-Ecotourism: An emerging enterprise for agricultural

Institute organized a short Course on "Agro-Eco tourism: An emerging enterprise for agricultural Diversification" sponsored by ICAR. This course was conducted from 31st October to 9th November, 2016. This course was funded by the Education Division of ICAR as a part of capacity building program for Scientists and the Faculty of State Agricultural and veterinary Universities. Total 17 participants from 10 states and one Union Territory (A&N Islands) attended the course. The course was inaugurated by Shri. Nilesh Cabral, Hon'ble MLA and Chairman of Goa Tourism Development Cooperation. During the inaugural session, Dr. EB Chakurkar, Director(A), ICAR-CCARI, Old Goa welcomed the guests and the participants. Dr. NP Singh, Director, ICAR-NIASM, Baramati chaired the inaugural session. Dr. RS Rajkumar, Scientist and Coordinator of the program briefed the course content and Dr. M. Thangam, Principal Scientist and Coordinator of the program proposed the Vote of thanks. During the course, the participants were exposed to various topics of agro- ecotourism viz., Basic components of Agro-Ecotourism (AET); Spices, Plantation and Medicinal & Aromatic Crops as a component of AET; Exotic crops ; Minor fruits as nutraceuticals; Traditional flower crops; IPM for insect pests in AET cropping systems; Conservation of animal genetic diversity through agro eco tourism; Organic animal husbandry practices; Post Harvest Management and Value addition; Ornamental Fish Culture techniques; Recreational Fisheries: Deep sea biodiversity and Diving. Field visits were arranged for the trainees to Sahakari Spice farm, Ahire Agro tourism center, Sattari., Dive Goa, Candolim, Shriram Goshala, Valpoi.

The Third meeting of VII Research Advisory Committee (RAC) of this Institute

The third meeting of the VII RAC was held on 28th to 29th November, 2016 and the meeting was chaired by Dr. RB Deshmukh , Chairman, RAC and attended by following members Dr. S Bhaskar, ADG (AAF&CC), ICAR, New Delhi, Dr. SP Bharadwaj, Dr. DP Waskar, Dr. N Sarangi and Dr. ID Tyagi and Dr. M Thangam, Member Secretary. Dr. NP Singh, Director, NIASM, Baramati was a special invitee. Mr. Shri. SV Jambhale and Shri. BN Komarpant were also present as farmer representatives. The programme began with the introduction of Chairman and members of the VII RAC and also the scientists of ICAR–CCARI, Goa and KVK, North Goa. Dr. E. B. Chakurkar, Director, ICAR–CCARI, Goa briefed research achievements of the Institute accomplished in 2015-16. Later the action taken report for the last year RAC recommendations was presented by Dr.M Thangam, Principal Scientist and Member Secretary, RAC and reviewed by the committee. Presentations were made by all the Scientists highlighting the research work done by them during the last year. The RAC after detailed deliberations and discussions, made recommendations and suggested the scientists to propose their projects within the framework of these recommendations.

ICAR-NBSS&LUP and ICAR-CCARI organized an orientation training on soil sampling for fertility assessment

An orientation training on Soil sampling for fertility assessment was organized at the institute in collaboration with ICAR-NBSS&LUP and Dept. of Agriculture, Govt. of Goa, on 1st December, 2016. The training was organized under the project funded by RKVY, Govt. of Goa entitled 'Characterization and mapping of land use resources of Goa in reference to cultivated and fallow land use system to step towards enhancing agricultural productivity. On the occasion, Dr. M Thangam, Director-In-Charge, ICAR-CCARI, Old Goa emphasized on the importance characterizing and mapping of land use of Goa and soil fertility mapping. He appealed to the trainees that the soil sampling undertaken by them would be of paramount important with respect to the output of the project. Dr. Ramaurthy, Pr. Scientist (Agronomy), ICAR-NBSS&LUP explained for how to read the maps for reaching the sample points or grid points. The trainees consisted of participants from RCPCR School of Agriculture, Savoi-Verem (Principal and Students) and other associated educational organizations.

ICAR-CCARI participated in 4th International Agronomy Congress at ICAR-IARI, New Delhi – 2016

The Institute participated in 4th International Agronomy Congress – 2016, the biggest agricultural exhibition, held at ICAR-IARI, New Delhi from 22nd-26th November, 2016. A team of scientists from ICAR-CCARI, Goa participated in the event. Dr. S Bhaskar, ADG, ICAR and Dr, Gurbachan Singh,Chairman, ASRB, New Delhi visited the stall. Over 5000 people visited the stall and they sought information on agro eco-tourism, bypass fat, boar semen extender, integrated farming system, local land races of Goa with respect to rice and cowpea, post-harvest management in cashew and nutmeg.

ICAR-CCARI participated in 4th International Agronomy Congress at ICAR-IARI, New Delhi – 2016

Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA), Ministry of Agriculture & Farmers' Welfare, New Delhi has bestowed Plant Genome Saviour Community Award upon Khola/Canacona Chilli Cultivators Group, South Goa. The Plant Genome Savior Community Award is conferred by Govt. of India through PPV&FRA under the provision of section 45 of PPV&FR Act, 2001. The Khola community was honoured for their contribution in conservation and preservation of Khola Chillies through generations. The villagers in the Khola village are actively involved in conservation of the traditional local variety of Chilli known as Khola / Canacona Chilli, Sri. Prabhakar Keny, a progressive farmer from South Goa has also been awarded 'Farmers Recognition Reward'. Shri Keny is a conserver of Cashew, Coconut, Arecanut, Mango, and Jackfruit along with spice/condiment crops such as Black pepper, Nutmeg and Vanilla. Two promising local selection in Cashew viz. Balli- 2 and KN – 2/98 are originally located from his farm. He has also developed a unique technique for the propagation of cashew, mango, nutmeg and jackfruit.

WORKSHOP/ SEMINAR/SYMPOSIA/ TRAINING ATTENDED

Date	Name	Programme	Venue
3rd September, 2016	Dr. EB Chakurkar	Focus group meeting organized by Goa State Biodiversity Board on at	Institute Menezes Braganza, Panaji, Goa
22nd September, 2016	Dr. EB Chakurkar	4th Meeting of Regional Advisory Group (RAG) for farms, Farmers and Rural Areas	NABARD Conference hall, Nizari Bhavan, Panaji, Goa
29th to 30th September, 2016	Dr. Priya Devi S	National Conference on Innovative Food Processing Technologies for Food and Nutritional Security	CIPHET, Ludhiana,Punjab
13th to 14th October, 2016	Dr. EB Chakurkar	National Conference on Cashew and Cocoa	Dept of Agriculture, Govt. of Goa, Panjim, Goa
1st to 21st November, 2016	Shri. Sujeet Desai	Winter School on " Advanced Technologies in Watershed Hydrology to Mitigate Climate Change Impact on Soil and Water Resources"	ICAR-IISWC, RC Udhagamandalam, Tamil Nadu
6th to 9th November, 2016	Dr. Arunachalam V Dr. Thangam M Dr. Priya Devi S Dr. Manohara KK Dr. Safeena SA Dr. Sreekanth GB Ms. Maneesha SR	1st International Agro biodiversity Congress	NASC Complex, New Delhi
10th to 13th November 2016,	Dr. N.P. Singh	International conference on Integrated Land Use Planning for Smart Agriculture -An Agenda for Sustainable Land Management (ICILUPSA-2016).	NBSS&LUP, Nagpur, India
24th November 2016	Dr. Mahajan GR	4th International Agronomy Congress	ICAR – IARI, New Delhi
10th to 12th December, 2016	Dr. Arunachalam V	3rd International symposium on coconut research & development (ISOCRAD 3)	ICAR-CPCRI, Kasaragod,Kerala
19th to 30th December, 2016	Dr. EB Chakurkar	Management Development Programme on Leadership Development	NAARM, Hyderabad, Telengana

PERSONALIA

Awards and Recognitions:

Dr. V Arunachalam
Received the "Certificate of appreciation (Bronze category) from Central Board of Direct taxes Ministry of Finance for contributing to tax and filing of returns for assessment year 2016-17"