



संवादपत्र NEWSLETTER

भाकृअनुप - केंद्रीय तटीय कृषि अनुसंधान संस्थान

(भारतीय कृषि अनुसंधान परिषद)

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किसानों का हमसाफर
भारतीय कृषि अनुसंधान परिषद

Agrisearch with a human touch

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- Training on "Scientific piggery, semen collection and artificial insemination"

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Ornamental fish farming



Ornamental fish keeping is a well-liked hobby and the trade in ornamental fish expanded in about 130 countries. The major chunk of the ornamental fish stock is gathered from the tropical developing nations. In the global market, the industry is dominated by freshwater fishes (60%) including gold fish, discus, zebra danio, tetra, and live bearers. The two species, neon tetra and guppy share 1/4th of the global trade by volume and about 15% of the total trade value. The global ornamental fish market size significantly expanded from US\$364.9 million in 2011 to US\$5.88 billion in 2022. In Indian ornamental fish export,

about 90% are native freshwater fishes sourced from wild collections. The Western Ghats of India is one of the 34 - biodiversity 'hotspot' areas of the world. The major share holders of export of ornamental fish from India are Singapore, USA, Hong Kong, China, Japan and Malaysia. India is considered as one of the megaichthyo-diverse countries globally. However, India stands only at the 31st position in the global market of ornamental fish trade with a share of 13.06 crores as per data in 2020-21. The Middle East and Asia are coming up as potential markets for the aquarium industry.

Ornamental fish production is especially high owing to the trainings, subsidies and assistance provided by public institutions in India, and also in response to the strong demand and attractive prices in the country for these fish. Home aquaria have shifted from traditional glass tanks to imported moulded aquaria, sleek wall-mounted plasma aquaria, and nano aquaria etc. There is an increasing demand for aquaria in hotels, hospitals, airports, banks and other organizations etc. There are more and more ornamental fish exhibitions being held and big and small public aquaria are being opened in many parts of the country. Outlets of product lines like ornamental fishes, aquatic plants, aquaria, equipment, accessories, feeds, medicines etc., are increasing. The bigger and more colorful species have greater demand in India. Initially, ornamental fish production and trade were highly concentrated in four states i.e. West Bengal, Tamil Nadu, Maharashtra and Kerala, which supplied other states.

ICAR-CCARI through ICAR-Seed Project Fisheries Component caters the needs of ornamental fish farmers, hobbyists, and other interested stakeholders in the coastal region through the trainings, demonstrations and developing package of practices of breeding and seed production, management of aquarium and tanks and fish diseases. Breeding and rearing protocol are developed for 7 exotic and 3 indigenous fish varieties within the institute. A total of five small-scale ornamental fish units are established in a PPP mode with women self groups with financial support from NABARD. The documentation of small indigenous fishes of the wetlands and rivers of the Western Ghats is also an ongoing activity at the institute. As a part of the insitu conservation of fish germplasm, the seeds of the indigenous fishes are regularly ranches in rivers, wetlands and temple ponds to restore and conserve the fish stocks for future generations.

RESEARCH HIGHLIGHTS

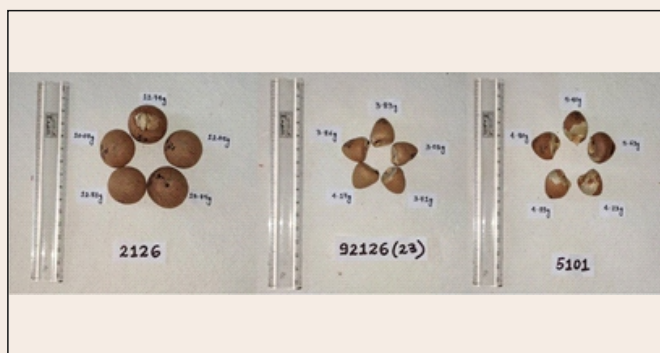
Segregating progenies of Hirehalli Dwarf Arecanut for dry kernel content

(V Arunachalam)

Arecanut (*Areca catechu* L.) is a major plantation crop of coastal India. It is grown for dry kernel used for chewing or masticatory purpose. A progeny garden of Hirehalli Dwarf was established under ICAR AICRP (Palms) in different phases and is being maintained with currently 284 surviving palms of which 82 are available at the reproductive stage. Several progenies of one (HD-1) high-yielding single palm were raised. Dwarf areca palm although attractive due to its short stature and compact canopy, saves climbing labour costs, is shy in flowering, poor in fruit set and produces small fruits with a low dry kernel content.

Some of the progenies of Hirehalli Dwarf (HD-1) show segregation for major economic traits (Fig A6 areca.jpg). About five progenies 2103, 2126, 3108, 5101 were identified as useful segregants

for further selection and improvement based on their high dry kernel content (>12 g / fruit). Among these a single palm 2126 was selected due to early bearing, high yield, and large dry kernel (chali) content. Open-pollinated progenies of 2126 (as series of 92126(..), were planted and maintained. Fresh fruit weight (g) varied from 10.65 in progeny no. 92126(23) to 60.08 in palm no. 6404. The dry chali weight (g/fruit) varied from 2.68 in palm no. 5216, 3.03 progeny no.



Sperm Morphometric Characterization in indigenous Agonda Goan pigs

(Gokuldas PP and Amiya R. Sahu)

The lack of comprehensive data on male and female reproductive attributes is a major constraint for developing reproductive strategies, breed development and conservation efforts in indigenous breeds like Agonda Goan pig. In this context, a methodology to characterize sperm morphometry was developed through the determination of major sperm morphometric parameters and novel indices in the breed. Stained smears were evaluated for sperm head and tail morphometry using multi-scan and semi-automated image analysis software. Sperm head dimensions were used to derive novel morphometric indices characterizing sperm

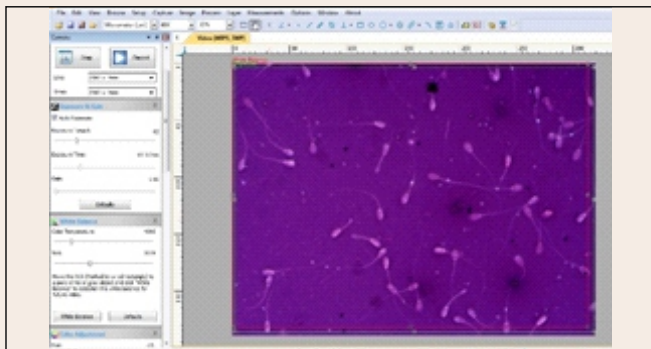
head viz. Ellipticity, Elongation, Rugosity, Form & Regularity.

Mean length of boar sperm head was $11.06 \pm 0.06 \mu\text{m}$ whereas total sperm length was averaged as $69.31 \pm 0.26 \mu\text{m}$. Other recorded basic parameters were Mean Head width ($6.01 \pm 0.05 \mu\text{m}$), Head area ($59.62 \pm 0.42 \mu\text{m}^2$), Head Perimeter ($29.24 \pm 0.15 \mu\text{m}$) and Tail length ($58.25 \pm 0.26 \mu\text{m}$). Rugosity or Roughness, which specifies the amorphous shape of sperm head, was $0.817 \pm 0.003 \mu\text{m}^2/\text{pixel}^2$ and Regularity index, indicates the symmetry of sperm head, was 0.91 ± 0.007 . Other derived sperm indices were Ratio (0.546 ± 0.006), Ellipticity (1.854 ± 0.020),



Elongation (0.296 ± 0.005) and Form ($817.46 \pm 2.85 \mu\text{m}^2/\text{pixel}^2$). Developed method for detailed sperm morphometry employing derived morphometric indices can characterize

sperm head shape more precisely and can be used as a supportive tool for characterization of boar semen morphology and sperm classification.



Sperm morphometric analysis in Agonda Goan pigs

Evaluation of thermotolerance ability in different breeds of livestock

(Amiya Ranjan Sahu and Gokuldas PP)

The temperature and humidity data from 2021-22 was accessed from institute meteorological observatory station to calculate temperature-humidity index (THI). The THI indicated, April-May as extreme hot period and December-January as cool period of the year. Samples collected and physiological parameters (rectal temperature and respiration rate/minute) were recorded during these hot and cold periods. Blood samples were collected from Shweta Kapila (n=51), Gir (n=9), Sahiwal (n=6) and Malnad Gidda (31) cattle; Murrah (n=6) buffalo; Agonda Goan (n=55) Pig; and Konkan Kanyal (n=32) and Malabari (n=6) goats maintained in the institute farm of ICAR-CCARI, Goa and farmers' field of Goa and Karnataka. Rectal

temperature and respiration rate during hot period were comparatively low in Shweta Kapila than other breeds of cattle studied. The serum enzymatic activity (creatinine phosphokinase and lactate dehydrogenase) of different animals was estimated by Biophotometer (Eppendorf™). There was high level of enzymatic activity indicating more tissue damage during hot period in Sahiwal and Gir as compared to Shweta Kapila cattle. Serum ion concentration was estimated by Spectrophotometer. High Na^+ and Cl^- , and low K^+ serum ion concentration in Shweta Kapila than other breeds of cattle indicated better thermotolerance ability of Shweta Kapila cattle.



Collection of blood samples



Evaluation of active constituents and mechanism of combination of phytogetic feed additives in backyard poultry

(Nibedita Nayak)

Phytogetic feed additives are considered as alternative to antibiotics which stimulates the growth performance, gut health, immunity without any adverse residual effect. The aim of this study was to assess the phytogetic constituents, nutritive value of herbal feed additives and to elucidate their effect on various production performances in combinations in slow growing chicken variety and ducks. The UV-V is and FTIR analysis was done for different herbal feed additives like shyama tulsi, Moringa, Chekurmanis, kalmegh, alpinea, turmeric and ginger. The UV-VIS absorbance spectra of the powdered turmeric fall between wavelengths (λ) from 300 nm to 500 nm confirming the presence of Curcumin while ginger ranged from 230-280 nm confirmed the presence of gingerols and shogaols. The turmeric powder showed FTIR spectra at 3360.33 cm⁻¹,

3281.3 cm⁻¹, 2919.34 cm⁻¹, 1629.35 cm⁻¹, 1603.27 cm⁻¹, 1074.99 cm⁻¹ which are signature peaks of curcumin where ginger powder exhibited FTIR spectra at 3281.27 cm⁻¹ signifying hydroxyl and phenolic groups in gingerols, shogaols, zingerone and paradols, 2924.99 cm⁻¹ as methylene C-H asymmetric stretch which is backbone of several secondary metabolites, 2198.98, 2163.68, 2152.6, 2115.76 cm⁻¹ as aromatic combination, 1638.85 cm⁻¹ as C=C stretching of terpenes like zingiberene, camphene, β-elemene, limonene. For combinations of Moringa, Chekurmanis and Shyama tulsi, peaks fall in the range of 270-340 nm in UV-V is corresponding to flavonoids, polyphenol and organic chromophores. FTIR methanolic extract showed presence of functional groups like hydroxyl. Carbonyl, aromatic and organosulfur in the range of 589.39 cm⁻¹ - 2917.82 cm⁻¹.

Effect of herbal feed additives in combinations on growth, immunity, gut health of dual-purpose backyard chicken CARI-Debendra

(Nibedita Nayak)

A total of 90 (30X3) CARI-Debendra, a dual-purpose chicken variety was used in this experiment as control and treatment groups for 12 weeks respectively. The leaves of Tulsi (*Ocimum sanctum*), Chekurmanis (*Sauropus androgynus*), Drumstic tree (*Moringa oleifera*) were harvested, cleaned, oven dried and pulverised to fine powder. Significant difference (P<0.05) was observed in body weights at 8th (507.26/550.67) and 12th weeks (1176.04/1240.3) between control and

treatment groups. Actual water: feed intake was 0.26 for treatment and 0.29 for control at 12 weeks. The cell mediated immune response was higher in treatment group with FI of 0.25±0.15 and 0.14±0.03 for control. Gut morphometrics of duodenum, jejunum, caecum like villi height. Villi width, Crypt depth were studied. In conclusion, feeding of phytogetic feed additives at 2% improved the growth, immune-response, feed conversion ratio and gut health in backyard poultry.

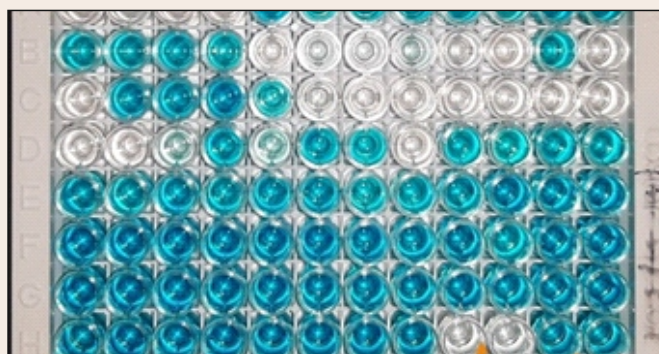


Seroprevalence of PPR among goat population in Goa

(Susitha Rajkumar)

PPR is an acute febrile viral disease of goats and sheep characterized by mucopurulent nasal and ocular discharge, stomatitis, enteritis and pneumonia caused by PPR Virus. The prevalence in goat population in coastal states of Gujarat, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh and Orissa have been reported. Economic loss in PPR outbreak occurs due to mortality, production loss, abortion, cost of control and trade restrictions. In the present study seroprevalence of PPR was carried out in samples collected from North and South Goa. A total of 174 goat serum samples collected from herds in North and South Goa & Screened using INgezim PPR Compac 192 tests kit. The average seroprevalence was found to be 25.29%. The highest prevalence was found in Qupem taluka.

Taluka	Total serum samples	Positive for PPR	%Positive
Quepem	39	20	51.28
Sattari	12	0	0
Sanguem	3	0	0
Bardez	8	1	12.50
Ponda	42	5	11.90
Salcette	30	2	6.67
Cancona	40	16	40.00
Total	174	44	25.29

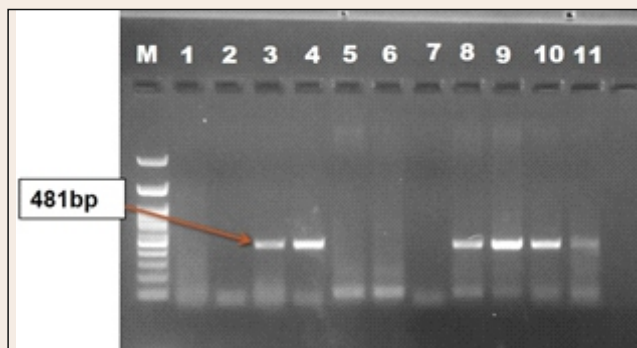


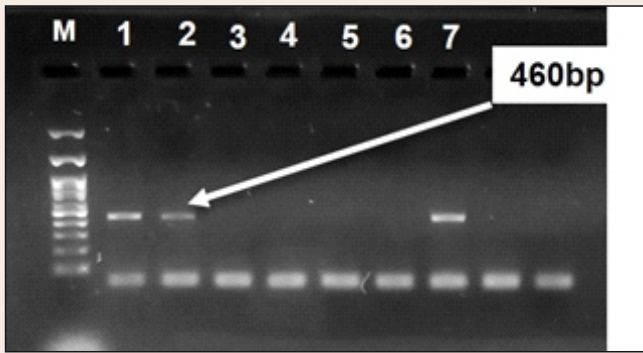
A respiratory disease outbreak due to Porcine Circo Virus-2 (PCV-2) in pigs in Goa

(Susitha Rajkumar)

An outbreak of respiratory disease in pig herd in Navelim village, South Goa was investigated. A pig herd of 200 Large white Yorkshire and crossbred pigs including adults and piglets showed high mortality (40%) in January 2022. The clinical signs observed were high fever, reduced feed intake, staggering gate, huddling, difficulty in breathing, cough, and brown to greenish diarrhea followed by death within a span of 3 weeks. The outbreak was diagnosed by post mortem examination, histopathology, bacterial isolation and PCR confirmation. In bacterial culture *Pasteruella multocida* could be isolated from heart blood and tissues from 3 cases. PCR of the tissue DNA confirmed the presence of *P. multocida* and Porcine Circo Virus-

2 (PCV-2) infection as the cause of mortality. The study confirmed the presence of PCV-2 infection in pig herds in Goa for the first time. Sequencing and Phylogenetic analysis of the PCV-2 ORF-2 gene showed clustering with isolates from North India (GU808525), Kerala (MW627194) and Andhra Pradesh (MW790263).





Amplification of 481 bp fragment PCV-2 virus in field samples and *P. multocida* specific PCR amplified a product of 460bp

Respiratory disease outbreak with concurrent infection of *Mycoplasma gallisepticum*, *M. synoviae* and *Avibacterium paragallinarum* in a poultry flock in Goa

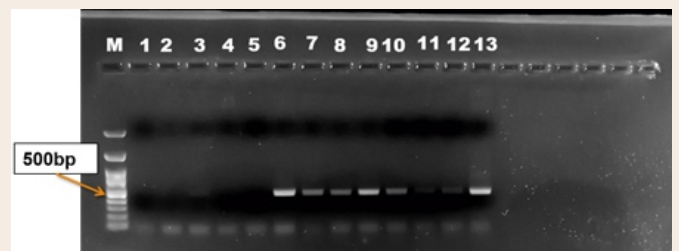
(Susitha Rajkumar)

This report presents an outbreak of respiratory disease in a poultry farm located in North Goa district. Huge mortality in chicken, guinea fowl and turkey were reported in this farm during the last week of January to first week of February 2022. The affected birds showed signs like conjunctivitis, swelling around the eyes, nasal discharge, thick mucus in the oral cavity, diarrhoea, sudden falling and death. On post mortem examination the varying lesions were observed like congestion of tracheal mucosa and lungs, mild air sacculitis, deposition of caseous material over tracheal mucosa, enteritis in most of the birds and in addition peritonitis in few birds. The samples were collected aseptically and inoculated in suitable media for isolation of suspected bacteria. DNA and RNA were isolated from oropharyngeal and cloacal swabs. PCR/Reverse Transcription PCR was carried out for detection of *Mycoplasma gallisepticum* (MG), *M. synoviae* (MS) and *Avibacterium paragallinarum* (AP) and New Castle disease Viral (NDV) RNA. No bacteria could be isolated on blood agar from lungs spleen and liver. The samples from chicken showed positive for MG, MS and AP and were negative for NDV. *Avibacterium paragallinarum* the causative agent of Infectious coryza and *Mycoplasma gallisepticum* responsible for Chronic Respiratory Disease are important pathogens causing respiratory diseases in

poultry. Both these pathogens are also reported with mixed infection with other bacterial or viral pathogens which possess a major challenge in prevention, accurate diagnosis and control of infection. The hot humid weather of the coastal area will exert additional environmental stress to the birds and other factors like poor immunity, overcrowding, build up of ammonia in poultry shed etc. will predispose the birds to infection with respiratory pathogens. Hence preventive measures like vaccination, biosecurity measures and proper bird-area ratio and housing management should be followed in poultry farming in coastal area to minimise loss due to diseases.



DNA



Infra orbital sinus swelling in Coryza affected birds and PCR amplification of *Avibacterium paragallinarum*



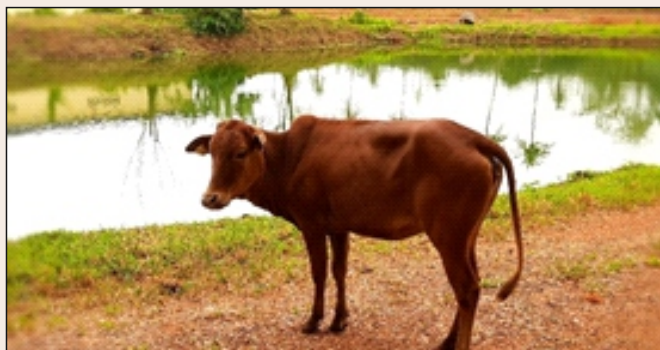
NEW INITIATIVES

Introduction of Vechur breed of indigenous cattle for ex-situ conservation in the coastal region

Solomon Rajkumar, Gokuldas PP and Shirish D. Narnaware

Vechur cattle is a recognized and rare indigenous breed of cattle. Alappuzha, Kottayam and Pathanamthitta districts of Kerala state are the native breeding tracts of the breed. With an average length of 124 cm and height of about 90 cm, it has been documented as the smallest cattle breed in the world. The breed has gained popularity among farming community due to its ability to withstand the hot and humid tropical climate of the region, high disease resistance and ability to utilize locally available low-quality fodder and other feed resources. A pair of adult male and female cattle of this dwarf breed from Kerala was introduced in the Institute dairy cattle unit towards efforts for ex-situ conservation of

indigenous farm animal genetic resources in the coastal region. Efforts are also underway to study their production, reproduction and adaptation characteristics related to the prevailing climate of the coastal region.



Vechur breed of indigenous cattle

Introduction of Malabari breed of indigenous goat for ex-situ conservation in the coastal region

Solomon Rajkumar, Susitha Rajkumar and Gokuldas PP

Malabari or Tellicherry goat is a native goat breed of Kerala. The breed received its name from the region of its breeding tract in the Malabar region in the northern Kerala. This breed is reared for milk and meat and is famous for its weight gain, low fat meat and prolificacy. As this breed is originated in areas of hot humid climatic conditions, where average temperature range from 23.7 to 30.7°C and humidity range from 75-80%, the animals are well adapted to hot humid weather. The Malabari goats are small to medium-sized animal with predominant white coat color. The coat color varies from complete white to admixtures of white and black, white and brown and black and brown. The average adult body weight in male and female animals are 34.25 and 43.63 Kg respectively. The male animal starts breeding at an age of 9-12 months. The

breed is having a good prolificacy i.e. 50% twinning, 25% triplets and 5% quadruplets. A group of 2 male and 3 female Malabari goats were introduced into the Institute Goat Unit for ex-situ conservation of indigenous breed from costal area. The animal performance indicators like growth, reproduction and production parameters in Goa are being studied.



EVENTS

Krishi Mahotsav Program

The Institute participated in the 'Krishi Mahotsav' at Quepem, South Goa on 04/01/2022. The program was inaugurated by Shri Narendra Singh Tomar, Hon'ble Union Minister of Agriculture & Farmers Welfare. Dr. Pramod Sawant, Hon'ble Chief minister, Goa, in his remarks appreciated efforts of ICAR – CCARI, in preparing vision document on Agriculture and support to Swayampurna Mitras through training on agricultural technologies. Shri Chandrakant Babu Kavlekar, Hon'ble Deputy Chief minister and Minister of Agriculture, Goa, in his welcome address thanked all the farmers in making Goa to march towards self-sufficiency. ICAR – CCARI and KVK – North Goa participated in the exhibition by

showcasing various institute technologies for the benefit of farmers. More than 3000 farmers visited our stall and got the information of agricultural technologies.



Training program on “Recent Advances in Cashew Production Processing & Post Harvest Management”

A National level training program on Cashew “Recent Advances in Cashew Production Processing & Post Harvest Management” was jointly organized during 6-8 January, 2022, by the Institute and the Directorate of Cashew nut & Cocoa Development, Cochin, Kerala at KVK, North Goa. Dr. S.K. Malhotra, Ex-Agriculture & Horticulture Commissioner, Government of India, was the Chief Guest. Dr Parveen Kumar, Director, ICAR – CCARI, in his remarks briefed about the institute cashew improvement program and other activities. Dr. Venkatesh N. Hubballi, Director DCCD, Cochin, in his welcome address talked about Status of Cashew Production in the country and scope for improvement. Mr. Sanjiv Mayekar, Deputy

Director, Directorate of Agriculture, Goa, gave the cashew production scenario of the State. During the technical sessions, recent advances in Cashew Production, Processing and Post Harvest Management were discussed. The training program was attended by the delegates from 13



Skill development training on Scientific goat farming

The ICAR-CCARI in collaboration with ICAR-KVK, North Goa conducted “Skill development training on Scientific goat farming” during 20th to 22nd January 2022. Around 55 participants including farmers from North and South Goa districts and few students from College of Agriculture, Sulcorna, Goa attended the training. Theory classes on important aspects of scientific goat farming viz. goat nutrition, breeds, reproduction management, value addition and marketing of goat meat and milk, goat diseases and health care management and management of pregnant goats and kids were delivered by scientists of the Animal Science Section of the Institute. The participants were shown management practices followed in the institute goat farm and different types of fodder grasses maintained at Institute fodder museum. Technical Officer Mr. Edward Crasta explained practices to be carried out for maintenance of fodder plot. Practical demonstration of microchip tagging of goat kids

for identification, concentrate feed preparation and silage preparation were also carried out in the 3 days training. The program concluded with certificate distribution and feedback from participants. Dr. Monica S Singh, SMS, KVK-North Goa and Dr. Susitha Rajkumar, Scientist, Animal Science Section, ICAR-CCARI coordinated the training.



Campaign on Processing & Storage of Food grains & Pulses

ICAR – Central Coastal Agricultural Research Institute (CCARI) & ICAR – Krishi Vigyan Kendra (KVK), North Goa organized a campaign on “Processing & Storage of Food grains & Pulses” on 24/01/2022. Dr. Parveen Kumar, Director, ICAR – CCARI spoke on the status of food grains security of India. He also emphasized about losses occurring during post-harvest handling of food grains which should be minimized through value addition and processing. In the technical session Shri HR Chidananda Prabhu, Senior Scientist & Head I/C, KVK – North Goa delivered lecture on processing and storage pest of food grains and

pulses. The program was attended by 35 farmers and farm women.



Piggery farmers' field day

The piggery farmers' field days was conducted by visiting the farmers pig units and creating awareness towards scientific practices in pig farming during 24-25 January 2022 under AICRP on Pig, Goa centre. Dr. Amiya Ranjan Sahu (PI of the project) and his team visited 25 nos. of progressive pig farmers from Nagoa, Loutlim, Raigini-Bandoram, Aldona and Khorjuv villages of Goa. Farmers feedback and data on impact of interventions implemented by Institute were collected.



Distribution under TSP and SCSP of AICRP on Pig

Under TSP programme, 21 nos. of beneficiary farmers were distributed with 88 crossbred piglets, 500 kgs of grower feed, medicinal supplements, feed storage drums (50 nos.) weighing balances (10 nos.). Under, SCSP programme, seven beneficiary farmers were distributed with 13 breeding sows.



73rd Republic Day celebration at ICAR-CCARI, Goa

ICAR-CCARI, Goa celebrated 73rd Republic Day on 26th January 2022 with high spirit and enthusiasm. Dr. Parveen Kumar, Director of the institute hoisted the tricolor flag. In his brief address, Director expressed his happiness about the various accomplishments of the Institute during the previous year. Director also stressed upon upscaling of various technologies of the institute to cater the farmer's needs. He outlined the future roadmap of the institute and emphasized on need-based research involving stakeholders to increase the income of the

farmers in the coastal region. A cultural program on this occasion was organized at the institute in which the children of institute staff actively participated and performed various activities like patriotic songs, dance, speech and fancy dress of patriotic leaders. Director also felicitated the contractual staff who have immensely contributed for the development of the institute. The program was coordinated by Mr. Shashi Vishwakarma, Farm Superintendent and Dr. Sujeet Desai.





Innovative farmer of coastal district of Karnataka Shri Amai Mahalinga Naik nominated by ICAR-CCARI, Goa conferred with Padma Shri 2022

Shri Amai Mahalinga Naik (Age 77), an innovative farmer from Adyanadka village of coastal Dakshina Kannada District of Karnataka has been conferred with coveted Padma Shri 2022 by the Government of India for transforming an arid sloping hill into a fertile farm through innovative zero-energy micro-irrigation system. A team constituted by the Director, ICAR-CCARI, Goa comprising of two Scientists visited the farmer and documented his technologies through good quality photographs and prepared the application for the nomination of Padma awards 2022. Shri Amai Mahalinga Naik single handedly dug six tunnels (Surangas) of 315 ft length to bring over water to his farm. He also constructed 300 percolation trenches alone in the hills surrounding the farm with around 5000 large laterite stones he carried himself to his farm. He also built two revetments (15-ft long, 30-ft wide and 5-ft high) and a tank of 12,000-litre capacity to fill up revetments. He turned a deserted and barren plot of land into a lush oasis. For all his efforts though-out his life which he accomplished on his own, he earned the moniker "One-man army" and "Tunnel man". Once the

news of Padma Shri reached to him, he profusely expressed his gratitude to ICAR-CCARI, Goa and Govt. of India for recognizing his hard work and innovation.



Field Day and Farmers-Scientists Interaction under Scheduled Tribe Component at Gadongari village, Canacona, Goa

A team of scientists from ICAR-CCARI, Goa, comprising Dr. Parveen Kumar (Director, ICAR-CCARI, Goa), Dr. A.R. Desai (Principal Scientist, Horticulture) and Dr. Shripad Bhat (Scientist, Agril. Economics) visited FLD plots at Ziltawadi and Satorlim in Gaondongrim Panchayat, Canacona and organized a Field Day on 11-02-2022 and a Farmers-Scientists Interaction under the Scheduled Tribe Component (STC). In this Field Day, scientists and the ST farmers of SHGs visited FLD plots on cashew production technology and productivity enhancement in coconut based cropping system. Farmers expressed their satisfaction and informed the team about the increased incomes and employment generated due to various technological interventions. The team was apprised about the benefits accrued under the program and witnessed how farmers adopted

innovative practices such as using the cashew apple thresher for finger millet threshing. Farmers highlighted that there was a reduction in drudgery due to farm machinery interventions, increased labor efficiency, and savings in costs. The team held interactive discussions with farmers and discussed further action plans.



Short course on ecosystem services analysis started at ICAR-CCARI, Goa

The Institute has organized an ICAR-Short Course on “Ecosystem services analysis in diversified coconut and arecanut gardens” in hybrid mode 21 Feb 2022 to 02 Mar 2022 (10 days) at ICAR-Central Coastal Agricultural Research Institute, Goa. Dr. Parveen Kumar, Director, ICAR-CCARI, Goa delivered the inaugural address and stressed the need for analysing ecosystem services in coastal agroecosystems, especially coconut and arecanut gardens, and improving productivity and sustainability, and elaborated the collaborative research work for the same. A total

of 13 physical mode participants and 13 online participants from 5 different states representing ICAR Institutes, State Agricultural/Horticultural Universities, and KVKs attended the training program. Dr V Arunachalam, Principal Scientist (Horticulture) was the Course Director Dr V Paramesh, Scientist Agronomy, and Course Coordinator and Dr Uthappa, AR, Scientist (Agroforestry) and course coordinators. The valedictory function of the training was held at the campus in hybrid mode on 2.03.22 where, Dr. S.K. Chaudhari, DDG (NRM), graced the occasion as



Chief Guest and gave a thought-provoking address on coconut and areca nut ecosystem services and management practices and the methods required to quantify and evaluate the ecosystem services have truly inspired us. Dr. Narendra Pratap Singh, Emeritus Scientist joined the function as Guest of honor and gave his remarks on kulagar gardens of Konkan coast and the intricacies in studying the complex agroecosystem. Dr Parveen Kumar Director, ICAR CCARI gave remarks on the course and explained the way forward on the studies on ecosystem



भाकृअनुप – केन्द्रीय तटीय कृषि अनुसंधान संस्थान में हिंदी कार्यशाला का आयोजन

भाकृअनुप – केन्द्रीय तटीय कृषि अनुसंधान संस्थान में दिनांक 24.02.2022 को हिंदी कार्यशाला का आयोजन किया गया था, इस कार्यशाला का विषय “डिजिटल प्लैटफार्म पर राजभाषा हिंदी” और इस विषय के मार्गदर्शक वक्ता थे, डॉ राकेश शर्मा, वरिष्ठ राजभाषा अधिकारी, राष्ट्रीय समुद्र विज्ञान संस्थान गोवा। संस्थान के उप राजभाषा अधिकारी श्री. शशि विश्वकर्मा ने मुख्य वक्ता का परिचय उपस्थित मान्यवरों को कराया। माननीय निदेशक महोदय डॉ प्रवीण कुमार ने पुष्पगुच्छ देकर मुख्य वक्ता डॉ राकेश शर्मा का स्वागत किया और विषय के महत्व के बारे में अपने विचार प्रस्तुत कर सभी गणमान्यों को अवगत कराया। डॉ राकेश शर्मा ने 'डिजिटल प्लैटफार्म पर राजभाषा हिंदी' यह विषय सभागृह में उपस्थित सभी स्तर के कर्मचारियों को परीचित कराया और हिंदी को आसान तरीके से कैसे प्रस्तुत किया जाए उसपर विस्तार रूप से सभी को अवगत कराया।

उन्होंने हिंदी की सबसे आसान टंकण विधि के बारे में जानकारी दी ताकि हिंदी के कार्यों में कोई बाधा न आए। उक्त कार्यशाला में संस्थान के सभी स्तर के कुल 45 वैज्ञानिकों/ अधिकारियों/ कर्मचारियों ने भाग लिया था। कार्यशाला के अंत में संस्थान के माननीय निदेशक महोदय डॉ प्रवीण कुमार और राजभाषा अधिकारी श्री राहुल कुलकर्णी ने सभी को आभार एवं धन्यवाद प्रकट किया।



Poultry farmers' field day

The poultry farmers' field day was conducted by visiting the farmer's poultry units and carrying out demonstrations on need based technological interventions, scientific practices in poultry

rearing, nutritional requirement, breeding and reproductive management, disease incidence and health care of poultry. This was conducted on 26th February 2022 under Poultry Seed Project



(PSP), Goa center. Adoption practices of different interventions, indigenous knowledge used in poultry feeding/ housing/ brooding/ health

management, effect of climate, constraints faced and reasonable solutions to these problems were addressed.



Poultry Distribution under institute STC

Under STC programme, a total of 14 farmers from Divar, Shiroda, Pedne and Tiswadi areas of Goa received various inputs such as 72 chicks, 11 quail birds, 100 fertile hen eggs and 50 quail eggs were distributed on 15th Nov 2022.



Rapid fish count and Fishermen-Scientist interaction at Chicalim Bay

The Institute organized a field day involving a rapid fish count programme in Chicalim Bay and fishermen-scientist interaction at Khariwadda on 6th March, 2022 in association with St. Joseph Vaz College (Cortalim), Biodiversity Management Committee (BMC) (Chicalim), Old Cross Fishing Canoe Owners Co-operative Society (Khariwadda) and Goa State Biodiversity Board (GSBB). An orientation was given to students and staff of the college and fishermen in advance. A total of 30 participants including students, researchers, fishermen, scientists and local residents took part in the programme. The main objective of the fish count programme is to identify various species of fish in the bay using a rapid survey using the fishing nets. A total of 47

species were identified in the rapid fish count by the scientific team of ICAR-CCARI. Dr. Parveen Kumar, Director, ICAR-CCARI highlighted the importance of fish biodiversity research in the estuaries and coastal bays. Dr. Sreekanth GB, Scientist explained the objective of the program. A compilation of four research posters displaying the fisheries resources of Goa, technical bulletin and extension folders on ornamental fish culture were also distributed among the fishermen, researchers and students. The fish count was co-ordinated by Dr. Sreekanth GB, Scientist (FRM), Dr. R Solomon Rajkumar, Senior Scientist (Livestock Product Technology) and Dr. Trivesh S Mayekar, Scientist (Fish Genetics and Breeding).



International Women's Day Celebration

The Institute celebrated, International Women's Day on 8th March, 2022, at Sal Training Hall, ICAR – Krishi Vigyan Kendra, North Goa in collaboration with 'Green Growth Institute', Sangolda, Bardez, Goa under Azadi ka Amrit Mahotsav. The theme of this year programme was 'Empower women by skill and knowledge'. Mrs. Sulakshana Sawant, Social Worker, was Chief Guest and in her remarks stressed upon multiple roles played by women in the society and women empowerment through income generating activities for their livelihood security in rural areas. She also spoke on gender equality for a better society. Dr. Parveen Kumar, Director, ICAR – CCARI, in his message mentioned about the important roles played by women in different sphere of life. He also appreciated all the women staff for their dedicated work in Institute development activities. Mrs. Sandra Fernandes, Green Growth Institute and Member of Women Cell of the institute gave a message to the women

to look insight to find the best among each woman. Mr. H R C Prabhu, Senior Scientist and Head I/C, ICAR - KVK, North Goa briefed about different programs for women in the field of agriculture by KVK. B.K. Nirmala Didi from Brahma Kumaris Organization gave a talk on spiritual power for women for multiple tasks carried out by them. The program was attended by around 152 farm women from different villages of North Goa and Institute staff. Mrs. Sunetra Talaulikar, SMS (Home Science), coordinated the program.



Skill Development Training on “Scientific Backyard Poultry” @ Azadi Ka Amrit Mahostav

The Institute in collaboration with ICAR – Krishi Vigyan Kendra (KVK), North Goa organized three days Skill Development Training on “Scientific Backyard Poultry” from 09th to 11th March, 2022. Dr. Parveen Kumar, Director, ICAR – CCARI in his address spoke about the scenario of poultry farming in Goa. He also requested the farmers to use the skill and knowledge gained in this skill development training to start poultry farming and bridge the gap between supply and demand of eggs and chickens which will be instrumental in making Goa “AATMANIRBHAR” in the field of poultry Dr. R.Solomon Rajkumar, Senior Scientist

(Livestock Products Technology) and In-charge (Animal Science and Fishery Science) urged the trainees to form groups and start poultry nursery at block level to mitigate the problem of availability of chicks. The training involved practical sessions and field visits to Institute poultry farm, Government poultry farm, Ela and KVK's poultry farm. A total 116 poultry farmers from the state of Goa participated in this training programme. The training was coordinated by Dr. Monica Suresh Singh, SMS (Agril. Extn.) and Dr. Nibedita Nayak, Scientist (Poultry Science).



Skill Development Training on “Improved fodder cultivation and silage making” @ Azadi Ka Amrit Mahostav

The Institute in collaboration with ICAR – Krishi Vigyan Kendra (KVK), North Goa organized three days Skill Development Training on “Improved fodder cultivation and silage making” from 15 to 17 March, 2022. Dr. Parveen Kumar, Director, ICAR – CCARI in his address stressed upon acute fodder shortage in Goa and its dependency on other states to meet its fodder requirements. He further emphasized that this training should act as a precursor in motivating farmers in taking up fodder as an intercrop in the existing coconut, arecanut and cashew orchards and to make goa a self-reliant state in fodder production. Shri H.R.C. Prabhu, Sr. Scientist and Head In-charge, ICAR – KVK, North Goa, in his welcome address talked about importance of fodder cultivation in Goan scenario. Dr. R. Solomon Rajkumar, Senior Scientist (Livestock Products Technology) and

In-charge (Animal Science and Fishery Science) in his address emphasized upon fodder calendar and exploring the opportunity of utilizing weed as feed for the animals. During the three days training programme several important aspects of fodder cultivations, silage making and azolla cultivation were discussed in detail. It was followed by practical sessions on azolla cultivation, silage making and field visits to Institute fodder museum & dairy unit. Experts from ICAR – IGFRI, RRS, Dharwad and Goa State Animal Husbandry Department also delivered lectures regarding fodder cultivation. Total 20 dairy farmers from the state of Goa participated and benefitted by this training programme. The training was coordinated by Dr. Monica Suresh Singh, SMS (Agril. Extn.) and Dr. Uthappa A. R., Scientist (Agroforestry).

Training programme on 'Digital tools and techniques for a self-reliant Goan Agriculture' under Azad Ka Amrit Mahotsav @ (India 75)

The Institute organized a one-day training programming on 'Digital tools and techniques for self-reliant Goan Agriculture' under the Azadi Ka Amrit Mahotsav (AKAM) (@India75) for the officers and staff of the Directorate of Agriculture, Government of Goa on 17-03-2022. Dr. Parveen Kumar, Director, ICAR-CCARI, Goa welcomed the participants of the training and highlighted the importance of training on digital tools and its use for the state of Goa. He highlighted on using the digital tools for the scientific land use planning with sustainable use of natural resources. He also stressed upon the impact of the tools developed in reducing the agricultural inputs/resources and improving the yield and income. The training

programme covered digital tools like Goa Bhoomi Geoportal, LRIS Goa app, Soil Health Card App, Fertilizer Calculator Goa App and STFR Goa online webportal. Dr. Sudipta Chataraja, Senior Scientist (Soil Physics) ICAR-NBSS&LUP, Nagpur, Maharashtra delivered a talk on 'A brief overview of Goa Bhoomi Geoportal'. Prof. (Dr.) S.K. Singh, ex-Director, ICAR-NBSSLUP, Nagpur and Pr. Scientist (Soil Science) delivered a talk on how to use the Goa Bhoomi Geoportal and other digital tools for a sustainable agricultural production in Goa. There were detailed technical sessions on use of digital tools for land and water management, soils and soil health card, land resource information system. A total of 23



participants of ADA, AO, AAO, ZAO, Agri. Assistant, Chemist, Sample collectors from Directorate of Agriculture, Government of Goa attended the training. The programme was organized by Dr. Gopal Ramdas Mahajan, Sr. Scientist (Soil Science), Dr. Bappa Das, Scientist (Agril. Meteorology) and Dr. Sujeet Desai, Scientist (LWME).



ICAR-CCARI, Goa inks MoA with KVASU, Kerala for Establishment of FPO/SHGs for Tribal Farmers

A Memorandum of Agreement (MoA) was signed on 21.03.2022 between ICAR-Central Coastal Agricultural Research Institute (ICAR-CCARI), Ella, Old Goa, Goa and Kerala Veterinary and Animal Sciences University (KVASU), Pookode, Wayanad, Kerala for Collaboration between ICAR-CCARI, Goa, and KVASU, Kerala for establishment of Farmer Producer Organization (FPO)/Self Help Groups (SHGs)/Community Organizations (COs) of Tribal farmers of Coastal Districts of Kerala. As a part of this collaboration, a Small Scale Dairy Processing Unit with the budgetary allocation of Rs. 9.91 lakhs have been established at Vaniyampara Village of Costal District of Thrissur under financial support from ICAR-Schedule Tribe Component under Chairmanship of Dr. Parveen Kumar, Director, ICAR-CCARI, Goa. The MoA was signed in the presence of Prof. (Dr.) M R Saseendranath, Hon'ble Vice-Chancellor, KVASU, Prof. (Dr.)

Sudheer Babu, Registrar, Dr. N Ashok, Director of Academics & Research., Dr. M K Narayanan, Director of Entrepreneurship., Dr. R. Senthil Kumar, Associate Professor and Head (AHE) and Dr. Vidya P, Assistant Professor (Entrepreneurship) were present during the MoA signing. Dr. R. Solomon Rajkumar, Senior Scientist and Liaison Officer represented ICAR-CCARI, Goa for signing the MoA on behalf of the Director, ICAR-CCARI, Goa.



Farmers' Training Programme on "Production and Propagation Techniques of Important Spice Crops"

A Farmers' Training Program on "Production and Propagation Techniques of Important Spice Crops", sponsored by Directorate of Arecanut and

Spices Development (DASD), Kozhikode, Kerala under Mission for Integrated Development of Horticulture (MIDH) was organized by ICAR-



CCARI, Goa, during 25th and 26th March 2022. Thirty five farmers participated in the training program which had both technical and practical sessions on various aspects of organic and inorganic cultivation of turmeric, ginger, nutmeg, black pepper and cinnamon. Dr. A.R Desai, Principal Scientist, (Hort.) appraised the farmers about different elite varieties of important spice crops. Dr. Manoj D. Mali (Officer In-charge, Turmeric Research Station, (MPKV, Rahuri), K. Digraj, Sangali, Maharashtra guided the participants on improved production and processing practices. The disease and pest management practices of spice crops were discussed by Shri. H.R.C Prabhu, Programme Co-ordinator, KVK, North Goa. The marketing prospects for important spices were aptly highlighted by Dr B A Vadiraj (Station In-charge,

ICRI, Spices Board of India (GOI), Sakaleshpur, Karnataka) with respect to major spice crops having export potential. The active interaction and hands on practical demonstrations on standard propagation techniques for spices were discussed. Technical Officers – Shri. Rahul Kulkarni, Mrs. Pranjali Wadekar, Shri Omar de Souza, Shri Yoganand Gaude and Young Professionals coordinated the overall



ICAR-CCARI, Goa inks Tripartite Agreement with Krishi Vigyan Kendra, South Goa and Directorate of Industries, Trade and Commerce (DITC), Goa for establishing CIC under PMFME scheme

A Tripartite Agreement was signed by Dr. Parveen Kumar, Director, ICAR-CCARI, Goa with Krishi Vigyan Kendra, South Goa and Directorate of Industries, Trade and Commerce (DITC), Goa for establishing a Common Incubation Centre (CIC) under Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) scheme on 01-04-2022 at ICAR-CCARI, Goa. The agreement will be valid for a period of five years. ICAR-CCARI, Goa will act as a Mentor Institute and play a key role in the establishment of the CIC, demonstration and operation. The CIC is

expected to benefit entrepreneurs of South Goa district in processing coconut and local seasonal fruits.



Foundation Day Celebration @ Azadi Ka Amrit Mahostav

ICAR - Central Coastal Agricultural Research Institute, Goa celebrated, 33rd Foundation Day on 1st April, 2022, under Azadi ka Amrit Mahotsav. Shri Arun Kumar Mishra, IAS, Secretary (Animal Husbandry & Veterinary Services, Social Welfare, Power, Environment) Government of Goa was the Chief Guest of this function. The Guest of honour was Dr. Dinesh Kannan, IFS, Conservator of Forest (Conservation). The foundation day was also graced by Dr. Agostinho Misquita, Director, Department of Animal Husbandry and Veterinary Services, Dr. Shamila Monteiro, Director of Fisheries, Shri D. V. Vinod, IIS, Deputy Director, PIB, Bro. Prem Sg., Director & Principal of Montfort Academy and retired Institute staffs. Shri Arun Kumar Mishra, on this occasion appreciated the consistent research and valuable contributions of ICAR-CCARI Goa. He further stressed upon the role of agriculture, animal husbandry and fisheries in nation building. Dr. Dinesh Kannan, opined that agriculture is the backbone of the country and praised the

contribution of scientific community towards agricultural development. Dr. Parveen Kumar, Director of ICAR-CCARI, Goa welcomed the guests and briefed the gathering about the glorious research achievements of this Institute since its inception. He congratulated all the Institute staffs for their valuable contribution towards Institute development activities. On this occasion Institute scientific, technical, administrative, skilled support and project staff were awarded and felicitated for their valuable contribution. Dr. Mathala J. Gupta, Scientist, (AS&PE) compered the programme and Dr. Maneesha, S.R. Scientist (Fruit Science) proposed the vote of thanks.



ICAR-CCARI, Goa inks Memorandum of Understanding (MoU) with Professor Jayashankar Telangana State Agricultural University (PJTSAU), Hyderabad for promotion of students' training and quality postgraduate research

A Memorandum of Understanding (MoU) was signed by Dr. Parveen Kumar, Director, ICAR-CCARI, Goa with Professor Jayashankar Telangana State Agricultural University (PJTSAU), Hyderabad on 30th March, 2022 at ICAR-CCARI, Goa. The two Institutions, having discussed fields of common research interests and allied activities, decided to enter into long-term collaboration for promotion of students' training and quality postgraduate research in

cutting edge areas. The MoU will be valid for a period of five years. The ITMU and PME Cell of the Institute facilitated in signing of this MoU.



Training-cum-Demonstration program on Scientific Practices in Pig Husbandry

Three days Training-cum-Demonstration program was conducted on “Scientific Practices in Pig Husbandry” during 21-23 March, 2022 under Tribal Sub Plan (TSP) of AICRP on Pig. Total sixteen participants from different talukas of Goa were attended the training.



Special lecture on organ and tissue donation under Azadi Ka Amrit Mahostav

The Institute and ICAR – Krishi Vigyan Kendra, North Goa organized a special lecture on “Organ and tissue donation- awareness/education/information bridging the gap” in collaboration with State Organ and Tissue Transplant Organization (SOTTO), Goa on 5th April, 2022 under Azadi ka Amrit Mahotsav. In the inaugural address Dr. Parveen Kumar, Director, ICAR-CCARI, Goa welcomed the speaker in his address he mentioned that the decision to donate organs is a life-saving one which helps people in dire need of transplants. He further requested the

staff of the Institute to donate organs for the noble cause. Dr. Preeti Varghese, Joint Director, SOTTO, Goa in life awakening lecture talked about the importance of organ transplant especially vital organs like kidney, heart, lungs and liver. Smt. Shraddha Kelkar, Consultant IEC, SOTTO Goa explained the process of registration to pledge the organ. Around 40 Institute staff attended in this program. Shri Rahul Kulkarni, Assistant Chief Technical Officer, ICAR-KVK, North Goa coordinated this program.

Training on “Scientific piggery, semen collection and artificial insemination”

Two days training for entrepreneurship development was conducted on “Scientific piggery, semen collection and artificial insemination” during 18-19 April 2022 held at ICAR-CCARI, Goa. Three farmers from Mayur Piggery Farm, Pune (APEDA accredited) attended the training programme. They were supplied with semen doses and A.I guns for breeding in their farm.



Farmers' Training Programme on "Advances in Processing and Value Addition Technologies for Spices" under Azadi Ka Amrit Mahostav

A Farmers' Training Programme, "Advances in Processing and Value Addition Technologies for Spices", sponsored by Directorate of Arecanut and Spices Development (DASD), Kozhikode, Kerala under Mission for Integrated Development of Horticulture (MIDH) and Azadi Ka Amrit Mahostav was organized at ICAR-CCARI, Goa during 21st and 22nd April 2022. The 2 days training programme which had both technical and practical sessions on various aspects of processing in spices was coordinated by Dr A R Desai, for fifty participants comprising of young graduates, spice farmers and the enthusiastic entrepreneurs alike. On the first day, Dr. M Madhava Naidu (Chief Scientist, Department of Spices and Flavour Sciences, CSIR-CFTRI, Mysuru, Karnataka) presented on the topic Processing and Value Addition in Spices: Prospects and Opportunities. Shri. Sachin Rane (Director, Team 24, Food & Beverages Pvt. Ltd., Panaji, Goa) discussed about processing and commercialization of value added Products. Shri. Chinmay Tanshikar, Proprietor, Tanshikar Spice Farm, Netrawali, Goa, enlightened the trainees about the farming and processing of vanilla. The Central and State Government Schemes for

supporting the Processing of Value Added Products of Spices were highlighted by Smt. Geeta Joshi (Planning Officer, Directorate of Industries, Trade and Commerce, Government of Goa) and urged the participants to take advantage of the schemes. Various financial schemes for creating infrastructures for start-ups were also presented. Active interaction and hands on practical demonstrations on harvesting and primary processing of spices were carried out. Technical Officers –Mrs. Pranjali Wadekar, Shri Omar de Souza, Shri Yoganand Gaude and Young Professionals facilitated in coordinating the overall programme and practical demonstrations. All the trainees were issued the certificates in the plenary session for their participation in the training programme.



Awareness Program on Organic Farming and Kisan Mela under "Kisan Bhagidari Prathmikta Hamari" campaign @ AKAM

ICAR- CCARI, Goa and ICAR-KVK, North Goa organized an Awareness program on Organic Farming and Kisan Mela as a part of "Kisan Bhagidari Prathmikta Hamari Abhiyaan" under Azadi Ka Amrit Mahotsav on 26th April, 2022. Smt. Nirmala Sawant, Ex MLA, Cumbharjua, was the Chief Guest and in her address spoke on the

need of organic farming for sustainable crop production. Sri Uttam Murgaonkar, Sarpanch, Carambolim was Guest of Honour and in his address he appreciated the efforts of ICAR-CCARI and ICAR-KVK in promoting organic farming. Mr. H. R. C. Prabhu, Senior Scientist & Head I/C KVK in his welcome address talked on the importance of



organic farming in present situation. During the technical session Dr. A R Desai, Principal Scientist talked on organic farming practices in coconut-based farming system. Dr. Paramesha, Scientist, spoke on organic farming package and practices in arecanut, coconut and cashew. Shri Nikhil

Majik, AAO, ZAO, Tiswadi presented schemes in organic farming. Shri Pritviraj Naik, BTM, ATMA, Tiswadi, spoke on Natural Farming. Mr. Rahul Kulkarni, demonstrated the Jeevamrut preparation. The programme was attended by 102 participants.

International Science Film Festival exhibition under “Kisan Bhagidari Prathmikta Hamari” campaign @ AKAM

ICAR- CCARI Goa and ICAR-KVK, North Goa participated in the International Science Film Festival exhibition as part of “Kisan Bhagidari Prathmikta Hamari Abhiyaan” under Azadi Ka Amrit Mahotsav on 28th April, 2022 at Panaji, Goa. The exhibition was inaugurated by Dr. Pramod Sawant, Hon'ble Chief Minister, Govt. of Goa. We had displayed all the technologies developed by ICAR-CCARI for the benefit of the farmers. A total of 305 farmers, students and teachers visited our stall and shown interest in

learning many of our technologies like cashew, salt tolerant rice varieties, vermicomposting, virgin coconut oil, fodder varieties, bypass fat, plant propagation and protection.



ICAR-CCARI organized training on ODOP crop Jackfruit

A training programme, funded by Pradhan Mantri Formalization of Micro Food Processing Enterprises for New and Existing Beneficiaries on fruits and vegetable Crops with special emphasis on ODOP Jackfruit processing, was organized between April 6 -11, 2022 at ICAR-CCARI. The training was attended by 22 beneficiaries of the PMFME Scheme. The training was coordinated by Master Training for Goa, Dr. Mathala Juliet Gupta, Senior Scientist (AS&PE). The beneficiaries were trained on various aspects of Processing of Jackfruit Value addition into minimally processed tender jackfruit, pickle, papad. The trainees underwent extensive hands-on training at the Post-harvest laboratory of ICAR-CCARI. The trainers were Dr. Mathala Juliet

Gupta, Senior Scientist (AS&PE), Dr. Solomon Rajkumar, Senior Scientist (LPT), Dr. Maneesha S.R. Scientist (Horticulture), Dr. Shripad Bhat, Scientist (Economics), Mrs. Pranjali Wadekar, STO, ICAR-CCARI, Goa, Mrs. Sunetra Talulikar, SMS (Home Science), KVK North Goa, Er. Vinod Atkari Assoc. Prof. Ag. Engg. Don Bosco College of Agriculture, Sulcorna, Sh. Pravin Sabnis, Sh. Ramchandra Salgaonkar, Sh. Tushar Sawant FiiRE. The Coordinator for North Goa for Directorate of Trade, Industries and Commerce, Sh. Yashwant Tuyekar also attended the course. The trainees were assessed by Dr. Mathala Juliet Gupta.



“National symposium on Self-Reliant Coastal Agriculture-2022” @ AKAM

ICAR-Central Coastal Agricultural Research Institute (CCARI), Goa and Association for Coastal Agricultural Research (ACAR) organized three days “National Symposium on Self-Reliant Coastal Agriculture” during 11-13 May, 2022 under Azadi ka Amrit Mahotsav. Shri Shripad Yesso Naik, Hon'ble Union Minister of State (Tourism, Shipyard and Waterways) Govt. of India was the Chief Guest of the inaugural function. Shri Nilesh Cabral, Hon'ble Minister of Environment, Legislative affairs, Law & Judiciary and Public Works Department, Govt. of Goa, Shri A. K. Mishra, IAS, Secretary (Agriculture, AH& VS), Govt. of Goa, Shri Mahesh Patil, Chairman, Goa State Pollution Control Board and Dr. Suresh Kumar Chaudhari, Deputy Director General (NRM), ICAR, New Delhi were the Guest of Honours. The inaugural function was also graced by Padma Shri Awardee Shri Amai Mahalinga Naik, Dr. Nevil Alphonso, Director of Agriculture, Dr. Agostinho Misquita, Director, Department of Animal Husbandry and Veterinary Services, Dr. Shamila Monteiro, Director of Fisheries, Directors and Ex-Directors of different ICAR Institutes. During the three day national symposium, two keynote addresses, sixteen lead lectures and several oral and poster papers were presented in seven technical sessions under different themes. The scientific deliberations during the national symposium have put forward many recommendations which will sensitize the system and act as a road map for developing research priorities and sustainable development policies in the coastal region. Dr. Suresh Kumar Chaudhari, Hon'ble Deputy Director General (NRM), ICAR, New Delhi Chaired the valedictory session. Dr. S.K. Pandey, Former Director, ICAR-CPRI, Shimla was the Co-Chairman of the session. Dr. Parveen Kumar, Director, ICAR-CCARI welcomed the guests and gave a brief remark

about the three days symposium. Dr. Suresh Kumar Chaudhari inaugurated the Agri-Business Incubation (ABI) Center of ICAR-CCARI, Goa and launched its website. He also inaugurated the Agro-ecotourism Hut established at the Institute. The valedictory function was attended by around 100 participants physically and 50 participants virtually including scientists, farmers, entrepreneurs and other stakeholders across the country.



Awareness program on bamboo cultivation under “Kisan Bhagidari Prathmikta Hamari” campaign @ AKAM

The Institute in collaboration with ICAR– Krishi Vigyan Kendra (KVK), North Goa organized an awareness program on Bamboo Cultivation as a part of “Kisan Bhagidari Prathmikta Hamari” campaign under Azadi Ka Amrit Mahotsav on 25th April, 2022. Mr. H.R.C Prabhu, Senior Scientist & Head I/C, KVK briefed on the importance of bamboo cultivation in Goa. Dr. Muralidhara Rao, Musa Gene Tech, Mangalore, spoke on the scope and future prospects of commercial cultivation of tissue cultured bamboo to enhance farm income. Mr. Milind Digambar Patil, Sahyadri Nursery, Kudal gave a talk on propagation, cultivation, plantation management, harvesting, economics and value addition of bamboo in coastal regions of India.

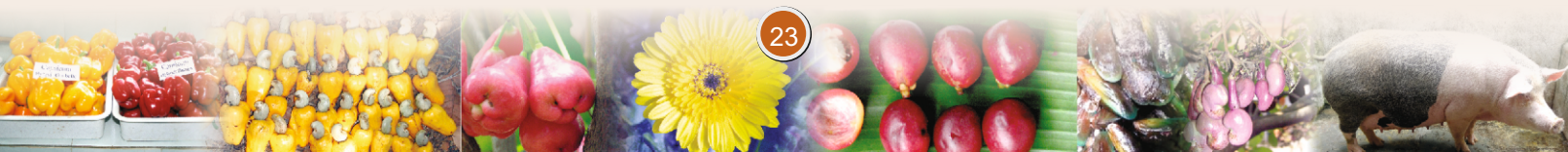
During the interactive session Dr. Uthappa A.R., Scientist (Agroforestry) briefed the participants about the various schemes under National Bamboo Mission and clarified the various queries on bamboo. The program was attended by 42 participants.



Workshop on “Design and development of acoustic methods for early detection of pest infestation”

Workshop on “Design and development of acoustic methods for early detection of pest infestation” and exposure visit for the students of electrical engineering department, National Institute of Technology (NIT) Goa was organized at ICAR – CCARI, Goa during 28/04/2022 under SERB-CRG Funded project. Around 30 students actively participated in the workshop. Dr. Maruthadurai, R., Senior Scientist (Entomology), ICAR, CCARI, Goa, welcomed the guests and briefed about the workshop. Dr. Parveen Kumar, Director, ICAR – CCARI, Goa, in his inaugural remarks briefed to students about ICAR – CCARI, its mission, mandates and achievements. Dr. Maruthadurai, R., Principal investigator of the project and Co-ordinator of the training program

made an elaborative presentation on “Design and development of acoustic methods for early detection of cashew stem and root borer (CSRB) infestation in cashew”. He elaborated about the acoustic methods, devices and their working principle for early detection of CSRB. He also mentioned some of flaws/drawbacks of acoustic device and urged the students to think and work on acoustic device for early detection of pest infestation. He also demonstrated and shown the acoustic device for early pest detection in crop science laboratory. An exposure visit to cashew field, agro-ecotourism unit, rabbit farming unit, poultry unit, piggery unit and livestock unit was organized.



State level workshop on Kulagar @ AKAM

The Institute and Association for Coastal Agricultural Research (ACAR) organized the “One day State level workshop on Kulagar” on 26th May, 2022 for farmers and Kulagar stakeholders under Azadi ka Amrit Mahotsav. Shri Narendra Sawaikar, Chairman, Goa Bagayatdar Sahakari, Ponda, Goa was the Chief Guest of the workshop. Dr. Milind R Bhirud, General Manager, NABARD, Goa, Shri. Nevil Alphonso, Director, Directorate of Agriculture, Goa, Shri R. Ganesh, Assistant General Manager, Canara Bank, Goa and Shri Sachin Gharat, Chief Manager, Sales & Business Development, State Bank of India, Goa, were the Guest of Honours. Dr. Parveen Kumar, Director, ICAR-CCARI, Goa welcomed all the dignitaries and delegates of the workshop. Shri. Nevil Alphonso encouraged the farmers to practice the age-old, traditional and time tested Kulagar farming. Dr. Milind R Bhirud emphasized the subsidies and other facilities available to the farmers through different banks and the role of NABARD in the development of agricultural and rural areas. Shri R. Ganesh briefed the farmers about the role of the public banking sector in agricultural development and nation building. Shri Sachin Gharat educated the farmers about role of SBI Bank in relation to credit KCC, Krishi Card and other schemes related to agriculture development. In the afternoon session, various lectures were delivered by different experts on various aspects of Kulagar management. The workshop was attended by around 200 participants which included farmers from different parts of Goa, officials from agricultural departments, banking, Zuari farm hubs limited, Jain irrigation, KVB green energies and other stakeholders of Kulagar. Dr. N. P. Singh, Emeritus Scientist, ICAR-CCARI, Goa and Organising Secretary of the workshop highlighted the

different problems like lack of planting materials, wild animals, water shortage and lack of linkages between different stakeholders etc faced by the Kulagar farmers. He further emphasised that all the stakeholders should work together and there is a need to form FPOs which will help in increasing the Kulagar farm income. Dr. A.R. Desai, Principal Scientist (Horticulture), ICAR-CCARI, Goa proposed the vote of thanks and Dr. Mathala J. Gupta, Senior Scientist, (AS&PE) compered the programme.



Felicitation of ICAR- CCARI, Goa by Government of Goa on 35th Statehood day

Government of Goa on its 35th Statehood Day presented a memento and citation to ICAR-Central Coastal Agricultural Research Institute, Goa on 30 May 2022 for its outstanding contribution towards progress and development of agriculture, animal husbandry, fishery and food processing which made revolutionary change in the state of Goa. Dr. Parveen Kumar, Director of this Institute received the award from Shri Shripad Naik Hon'ble MoS Tourism, Shipyard and Waterways, GoI, in the presence of Hon'ble Shri PS Sreedharan Pillai, Governor of Goa, Dr. Pramod Sawant Hon'ble Chief Minister, Govt. of Goa and other dignitaries in Raj Bhavan, Goa. Since the establishment of this institute in 1989, 17 varieties of different crops like rice, cashew, brinjal, okra, cowpea and red amaranthus has been developed for the state of Goa which are

extensively grown in the state. Besides, native breed of cattle Shweta Kapila and Agonda Goan pig have also been characterized and registered. ICAR-CCARI also helped Govt. of Goa in getting GI of agricultural produce like Khola Chilli and Myndoli banana. This is the first time ICAR CCARI, Goa is getting recognition from Govt. of Goa.



Goa State Biodiversity Board (GSBB), Government of Goa, honours ICAR-CCARI scientist Dr. Manohara K K

Senior Scientist Dr. Manohara, K.K. of the Institute was, honoured with the prestigious 'Goa State Biodiversity Conservation Award' for the year 2022 in the 'Applied Biodiversity Researcher' category during the World Environment Day programme held on 5th June 2022. The award carries a citation, Rs. 25000/- and a memento. He was awarded for his significant contribution to the conservation and utilisation of native rice varieties of Goa state. The salt-tolerant rice varieties developed by Dr. Manohara utilizing native salinity landrace Korgut have been able to bring back cultivation of paddy in the low lying coastal saline soils that are barren and left fallow due to continuous salinity and water logged problems. The improved seeds of indigenous paddy varieties supplied to farmers helped in reviving the old traditional varieties and created livelihood opportunities for

farmers in the state. He mobilized tribal farmers in the remote villages of Goa state and benefited a number of farmers through the production of quality seeds via participatory seed production. Certificates of recognition were given to Dr. Sreekanth, G.B., and Mr. Trivesh Mayekar, fisheries scientists of this Institute for their contribution in identification, conservation and documentation of native fish species. Dr. Parveen Kumar, Director ICAR-CCARI, was the chief guest and the award ceremony was held at CSIR-National Institute of Oceanography, Goa.



World Environment Day Celebration @ AKAM

The Institute and ICAR – Krishi Vigyan Kendra (KVK), North Goa celebrated World Environment Day at Government Primary School, Marcel in association with Samrat Club Marcel under the Azadi ka Amrut Mahotsav. Mr. Shramesh Bhosle, Zilla Parishad Member, Chief Guest, in his address, briefed the importance of Environment, necessary steps to be taken for conservation and protection of the environment. Mr. Rahul M. Kulkarni, Assistant Chief Technical Officer, ICAR – KVK, North Goa, delivered a talk on the importance of medicinal plants, kitchen and terrace garden, conservation of soil, importance of soil testing, organic and integrated nutrient management approach for profitability and methods to improve soil health. Mr. Vikas Bhagat, Guest of Honor, Chairman, Bicholim Taluka Govt Primary Teachers Society and Mrs. Manda Bhagat, Head Mistress, PTA Chairman, thanked KVK-North Goa, for their support in organizing

the programme. The programme was attended by 35 participants including school children and their parents and farmers. During the programme medicinal plants were distributed to the farmers, school children and their parents as a part of Van Mahotsav. Mr. Vishwajeet Prajapati, Technical Officer (Computers), ICAR – KVK, North Goa, documented the programme. Mr. Sarvesh Fulari coordinated all the activities during programme.



Institute Management Committee Meeting

The 51st Institute Management Committee (IMC) Meeting of the institute was held on 15.06.2022 under the Chairmanship of Dr. Parveen Kumar, Director, at 3.00 PM in the meeting room. The IMC members Dr. P. C. Haldvanekar, Associate Dean, College of Horticulture, Dr. BSKKV Dapoli, Dr. Ravi Bhat, Principal Scientist and Acting Head, Division of Crop Production, ICAR-CPCRI, Kasargod, were present physically in the meeting. The other members Dr. B.N. Sawant, Associate Director of Research, RFRS, Vengurla, Dr. J. Loka, Principal Scientist & In-charge Karwar Research Centre, ICAR-CMFRI, and Shri Saurabh Muni, Senior FAO, IARI, New Delhi were present via online mode. The Director gave a brief on the achievements made in research and extension by the Institute. Dr. Manohara, K. K., presented

overall research achievements, outreach programmes, visits of important dignitaries and awards received by the Institute and staff of the Institute during last one and half years. Sectional In charges Dr. A. Raizada, Dr. V. Arunachalam, Dr. R. Ramesh, and Dr. Shirish Narnaware, briefed the house about the different ongoing research activities of their respective sections. The IMC members appreciated the research and extension achievements made by ICAR-CCARI in the last one and a half year and congratulated the Director and entire team of ICAR CCARI. Member Secretary presented the action taken report of 50th IMC. Proposed agenda items as per the council's guidelines were discussed in the meeting.



Training on Disease Diagnosis and management of infertility in livestock organized for Veterinary Officers of Goa State

Institute organized a training on “Disease diagnosis and management of infertility in livestock” for the Veterinary Officers of Goa state on 15th June, 2022. 25 field veterinary officers of the Directorate of AHVS, Goa and Goa Dairy participated. The program included lectures on economically important diseases of ruminants, diagnosis of important diseases of pigs and poultry and management of infertility in farm animals. Training also included practical demonstrations of the collection of the blood sample from cattle and pigs and preparation of blood smear and swab sample collection from animals. There was also an interactive session in which participants and resource persons

discussed about the major challenges faced in the field. Dr. Shirish D. Narnaware, Senior scientist, Dr. Susitha Rajkumar, Senior Scientist and Dr. Gokuldas P.P. Senior Scientist, acted as training coordinators.



International celebration of Yoga Day @ AKAM

The 8th International Yoga Day was celebrated at ICAR-Central Coastal Agricultural Research Institute, Goa under Azadi ka Amrit Mahotsav with much enthusiasm and zeal. Mass yoga demonstrations were held from 18 to 20 June 2022 between 7:00 to 8:00 AM. On 21st June the employees of the institute performed live yoga demonstration, led by yoga guru Sh. Shailendra Gupta. Shri Gupta, also gave the employees tips for sound health and emphasized the importance of daily practice of yoga to improve physical and mental wellbeing. On the occasion, a blood donation camp was also organized at the institute in collaboration with Goa Medical College, Goa in which 28 employees donated blood. An essay and slogan writing competition on “The Benefits of Yoga on Mental and Physical Health” was also

organized with the aim to sensitize about the health benefits of yoga and the importance of physical as well as mental health in which about 10 employees participated.



Farmers' Awareness Program on Efficient and Balanced Use of Fertilizers (Including Nano Fertilizers) @AKAM

A farmers' Awareness Program on Efficient and Balanced Use of Fertilizers (Including Nano Fertilizers) was jointly organized by the Institute and ICAR-KVK (North Goa) in association with Zonal Agriculture Office, Bicholim, Government of Goa on 21st June 2022 at Mayem village-Bicholim Taluka under Azadi Ka Amrit Mahotsav. The chief guest of the function was Shri Premendra Shet Honourable MLA - Mayem Constituency and Chairman Goa State Horticulture Corporation. He appreciated the efforts taken up by ICAR-KVK (North Goa) for implementing the scientific method of farming. Shri H.R.C. Prabhu PC KVK (North Goa), in his welcome address briefed the importance of this farmers' awareness program and he highlighted the various research activities carried out in the Institute, the role of KVK in transferring the technology to the farmers. Mrs. Nilima Gawas, ZAO, Bicholim explained the various schemes of the Agriculture Department. Dr. Monica Singh SMS- KVK briefed farmers about the NICRA project to be implemented for the farmers. Sarpanch of Mayem Panchayat Mrs. Seema

Asnodkar appealed the village farmers to take up the new technology, new varieties developed by the Institute also to take the advantage of various schemes of the Agriculture Department. In the technical session, Dr. Paramesha V, Scientist (Agronomy), explained about the efficient and balanced use of fertilizer, importance of nano fertilizers, integrated nutrient management practices and organic farming. Mr. Rahul M. Kulkarni ACTO, KVK explained about the importance of soil testing, method of soil sampling, importance of soil health card, various organic manures to be used, and techniques of vermicomposting. Around 65 farmers from the village participated in this programme.



Interface meeting with Line Departments of Goa State @ AKAM

The Institute organized an interface meeting with officers of Directorate of Agriculture, Directorate of Animal Husbandry and Veterinary Services, and Directorate of Fisheries, Government of Goa on 24th June 2022 at ICAR-CCARI, Old Goa under Azadi Ka Amrit Mahotsav to discuss various researchable issues pertaining to agriculture and allied sectors. Dr. Parveen Kumar, Director, ICAR-CCARI, has given introductory remarks. Dr. Agostinho Misquita, Director, Directorate of Animal Husbandry and Veterinary Services, Shri. Shiwanand Wagle, Deputy Director of Agriculture

have given their remarks. The meeting was attended by 45 participants including all the Scientists of ICAR-CCARI, PC and SMS, KVK North and South Goa, and officers from line departments, Goa Biodiversity Board and Forest department. During the meeting, action points pertaining to decisions of the last year meeting was discussed. New agenda points received for the current meeting were discussed in length and action points were formulated to address the same. The meeting was co-ordinated by Dr. Manohara, K. K., Member Secretary, Interface meeting.



Conference/Symposia/Workshop/Training attended

Date	Name of Scientist	Programme	Venue
11-05-2022 to 13 - 05-2022	All Scientists	National Symposium on Self-Reliant Coastal Agriculture	ICAR -CCARI, Goa

Lectures delivered

Date	Name of the scientist	Program	Venue
20-01-2022	Dr. Amiya Ranjan Sahu	<ul style="list-style-type: none"> Goat breeds suitable for coastal region and selection of good quality breeding goats 	Skill development training on "Scientific goat farming ICAR-CCARI, Goa
20-01-2022	Dr. Susitha Rajkumar	<ul style="list-style-type: none"> Advantages of Goat Farming and status of goat farming in Goa Housing, Goat shed designs and various materials used in low cost and commercial goat shed Goat diseases and health care management 	Skill development training on "Scientific goat farming ICAR -CCARI, Goa
21-03-2022	Dr. Susitha Rajkumar	<ul style="list-style-type: none"> Common pig diseases and health care management of pigs 	ICAR – CCARI, Goa.
22-02-2022	Dr V. Arunachalam	<ul style="list-style-type: none"> Diversification options in coconut, arecanut gardens, and their ecosystem services 	ICAR Short course held at ICAR -CCARI, Goa
05- 02-2022	Dr V. Arunachalam	<ul style="list-style-type: none"> Potential minor tuber crops genetic resources in Coastal Ecosystem, Andaman & Nicobar Islands, and Lakshadweep for the participants of 10 days short course 	Virtual platform organized by ICAR Central Tuber Crops Research Institute Thiruvananthapuram



09-03-2022 to 11-03-2022	Dr. Amiya Ranjan Sahu	<ul style="list-style-type: none"> • Poultry breeds and varieties suitable for coastal climate and their breeding strategy for propagation ” 	Skill development training -cum- demonstration on Backyard poultry farming at ICAR-CCARI, Goa
21-03-2022 to 23-03-2022		<ul style="list-style-type: none"> • “Breeds of pigs and their important characteristic features and utility in coastal climate” • Practical demonstration on “Routine practices in pig farm operations, feed preparation and health care of pigs” • Practical demonstration during field visit for demonstration on “Deworming, Vaccination, Castration, Semen Collection and A.I at Farmers’ field” 	Training -cum- Demonstration on “Scientific Practices in Pig Husbandry” under TSP programme of AICRP on PigICAR – CCARI, Goa.
25-06-2022	Dr V. Arunachalam	<ul style="list-style-type: none"> • Fruit cultivation & Kitchen gardening to 60 farmers & women entrepreneurs of Amona village, North Goa 	Amona village, North Goa (Fig A5 Amona.jpg)
15-06-2022	Dr. Gokuldas PP	<ul style="list-style-type: none"> • Management of infertility in farm animals - An overview of important causes & treatment strategies 	ICAR -CCARI, Goa



Administration

Foreign Deputation:

Dr. Mahajan Gopal Ramdas, Senior Scientist (Soil Science) has been permitted to avail Fulbright Nehru Fellowship 2021-22 at University of California Riverside UNITED STATES for a period of nine month w.e.f 31-03-2022.

Study Leave:

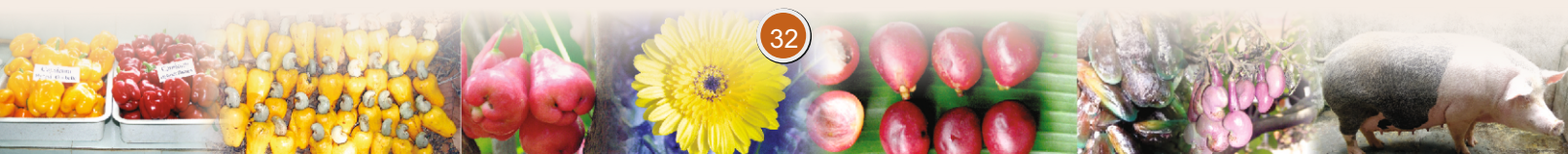
Shri Vinod A. Ubarhande, Farm Suptd/ACTO has been granted study leave for the academic year 2021-2022 for pursuing Ph.D. at college of Agriculture, Hyderabad, w.e.f. 15-01-2022.

Superannuation:

Name	Post held	Date of Retirement
Shri Edward Crasta	Technical Officer	31-05-2022
Shri Chimno Dattu Tivrekar	Skilled Support Staff	31-05-2022
Dr. Surendra Kumar Singh	Principal Scientist (Soil Science)	30-06-2022

Promotion:

S.No.	Name/designation of the Scientists	Promoted to the higher grade	effective date
1	Smt. Shreya C. Barve , Steno Gr -III	Personal Assistant	01-01-2022
2	Dr. R. Solomon Rajkumar, Scientist (LPT)	Placed in Level 12 (pre -revised pay Rs. 15600 -39100 + RGP Rs. 8000 / -) and re -designated as Sr. Scientist from 30 -06-2021 i.e. the date of acquiring Ph. D	09-11-2019
3	Dr. Maruthadurai R. Scientist (Entomology)	Placed in Level 12 (pre -revised pay Rs. 15600 -39100+RGP Rs. 8000 / -) and re -designated as Sr. Scientist	27-04-2020
4	Dr. P.P. Gokuldas, Scientist (Animal Reproduction)	Placed in Level 12 (pre -revised pay Rs. 15600 -39100+ RGP Rs. 8000 / -) and re -designated as Sr. Scientist	25-06-2020



5	Shri Trivesh S. Mayekar Scientist (Fish Genetics & Breeding)	Placed in Level 11 (pre -revised pay Rs. 15600 -39100+ RGP Rs. 7000 / -)	01-01-2019
6	Dr. Paramesha V. Scientist (Agronomy)	Placed in Level 11 (pre -revised pay Rs. 15600 -39100+ RGP Rs. 7000 / -)	01-07-2019
7	Dr. Bappa Das Scientist (Agricultural Meteorology)	Placed in Level 11 (pre -revised pay Rs. 15600 -39100+ RGP Rs. 7000 / -)	01-07-2019
8	Dr. Maneesha S.R. Scientist (Fruit Science)	Placed in Level 11 (pre -revised pay Rs. 15600 -39100+ RGP Rs. 7000 / -)	18-10-2019
9	Dr. Sujeet Desai Scientist (L&WME)	Placed in Level 11 (pre -revised pay Rs. 15600 -39100+ RGP Rs. 7000 / -)	01-01-2020
10	Dr. Manohara KK Senior Scientist (Plant Breeding)	Placed in Level 13 (A) (pre - revised pay Rs. 374000 - 67000+ RGP Rs. 9000 / -)	21-04-2021
11	Dr. Mahajan Gopal Ramdas Scientist (Soil Science)	Placed in Level 12 (pre - revised) pay Rs. 15600 - 39100 +RPG Rs . 8000 / -) and re-designated as Sr. Scientist	02-07-2021
12	Shri Shashi Vishwakarma, Tech. Officer	Senior Technical Officer	20-12-2020
13	Shri Vishwas Sharma , Assistant	1 st MACP in the Pay Level 7 (completing 10 years of continue service)	21-05-2022

Clearance of Probationary Period and Confirmation:

Sl.No.	Name and Designation of the Scientist	Date on which Probation cleared	Date on which due
1	Shri Vinod Dharmu Pagi, Assistant	22-09-2021	23-09-2021

Transferred to ICAR-CCARI:

Name	Post held	Transfer from	Date of joining
Dr. A. Raizada	Principal Scientist (Agroforestry)	ICAR -MGIFRI, Motihari	11-05-2022
Dr. Shirish D. Narnaware	Senior Scientist (Veterinary Pathology)	ICAR - NRC on Camel, Bikaner, Rajasthan	02-05-2022

