संवादपत्र
NEWSLETTER

भाकृअनुप– केंद्रीय तटीय कृषि अनुसंधान संस्थान
(भारतीय कृषि अनुसंधान परिषद)
ICAR-Central Coastal Agricultural Research Institute
(Indian Council of Agricultural Research)

Vol. 17 No. 3 | ISO 9001 : 2008 Certified Institute | September to December, 2015

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

Agrisearch with a human touch

In this issue

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Impressions, Belgaum

From Director's Desk...

Goa produces approximately only 30% of its requirement of poultry eggs and meat and is solely dependent upon the neighboring states for the additional demand. Though commercial poultry development in the country has taken a quantum leap in the last three decades, the growth has not penetrated into the state of Goa due to the unfavorable climatic conditions and the terrain for the commercial poultry. Therefore, the rural backyard poultry has been the most suitable alternative protein source for the Goan Population. The poultry feeds and feed ingredients are being imported from the neighboring states of Karnataka and Maharashtra. In this situation, scientific efforts for introduction of the improved backyard varieties of rural poultry adoptable for the state of Goa and effective usage of the existing feed resources and strategic approaches for adoption of new technologies are highly essential.

ICAR-CCARI has the responsibility of increasing the agricultural production and productivity by conducting applied and strategic research. Research has been conducted in this institute on various aspects of rural backyard poultry. Under financial assistance of Rashtriya Krishi Vigyan Yojana (RKVY), a project was undertaken entitled Rural Poultry Production for livelihood security in Goa during 2011 to 2013. Under this project, a poultry hatchery of 5000 eggs capacity was installed with semi-automatic hatcher and setter. Two varieties of backyard poultry were procured i.e., Vanaraja (Dual purpose) and Gramapriya (Egg purpose) from ICAR- Directorate of Poultry Research, Hyderabad. The eggs produced from these parent stocks were incubated and about 1900 chicks were distributed the beneficiaries of Goa.

Indian Council of Agricultural Research under XII five year plan has identified ICAR-CCARI as one of the center for implementation of Poultry Seed project. The main objective of this program is to increase the availability of eggs and chicken meat in remote rural/tribal areas of the state through rural poultry farming (RPF) with improved chicken varieties. Under this project parent stock of improved chicken varieties (Gramapriya, Vanaraja and Srinidhi) will be maintained and propagated for the distribution to the farmers. Capacity building programs will also be conducted to the beneficiaries with regard to the rural poultry farming. Under the poultry seed project, a parent shed, brooder cum grower shed and a hatchery was sanctioned by the ICAR and will be operational by the end of 2015. Once the facility is fully operational, annually 15000 chicks will be distributed to the farmers of Goa. Which in turn will significantly increases the population and production of rural poultry in Goa.

(Narendra Pratap Singh)

RESEARCH HIGHLIGHTS

Betacyanin rich amaranth for food colorant use

(V Arunachalam)

Tamdi bhaji or Red leaf coloured amaranth varieties have potential in food industry as edible pigments. Germplasm prospection collecting mission during 2011 identified nearly 24 amaranth accessions from different parts of Goa state. Leaf color was scored in 30,350 progeny seedlings of 17 genotypes to estimate the out crossing rate and genetics of the trait. Leaf colour in amaranth is controlled by a single dominant gene at R locus. The genotypes RR, Rr and rr governing red, intermediate and green leaf colour in vegetable amaranth respectively. The accessions were characterised using hunterlab leaf colour parameters and spectrophotometric assays with an objective of identifying betacyanin rich accession. A potential betacyanin pigment rich (416.26±19 µg/g fresh weight) genetic stock (IC-598190) was identified from the study. It was superior to Arka Arunima a released red amaranth variety which had only 314.89±22 µg/g.

Promising salt tolerant bacterium for plant growth promotion in coastal areas

(R Ramesh and GR Mahajan)

Bacillus methylotrophicus strain STC-4 was isolated from rhizosphere soil of cowpea. The strain is a plant growth promoter and salt tolerant (upto 1.5M). The strain was identified based on morphological, biochemical and 16S rRNA sequence (NCBI Acc. N. KU682846). Morphological description: Irregular colony with undulate margin. Surface: rough, Appearance: dull; Opaque, Gram positive rods with terminal spore. Biochemical characteristics: Positive to VP test, Citrate test, Casein test, Starch hydrolysis, Esculine Hydrolysis, Nitrate reduction, Cytochrome oxidase, Catalase and Gelatin hydrolysis. Negative to MacConkey, Indole test, Methyl red test, Urea hydrolysis and H2S gas production. The culture is deposited in the national repository of NBAIM, Mau (Acc. N. NAIMCC-B-01890). Application of this strain to paddy crop recorded highest soil biological activity in terms of soil enzymes and soil microbial biomass as fraction of soil organic carbon and basal soil respiration. Significant improvement in plant growth parameters also recorded in the treatments.

Root rot/ collar rot in cashew report from Canacona, South Goa, Goa

(R Ramesh and AR Desai)

In Canacona, mortality of two year-old cashew tress was reported in July, 2015 and 30-40% trees in a plantation were dead. Symptoms include, yellowing of leaves and defoliation; drying of entire tree in 1-2 months; infected tap root appears black from outside; dead and rotten lateral roots; oozing from rotten bark; brown to black discolouration of tissue below bark; dark violet colouration just below bark tissues and fermented smell. It appears the blackening was only from the collar region and extended down. Sample analysis in the laboratory and microscopic studies indicated the fungi grew from all the soil sample is *Pythium sp.* Root rot in cashew caused by *Pythium* was reported in Nigeria. Except this location, death of cashew trees due to root rot was not reported in Goa. The farmers were advised to adopt management practices for *Pythium/ Phytophthora* and no further mortality was reported. It needs to be investigated if there is further report on the mortality in cashew due to root rot.

Development of liquid formulation of bacterial bio-agents

(R Ramesh)

One of the constraints in the application of bio-agents for growth promotion, insect pest and disease management is non-availability of quality formulations. The optimum parameters, nutrient requirements for maximum growth and mass production of a promising bio-agent in a laboratory scale fermenter were standardized. Different liquid formulations were standardized and studied for their shelf life over a period of time. The bacterium is viable over a longer period and the population in various liquid formulations is above 7 Log CFU mL-1 after one year of evaluation.

Occurrence of Auger and Bark beetle on cashew

(R Maruthadurai)

The auger beetle Sinoxylon anale (Bostrichinae) and bark beetle Coccotrypes spp (Scolytinae) were found on partially or completely dead cashew trees which were infested by stem borers. Both grubs and adults of auger beetle bore in to the stem and branches and cause damage. Damage symptoms include occurrence of small bore holes and extrusion of fibrous dust coming out of bore holes. Adult is a small beetle dark brown to black in colour. Coccotrypes spp is generally a seed-infesting bark beetle. We found this species in dried branches and bark of cashew trees. Scrapping of the bark and small feeding galleries was observed.

Egg quality characteristics in Srinidhi chicken reared under coastal environment

(RS Rajkumar)

A study was conducted to evaluate the egg quality of free ranging Srinidhi birds in compared to deep litter and cage system. A total of 80 Srinidhi layers (35 weeks old) eggs were collected from three different groups and analyzed for external egg quality characteristics (weight, shape index, specific gravity and shell thickness) and internal egg quality characteristics (Albumen index, yolk index, yolk color and Haugh Unit Score). A significantly higher specific gravity (1.09±0.00) and yolk color (8.20±0.18) in deep litter system and significant higher yolk index (0.47±0.00) in cage system were observed. All other external and internal quality traits didn't show any significant differences between the groups. The results revealed that the free-range rearing do not have any adverse effect on the egg quality which is a positive sign to popularize Srinidhi as a free range bird in coastal areas.

Performance and Feeding habits of Konkan Kanyal Goat in coastal climate of Goa

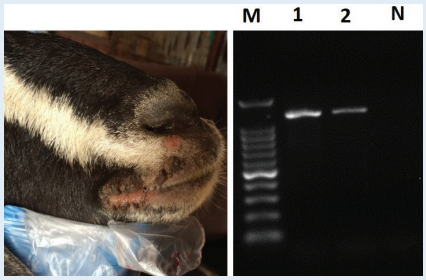
(N Shivasharanappa, EB Chakurkar, Susitha Rajkumar, HB Chetan Kumar, RS Rajkumar)

Konkan kanyal Goat is a meat type breed well suited to high rainfall, hot and humid climatic situation. The body weight of adult bucks (male) and does (Female) is about 35 and 30 kg respectively. They are regular breeders and breed round the year, with a twinning percentage of about 66 %. The semi-intensive rearing system is well suited for coastal region as this area is full of shrubs and rain tree leaves which is better suited for goat farming. The animals are browsers and pluck the tender leafy twigs of herbs, shrubs, small tree leaves like subabul, drumstick, bamboo, mulberry etc. In coastal region, the feeding of these animals is simple as they relish tree leaves and with small quantity of concentrate feed (200-300g/day/animal) which meets their nutritional demand. Raised platform housing system should be practiced with the area of 1.5-2 m^2/adult and 0.5-1m^2/kid. Nutritional analysis of fodder crops/trees showed higher content of crude protein in drumstick and subabul leaves.

Rapid Diagnosis of Contagious Ecthyma viral infection (ORFV) in goats by PCR assay targeting major envelope protein (B2L) gene

(N Shivasharanappa, Susitha Rajkumar, HB Chethan Kumar)

Contagious ecthyma or Orf, is an acute, contagious and zoonotic viral disease of goats, sheep and wild ruminants caused by orf virus (ORFV) of Poxviridae. It is characterized by maculopapular, vesicular pustules and scabs on the skin around the lips, commissures, nostrils and mouth with morbidity near to 100% and 20% mortality in young ones. Orf viral infection was suspected in 11 animals (1year age) during February 2016 in a flock of 45 goats with clinical signs such pustular/scab lesions in commissures, lips and around the mouth. The scab material was collected under sterile conditions and shipped in ice pack to laboratory. The affected animals were treated with 5% potassium permanganate solution application on skin lesions with Gentamycin 10mg/kg BW and Meloxicam 5 mg/kg BW for 6 days.

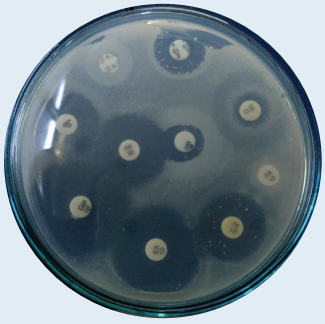


The animals were recovered after 8 days as the infection is self-limiting. DNA was isolated from scab material and PCR amplification of major envelope glycoprotein (B2L) gene (1127bp) was carried out and the virus (ORFV) was confirmed. Sequencing and phylogenetic analysis of B2L gene is under process. The study has significant implications in understanding the molecular epidemiology of ORFV in goats from coastal humid regions of India.

Antibiotic sensitivity screening of vaginal swab samples from endometritis affected cattle herd

(Susitha Rajkumar)

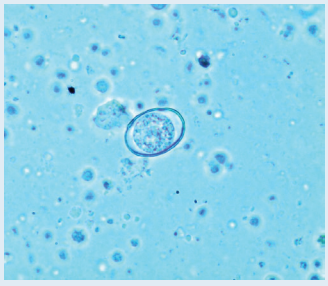
A total of 6 vaginal swab samples were obtained from a private cattle farm from Goa where animals were suffering from endometritis. Swab samples were subjected to culture and screening for antibiotic sensitivity using antibiotic discs impregnated with antibiotic drugs which were commonly used for treatment and available in the market. The results revealed that the mixed bacterial culture from the vaginal swab in the samples were resistant to many commonly used antibiotics like Streptomycin, Penicillin G, Ampicillin, Cloxacillin, Cephalexin and Oxytetracyclin. The bacterial isolates were susceptible to antibiotics Ciprofloxacin, Enrofloxacin, Levofloxacin, Amikacin, Tetracyclin and Gentamicin (Figure). Growth on the agar plate showed few isolated colonies in the zone of bacterial inhibition. Microscopic examination of smears from these colonies by Gram staining revealed yeast cells resembling Candida spp. which is suggestive of endometritis due to fungal infection.



Screening of dung samples for parasite eggs and oocysts

(Susitha Rajkumar)

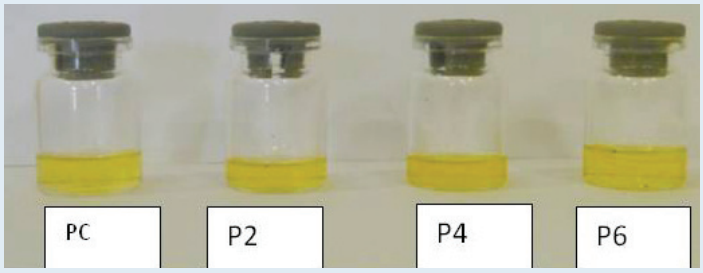
A total of 22 dung samples were collected from different small cattle/buffalo units and a Goshala from North Goa district and were examined for presence of eggs of nematode parasites and coccidial oocysts. After concentration by saline floatation fecal samples were examined by microscopy at 10X and 40X magnification. Out of the 22 samples, 4 samples were found positive for oocyst of protozoan parasite Eimeria spp (Figure) and 2 samples were positive for nematode parasites. The results showed absence of eggs of nematode parasites and coccidial oocysts in samples from animals which were not allowed for grazing. Two samples from a large cattle farm where animals are allowed for grazing and stray cattle were also maintained showed severe infection with nematode parasites and Eimeria spp.



Marigold as natural carotenoid source for pigmentation and growth of ornamental fishes

(SA Safeena, N Manju Lekshmi and GB Sreekanth)

Carotenoid pigments are responsible for wide spectrum of colours in fishes which is a prerequisite for the quality as they fetch higher price in the commercial market. Fishes cannot synthesise carotenoids by themselves and has to be incorporated in their diets. An experiment was conducted for 45 days to study the effect of marigold petal meal on growth and pigmentation in Koi Carp and Platies.. Marigold Petal-meal was incorporated in the feed at 3 different concentrations (2g, 4g, 6g/kg of feed) and used in experimental tanks, whereas the fish in the control tanks were fed with normal feed. A proportional increase in growth and carotenoid content was observed with the increase in petal-meal concentration wherein maximum carotenoid content in the fish skin was with 6g petal-meal. Difference in skin colour was also found to be significant. Pigmentation in fish is affected by the concentration of dietary pigments and duration of supplementation into the basal formulation. Hence, marigold petal meal was found to be an effective colour enhancer for ornamental fishes.



NEW INITIATIVES

Genetic enhancement of banana by colchiploidy and sexual seed progenies

(V Arunachalam)

Banana suckers of cv. Velchi (AB) were treated with colchicine to induce polyploidy. Putative tetraploid plants along with untreated diploid check plants of the same variety are planted for characterisation. A rare banana plant with seedy fruits was located at Ponda. The seeds are extracted from four fruits of the single plant. About 200 sexual seedlings are raised to screen using allele mining and phenotyping techniques for dwarfness, salt tolerance, resistance to sigatoka disease etc.

Germplasm resources of Ornamental Climbers in Goa

(SA Safeena)

A germplasm block comprising of different ornamental climbers was established at the institute and regular observations on growth and flowering are being recorded. At present, different ornamental climbers viz., Adenocalymma alliaceum , Allamanda cathartica, Aristolochia elegans, Asparagus plumosus, Bignonia unguis-cati, Clematis paniculata , Clitorea ternatea, Ipomoea indica , Ipomoea quamoclit , Jacquemontia violacea , Mandevilla amabilis, Mandevilla boliviensis Passiflora laurifolia, Pyrostegia venusta, Quisqualis indica, Senecio confusus, Tecoma capensis, Tristellateia australasiae *etc.* have been collected, maintained and evaluated for their suitability for landscape use.

Egg Analyser
(RS Rajkumar)

The Egg Analyser TM is intended for automatic measurement and evaluation of egg quality. The unit measures the yolk color, height of the albumen and weight of the egg. The results are presented in terms of HAUGH units and AA grades.

Automatic Blood analyser facility
(N Shivasharanappa)

Automatic blood analyzer facility has been created to test the complete blood count (CBC) of livestock animal species at Health laboratory of Animal Science Section. This system will test the blood samples of dairy cows, Buffalow, Goats, Pigs, Sheep, Dog, Cat, Horse, Rabbit, Rat, Mouse and Camel. The important blood parameters like Hemoglobin (g%), RBC, WBC, platelets, eosinophil count and other hemogram profile can be tested by this system. The uniqueness of this system is that, we can use EDTA coated 20µl micro capillaries without injuring the animal by taking drop of blood from ear veins.

MAJOR EVENTS

26th Institute Research Council meeting

The twenty sixth Institute Research Council (IRC) meeting of the Institute was held during 1st to 3rd September, 2015. The meeting was chaired by Dr. Narendra Pratap Singh, Director of the institute. He welcomed all the scientists and highlighted about the importance of this meeting as this institute was upgraded for coastal region. He emphasized for transfer of technology to the farmer's field and publication of research findings in quality journal. The scientists from different sections made their deliberations on the actions taken on recommendations of last IRC meeting and research activities carried out during the last one year. The chairman reviewed all the projects thoroughly and made critical comments for the further

improvement of projects. In the concluding remarks he appreciated the scientists on research work progress during the last one year, emphasized on the need based research which is relevant to the coastal region by each scientist. He urged the rigorous on farm trials through KVK for effective transfer of technologies to different types of users.

Distribution agricultural inputs under ICAR-Tribal Sub Plan

Shri. Narendra K Sawaikar. Hon'ble MP (South Goa) distributed power sprayers, grass-cutting machines, fertilizers and by-pass fat to 40 tribal farmers under Tribal Sub Plan on 5th September, 2015 at the Institute. Dr. Narendra Pratap Singh, Director requested the farmers to make use of the inputs. Dr EB Chakurkar, Head, Animal Sciences and Dr AR Desai, Senior Scientist (Horticulture) detailed various technologies to the farmers for better yield and returns. Dr R Maruthadurai, Scientist (Agricultural Entomology) and TSP Coordinator proposed vote of thanks. Scientists and technical staff were present during the function.

Shree Satyanarayan Pooja

Shri Satya Narayan Pooja was celebrated at ICAR-CCARI on 9th September, 2015. The pooja was participated with pomp and fervour by all the staff of the Institute along with their family members, officials from nearby organisations and other people in the vicinity. The main objective of celebrating Satyanarayan Pooja was to seek blessings from the almighty and to maintain peace, harmony and working environment in the Institute. Dr. Narendra Pratap Singh, Director of the Institute along with his wife, Mrs. Nirmala Singh performed formalities of pooja as "Yazman"on behalf of the staff of the Institute. During the pooja celebrations, Bhajan, Kirtan and Fugdi were carried out and Mahaprasad was served.

Shramdan at the Institute

The staff of the Institute participated widely in the 'Shramdan' under the dynamic leadership of Dr. Narendra Pratap Singh, Director and undertook a cleanliness drive on 11th September, 2015. All staff of the Institute including contractual, SRFs, RAs and labourers whole heartedly participated in the cleaning and planting of ornamental plants on outer wall side area of KVK.

Ganesh Chaturthi celebrated

Ganesha Chaturthi celebrations were held on 17th to 21st September, 2015. In this regard, Ganesh Pooja was celebrated at residential quarters of ICAR-Central Coastal Agricultural Research Institute and Ganesh visarjan was performed on 21st September, 2015. The pooja was celebrated with ceremonial elegance and splendour by all the staff of the Institute along with their family members.

ICAR-CCARI leads "Swachh Bharat Mission" at Old Goa

Owing to the importance of "Swachh Bharat Abhiyan" or Clean India Mission" lead by the Goverment of India, the ICAR- Central Coastal Agricultural Research Institute has actively organised a cleanliness drive on 29th September, 2015. The main objective was to propagate a cleanliness drive in the surroundings of Old Goa especially in and around the UNESCO World Heritage Site, Basilica of Bom Jesus, Gandhi circle, Canara Bank, State Bank of India, ld Goa Police Station etc.. The scientists, technical, administrative, supporting and contractual staff of the institute and Krishi Vigyan Kendra (KVK), North Goa undertook a cleanliness drive under the dynamic leadership of Dr. Narendra Pratap Singh, Director of the institute. He also emphasised that everybody should spend at least two hours in a week for the accomplishment of hygiene of our environment. The institute has called for the whole-souled co-operation of the public for cleaner Old Goa under the mission. Through the official website (www.ccari.res.in) and facebook community (ICAR-CCARI), the institute triggered the campaign to the people of the global village.

ICAR-CCARI signs MoU with Dive Goa

A memorandum of Understanding (MoU) was signed between ICAR-CCARI and DIVEGOA, a private recreational diving training centre, Panjim, Goa on 30th September, 2015. The latter deals with recreational dives, underwater visual census and fisheries data collection in coastal ecosystems. Primarily, this MoU is for fostering research and development activities in the area of fisheries science. The ICAR-CCARI, Old Goa was represented by Dr. Narendra Pratap Singh, Director; while Mr. Ajey Patil, proprietor represented DIVEGOA. Dr. AR Desai member secretary, ITMU briefly presented the highlights of MoU regarding its scope and boundaries. Director, ICAR-CCARI congratulated DIVEGOA for entering into this endeavour and anticipated scope for exposing the scientists to DIVEGOA activities for deriving relevant benefits.

A one day workshop on "Development of Road Map for Agricultural Development in West Coast Plains and Ghats Agro Climatic Zone"

A one day workshop on "Development of Road Map for Agricultural Development in West Coast Plains and Ghats Agro Climatic Zone" was organised on 16th October, 2015. Dr. KK Singh (ADG (F. Engg.)) was the Chairman and Dr. Sreenath Dixit, (Director, ATARI) and Dr. NP Singh (Director, ICAR-CCARI) were the co-ordinators of the workshop. About 85 participants from ICAR, SAUs, KVKs, departments like Agriculture, Animal Husbandry and Fisheries and progressive farmers attended and shared their suggestions for the development of agriculture. There were deliberations from all the participants with recommendations on technologies, farming practices and processing of various crops, animal and fishery components. The

workshop has come out with brief region specific recommendations for the development of agriculture. This recommendations will be communicated to ICAR and it will be forwarded to Prime Minister's Office through Director General, ICAR.

Heliconia Day celebrated at ICAR-CCARI Old Goa with lots of flower enthusiasts

Heliconia day was celebrated on 19th October, 2015, in which 90 participants comprising of students and faculties from colleges, progressive farmers, officers from Forest Department, Department of Agriculture, and flower enthusiasts. During the programme, an exhibition on 45 varieties of heliconia and 10 types of related species were presented. Mrs. Vijayadevi Rane, Bicholim attended the programme as Chief Guest. She narrated her experience in establishing commercial cultivation of Heliconia at her farm and urged the ICAR to facilitate technical knowhow including supply of quality planting materials and marketing intervention. Dr. Narendra Pratap Singh, Director of ICAR presided over the function. He emphasized the need to go for commercial venture in under exploited flower crops like Heliconia in Goa as it was done for gerbera and orchids. Dr. M Thangam (Senior Scientist, Horticulture) and Dr. SA Safeena (Scientist, Horticulture) coordinated the programe.

Observation of Vigilance Awareness Week

All the staff of the Institute took part in the pledge taking ceremony of "Vigilance Awareness Week". Vigilance Officer and Director In charge Dr SK Das administered the pledge both in Hindi and English. He told in this context that as directive by the council like every year Vigilance Awareness Week will be observed this year also in this institute during 26th to 31st October, 2015. The theme of this year is "Preventive Vigilance as a tool of Good Governance". Finally he requested everybody to observe this in real sense throughout the year as far as possible to prevent corruption from every sphere of life.

National Training Program on "Artificial Insemination in Pigs"

ICAR-CCARI conducted a National Training Program on "Artificial Insemination in Pigs" Sponsored by DBT, Govt. of India from 24th to 26th October, 2015. The inaugural session was held on 24th October, 2015 and Dr EB Chakurkar, Organizing Secretary and Principal Scientist (Animal Reproduction), ICAR-CCARI, Goa welcomed the Chief Guest Dr. AS Ninawe, Advisor, DBT. The other dignitaries were Dr VK Mishra (Head, ICAR-CSSRI, Lucknow) and Dr CM Karunakaran, Senior Scientist (Animal Reproduction), NDRI. Dr. NP Singh, Director, ICAR-CCARI presided over the function and had given emphasis on the importance of livestock in agricultural economy. 12 veterinary professionals (Scientists, Academicians and Veterinary Officers) from the states of Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu and Uttar Pradesh have participated in the training program. The participants were given practical demonstration and hands on experience in collection, evaluation and preservation of Boar semen. The program was concluded on 26th October, 2015 and Dr. AS Ninawe, Advisor (DBT) distributed Certificates and training manuals to the participants

The Second meeting of VII Research Advisory Committee

The second meeting of the VII RAC was held on 29th to 30th October, 2015 at ICAR - CCARI. Meeting was chaired by Dr. RB Deshmukh, Chairman, RAC and attended by following members Dr. SP Bharadwaj, Dr. DP Waskar, Dr. P Indira Devi, Dr. N Sarangi and Dr. ID Tyagi, Dr. NP Singh, Director, ICAR-CCARI and Dr. M Thangam, Member–Secretary (RAC). Dr. H Rahman, Director, ICAR-NIVEDHI was a special invitee along with Mr. Shri SV Jambhale and Shri. BN Komarpant as farmer representatives. At the outset Dr. NP Singh delivered welcome address and highlighted the research carried out at this Institute. Further, chairman of RAC, Dr. RB Deshmukh addressed the gathering. Presentations were made by all the Scientists and Programme Co-ordinator, KVK on transfer of technology highlighting the research work done by them during the last year.

“Rashtriya Ekta Diwas" (National Unity Day) observed

The birth anniversary of Late Sardar Vallabhbhai Patel is observed as “Rashtriya Ekta Diwas (National Unity Day) on 31st October, 2015 at the institute. This occasion provides an opportunity to re-affirm the inherent strength and resilience of our nation to withstand the actual and potential threats to the unity, integrity and security of our country. A Pledge taking ceremony was held at 4.00 p.m. on 30th October, 2015 in the conference hall.

Visit of Union Minister of State for Agriculture and Farmers Welfare

Hon. Dr. Sanjeev Kumar Balyan, Union Minister of State for Agriculture and Farmers Welfare, Govt. of India visited the Institute on 18th November, 2015. During the visit, he was appraised about the Institutional activities including various technologies developed at the Institute and laboratory facilities. On the occasion, Dr. NP Singh, Director, ICAR-CCARI welcomed the Hon. Minister which was followed by a brief presentation about the history, research and extension activities of the Institute. The Union Minister laid foundation stone for the production facility for Virgin Coconut Oil and inaugurated the renovated KVK building. He stressed upon dissemination of technologies to the farm for improving livelihood of the farmers. The programme was also attended by Dr. Bhola Singh (MP, Bulandshahr, Uttar Pradesh), Sri. Satish Kumar Gautam (MP, Aligarh, Uttar Pradesh), scientists, technical and administrative staff of the Institute and KVK, State

Government Officials and representatives of press and media. The Hon. Minister visited experimental farms, units and demonstration plots of the Institute and KVK. The Union Minister appreciated the research work and extension activities being carried out by the Institute.

TSP Training Programme on Fresh water Aquaculture

A one day training programme on “Freshwater Aquaculture” sponsored by Tribal Sub Plan, Govt. of India was organised by the fisheries section of ICAR-CCARI in collaboration with ICAR-CIFE, Mumbai on 27th November, 2015. The training covered deliberations on the technical aspects of scientific freshwater fish culture. Dr. VK Tiwari, Principal Scientist, Aquaculture Division, ICAR-CIFE Mumbai was the key speaker and co-ordinator of the training programme. A total of 23 tribal fishermen from different parts of North and South Goa participated in the programme. Dr. EB Chakurkar, Principal Scientist and Head, Animal Science welcomed the participants and mentioned about the importance of freshwater and ornamental fish culture in Goa. A film on scientific freshwater fish farming was also screened followed by a game in which the participants were requested to arrange the cards containing various steps of fish farming in the correct sequence. The trainees expressed their heartfelt thanks at the end of the training programme.

ICAR-CCARI observed World Soil Day

ICAR-CCARI and KVK, North Goa observed and celebrated the WORLD SOIL DAY on 5th December, 2015 at the Institute. Year 2015 has been declared by the United Nations as 'International years of soils' considering the paramount importance of soil. The programme was attended by farmer groups from different villages. Dr. Narendra Pratap Singh, Director, ICAR-CCARI stressed upon the need of applying nutrients based on soil testing. The chief guest of the programme, Sh. Narendra Sawaikar, Hon. MP (South Goa), emphasized on the importance of the soil in human life and urged farmers to keep pace with the new technologies for better farming. Sh. Pandurang Madkaikar, Hon. MLA, Govt. of Goa appealed the farmers to make use of the soil health cards for application of fertilizers in a scientific way. The aim of the programme is to raise the awareness about the soil and soil

health. During the programme, soil health cards were distributed to farmers and were explained for further use. An android app, FERTILIZER CALCULATOR GOA was also launched during the programme for public use. A guide to use the FERTILIZER CALCULATOR APP was also released during the programme. During the programme, a soil testing kit was also distributed to the beneficiary under TSP programme.

Institute participated in Exhibition at Canacona

ICAR- CCARI, Old Goa, participated in an exhibition organized by Pragati Mahila Co-op Bank Ltd at SAG Ground, Canacona on 7th December, 2015. The main objective of the programme was to create awareness among Rural Youth, Women and Farmers about different schemes in Agriculture, Animal Husbandry, Handicrafts etc.. Dr. EB Chakurkar, Principal Scientist (Animal Reproduction & Gynecology) detailed on the different technologies available with the Institute for farmers. Dr. AR Desai, Senior Scientist (Horticulture) explained about different cashew varieties of the Institute and the by-products of nutmeg and processing. Dr. Priyadevi and Dr. Mathala J Gupta briefed the farmers on TSP programmes carried out at Khola & Gaodongrim villages. About 300 farmers visited the stall and collected information about the technologies.

Training on Canopy Management in Fruit Crops

ICAR-CCARI conducted a one day training programme on Canopy Management in Fruit crops on 10th December, 2015. The technical sessions started followed by an inaugural speech by Dr. Narendra Pratap Singh, Director. Dr. Dushyant Mishra, Senior Scientist, ICAR-IIFSR, Modipuram explained the techniques of canopy management in fruit crops with special reference to mango. Lectures on canopy management were given by Dr. S Priya Devi and Ms. SR Maneesha. Field demonstrations on pruning guava and mango was also organised for the farmers. Progressive farmers and the officials from the State Agriculture Department participated in the programme.

On-Field Training cum Demonstration on Advanced Cultivation Practices in Fruit and Flower Crops

A training programme on "Advanced Cultivation Practices in Fruit and Flower Crops" under "Mera Gaon Mera Gaurav" programme was organised on 29th December, 2015 at Surla Viilage, Bicholim. Farmers from Devulwada, Joshi Bhat etc from Surla Village who are interested in the cultivation of fruit and flower crops participated in the training programme. Lectures on "Adoption of Advanced Practices in Fruit and Flower Crop Cultivation" were given by Dr. S Priya Devi and Dr. SA Safeena. Further there was hands-on training cum field demonstration on advanced practices of cultivation in fruit and flower crops. Adoption of systematic planting methods in rose and package of practices for rose cultivation was demonstrated. Further systematic planting in pineapple, bavistin drenching, desuckering and gap filling and flower regulation using ethrel were demonstrated in pineapple plantation.

Conference/symposia/workshop

Date	Name of Scientist	Programme	Venue
4th to 6th September, 2015	Dr. NP Singh	XI joint convention of the Sugar technologists association of India & the Deccan Sugar technologists association (India)	Prasad Mukherjee Indoor stadium, Taleigao, Goa
7th to 9th September, 2015	Dr. N Shivasharanappa	DBT Sponsored National Workshop on 'Molecular subtyping of microbes using pulse field gel electrophoresis'	Veterinary College, MAFSU, Nagpur, Maharashtra
7th to 11th September, 2015	Ms. SR Maneesha	"Communication And Presentation Skills(CAPS)"	International Centre, Dona Paula, Goa
07th to 11th September, 2015	Susitha Rajkumar	Training programme on Communication and Presentation Skills for women Scientists conducted by Institute of Management, Training and Research, Goa	International Centre, Dona Paula, Goa
10th September, 2015	Dr. NP Singh	2nd Meeting of Regional Advisory Group (RAG) for Farms, Farmers and Rural Areas	Regional Office NABARD, Panjim, Goa
10th to 11th September, 2015	Dr. V Arunachalam	Garuda-NKN Knowledge partners meet	NIAS Auditorium Bengaluru, Karnataka

15th to 16th September, 2015	Dr. RS Rajkumar	Annual review meeting of AICRP and poultry seed project	NASC Complex, Pusa, New Delhi
6th to 10th October, 2015	Dr. N Shivasharanappa Dr. Susitha Rajkumar	12th International Double Stranded RNA Virus Symposium, Goa	Goa Marriot, Goa, India
16th November to 6th December, 2015	Dr. HB Chethan Kumar	CAFT Training on "Techniques for exact identification and Parasitic disease diagnosis in Domestic Animals"	Dept. of Vet. Parasitology, Veterinary College, Hebbal, Bangalore, Karnataka
19th to 21st November, 2015	Dr. RS Rajkumar	XXXII Annual Conference of Indian Poultry Science Association	College of Avian Sciences and Management, KVASU, Palakkad, Kerala
25th to 28th November, 2015	Mrs. N Manju Lekshmi	5th International Symposium on Cage Aquaculture in Asia-2015	Ernakulam, Kerala
26th November to 16th December 2015	Dr. N Shivasharanappa	ICAR winter school training on 'application of One Health concepts for control of Emerging Zoonoses and Health threat'	Veterinary College, KVASU, Pookode, Kerala
2nd to 3rd December, 2015	Mr. GB Sreekanth	International Conference on Biodiversity and Evaluation	Sree Sankara College, Kalady, Kerala
3rd to 5th December, 2015	Susitha Rajkumar	XXXII Annual Conference of Indian Association of Veterinary Pathologists	NTR College of Veterinary Science, Gannavaram, Andhra Pradesh
3rd to 10th December, 2015	Dr. SA Safeena	Model Training Course on "Value Addition and Post Harvest Management in Medicinal and Aromatic Crops"	ICAR- Directorate of Medicinal and Aromatic Plants Research, Anand, Gujarat.
7th to 8th December, 2015	Dr. R Maruthadurai	National seminar on Advances in life sciences	St. Xavier's college, Mapusa, Goa
9th to 11th December, 2015	Mr. K Viswanatha Reddy	Workshop on Strategies for Promoting Farmers Producers Organizations (FPOs)	ICAR-NAARM, Hyderabad, Andhra Pradesh

11th to 12th December, 2015	Dr. SA Safeena	International Symposium on "Biodiversity, Agriculture, Environment and Forestry "	Fortune Resort Sullivan Court, Ooty, Tamil Nadu
16th to 18th December, 2015	Dr. NP Singh Dr. GR Mahajan	Group Meeting of "AICRP on Integrated Farming Systems"	Assam Agricultural University, Jorhat, Assam

PERSONALIA

Awards/Recognition

Mr. GB Sreekanth

- Invited Speaker (lecture on "Biodiversity assessment: improved methods and approaches") in International Conference on Biodiversity and Evaluation at Sree Sankara College, Kalady organized in collaboration with School of Marine Sciences, Cochin University of Science and Technology during 2nd to 3rd December, 2015.

Dr. RS Rajkumar

- Elected as executive body member of Indian Poultry Science Association (2015-2018)

Superannuation

1) **Shri Vishram Yashwant Gaonkar,** Subject Matter Specialist, KVK superannuated on 31-7-2015.
2) **Smt. Maria Teresa Nigli,** Assistant Administrative Officer superannuated on 31-10-2015.
3) **Smt. Farida B . Jabbarkhan,** Skilled Support Staff superannuated on 31-10-2015.

Promotions

- **Smt. Sneha Shashikant Arlekar,** Assistant promoted to the post of Assistant Administrative Officer w.e.f 2-11-2015.

Transfer from ICAR-CCARI

1) **Dr. K Muniswamy,** Scientist (Animal Biotechnology) transferred to ICAR-Central Island Agricultural Research Institute, Port Blair, w.e.f 19-12-2015
2) **Dr. Samir Kumar Das,** Principal Scientist (Livestock Production Management) transferred to ICAR-IVRI, Research Station, Pune w.e.f 30-11-2015 (A.N).

Joined ICAR-CCARI

1) **Dr. V Paramesha,** Scientist (on probation) in the discipline of Agronomy joined on 12-10-2015 (forenoon) after completion of 102nd FOCARS at NAARM., Hyderabad.
2) **Shri Bappa Das,** Scientist (on probation), in the discipline of Agricultural Meteorology joined on 9-10-2015 (forenoon) after completion of 102nd FOCARS at NAARM., Hyderabad.