

ICAR-CIARI NEWSLETTER

APRIL - JUNE, 2022

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From Director's Desk ...

I am happy to present some of the salient achievements made during the second quarter of the year 2022.

Our scientists have developed a novel protocol for Greater yam propagation, which will be highly useful in rapid multiplication of planting material and transportation of propagules. Exploration undertaken in Car Nicobar Island has yielded 11 unique germplasm of different tuber crops. Vacuum drying and air drying method for Indian Bay leaf showed better retention of chlorophyll in the dried produce. Seed germination study in Surinam Cherry showed that highest germination percentage was recorded when coir pith compost was used as a substrate than in soil or vermicompost.



Molecular characterization of Teresa goat using Next generation sequence based whole mitochondrial genome analysis revealed that Teresa goat falls under haplogroup A and shared a close genetic relationship with Xiangdong black goat, Longdong black goat, Jintang black goat of China and Jamnapari goat of Bangladesh. Studies on management of moisture stress in vegetable cultivation revealed that drip irrigation with plastic mulch, application of pusa hydrogel and foliar spray of K and Ca found to be best option to mitigate the moisture stress and get higher yield and water productivity in brinjal, tomato & okra.

As new initiative, a project on Coastal fisheries information hub for Nicobari tribes has been launched and implemented at Car Nicobar with funding support from DST. Our institute has conducted successfully Annual Sports events and I congratulate all the staff for their active participation. In collaboration with Andaman Science Association, a two days virtual webinar was successfully conducted with huge participation from across the country.

The second meeting of the 9th RAC was conducted under the Chairmanship of Professor N. C. Gautam followed by Institute Research Council meeting on 6-8th June. The 8th International Day of Yoga (8th IDY) was celebrated by the staff at main campus as well as from Regional Station, Minicoy.

Our institute has completed 44 years for the service of island agriculture, I thank all the staff members for their significant contribution and commendable work during the journey. I congratulate all the Scientists and technical staff who have been assessed and promoted to the next scale/grade. The period has witnessed a number of training/demonstration for disseminating the technologies to the farmer's fields.

I thank all the officials of SMD for support and all the staff members of our institute for their dedication and hard work for the growth and development of our institute.

Research Highlights

Drought response in Andaman Padauk (*Pterocarpus dalbergoides*)

I. Jaisankar, S. Srividhya, B. Augustine Jerard, A. Velmurugan and Manasseh Moses Ezekiel

The study was aimed at investigating the effect of drought stress on the physiology of Andaman Padauk (*Pterocarpus dalbergoides*) seedlings using relative water content (RWC), chlorophyll stability index (CSI) and leaf epicuticular wax content (EPW). Three-month-old uniformly grown seedlings were sorted into two sets of treatments (control and drought stress) in a randomized block design with three replicates. The results revealed that the genotypes categorized as tolerant accessions (Mohanpur and Saddle Peak) persisted drought conditions much longer than the other accessions because of their rapid adaptive mechanisms that have been evaluated in this study.

A novel protocol for Greater yam propagation

B. Augustine Jerard and V. Damodaran



Plate 1: Greater Yam production in pro trays

A novel protocol was conceptualised, tested and standardised for increasing the quality planting material production in Greater yam. Under normal practices, nearly 30 % of the tuber produce of Greater yam is to be stored for use as planting material for the ensuing season. This novel protocol involves the use of aerial tubers produced on the greater yam vines for rooting and shooting, thereby reducing the cost of transportation of planting material and saving the seed tubers. The farmers' varieties of Domrit pink, Antonth, Achin white and Achin White were tested and found suitable for the use of aerial tubers as propagules. The method involves harvesting of aerial tubers, storing in dark condition for 45 days

followed by sowing in pro trays filled with soil and coconut husk. Over 80% sprouting was observed in the tested varieties. The novel method will be highly useful in rapid multiplication of planting material, transportation of propagules of greater yam during distribution to farmers and also during germplasm exchange.

Unique tuber germplasm collected from Nicobar Islands

B. Augustine Jerard, V. Damodaran and I. Jaisankar



Plate 2: Tuber germplasm collection from Nicobar

Exploration undertaken in Car Nicobar Island has yielded 11 unique germplasm of different tuber crops which have potential for ensuring food security under marginal growing environments. The collection included three 'bunda' types of Colocasia, four Greater yam accessions (Domrit pink, Achin pink, Tillang Chang and Antonth), two tannia accessions and two White Yam accessions. The unique collections are planted for further multiplication at the institute.

Morphological studies in seedling progenies of cinnamon

Ajit Arun Waman and Pooja Bohra

In order to identify island suitable genotypes of true cinnamon, systematic studies on characterization of seedling progenies were taken up. In continuation with the bark morphological and biochemical characterization of the collections, leaf morphological parameters were recorded for the collection during the period. Wide variations were observed for mean leaf length, leaf width, leaf weight, petiole length and petiole thickness.

Evaluation of collections of Indian Bay Leaf from Andaman Islands

Ajit Arun Waman and Pooja Bohra

Indian Bay leaf is a popular spice in the Andaman Islands. The spice is being grown in the households

of diverse ethnicities among the settler communities of the islands. In order to identify superior germplasm of this crop under island condition, six collections were identified from South Andaman and Middle Andaman Islands. Collections were evaluated for morphological and biochemical parameters during the period. Significant variations were noticed for leaf morphological parameters of the collections such as leaf length (12.96- 17.16 cm), leaf width (3.52- 4.83 cm) and leaf weight (0.71- 1.26 g). Wide variations were also observed in the collections for moisture content, chlorophyll content and total carotenoids content in both fresh samples and shade dried samples. Oleoresin content in the shade dried samples of the collections varied from 9.28% to 14.16%.

Effect of drying methods on quality of Indian Bay leaf

Ajit Arun Waman and Pooja Bohra

Effect of four drying methods *viz.* air drying, sun drying, hot air oven drying and vacuum drying was studied on the quality of tejpat. Results revealed significant influence of the drying method on colour retention and oleoresin content of the product. Vacuum drying of the produce suggested highest oleoresins content (12.21%), while the lowest content was observed in oven dried produce. Vacuum drying and air drying resulted in better retention of chlorophyll in the dried produce.

Biochemical changes in woody pepper stem as influenced by pre-processing refrigerated storage

Ajit Arun Waman and Pooja Bohra

During earlier studies, dehydrated powder from woody pepper was prepared for improving the shelf life of the product and thereby enhancing its marketing prospects. However, this processing method involves various stages and thus storage of bulk harvested produce in refrigerated conditions would be required till processing. In order to know the effect of refrigerated storage on biochemical contents, the study was taken up. Phenolic acid profiling and piperine content was determined in the samples stored for 7 to 16 days in the refrigerator before vacuum drying and hot air oven drying. Interestingly, biochemical composition showed variations with the storage duration and drying methods and ferulic acid was not always the dominant compound in the study as observed during the earlier studies.

Morphological & biochemical characterization in germplasm of *Garcinia species*

Pooja Bohra and Ajit Arun Waman

Interspecific variations in plant, leaf, fruit and seed morphology, season of fruiting and other important parameters were studied in six *Garcinia* species. Besides, elaborate morphological characterization of leaves, fruits and seeds of *Garcinia gumigutta* germplasm was carried out. Wide variations were recorded in leaf shape, size, fruit size, shape, shape of ridges, colour, peel thickness, seed size, seed weight *etc.* Variations in phenolic and anthocyanin composition of fruits of seven Andaman kokum (*Garcinia dhanikhariensis*) collections were recorded.

Physico-chemical characterization of Surinam cherry (*Eugenia uniflora*)

Pooja Bohra and Ajit Arun Waman

Surinam cherry is an exotic underutilised fruit species belonging to the family Myrtaceae. It grows as a shrub and bears attractive ribbed fruits which change colour from green to pale yellow, orange and red with advancement in maturity. Fruits from the plants conserved in the Underutilised Fruits Germplasm block were harvested during April, 2022 and used for the study. Fruits were divided into two lots of breaker stage and ripe stage. Significant variations were recorded in fruit length, fruit width, fruit weight and weight of edible portion per fruit. All the harvested fruits had eight ribs and number of seeds per fruit was generally 1 and occasionally 2. Total soluble solids and pH increased from 11 °Brix to 12.33 °Brix and 3.05 to 3.26, respectively from breaker to ripe stage.

Seed germination study in Surinam Cherry

Pooja Bohra and Ajit Arun Waman

Effect of substrates on seed germination was studied in Surinam cherry (*Eugenia uniflora*). Highest germination percentage (97.14%) was recorded when coir pith compost was used as a substrate than in soil or vermicompost. Seedling growth parameters *viz.* shoot length, number of leaves, leaf length and width, collar thickness, number of primary roots and root thickness had significant variations among the treatments, while root length was statistically similar in all the treatments.

Coastal fisheries information hub for Nicobar tribes of Car Nicobar

R Kiruba Sankar, D Karunakaran, J Praveenraj, K Saravanan, Sirisha Adamala, Y Ramakrishna

A baseline information on the prevalence of marine

debris was generated through field surveys at Car Nicobar Island from different locations (Arong, Passa, Malacca, Tamaloo, Mus, Big Lapathy, Teetop, Sawaii, Kimos, Kakkana). The secondary data on the licensed fishermen from the villages of Car Nicobar was also collected. Data on awareness and perception on marine fauna were collected through personal interviews from the fishermen of Car Nicobar Island (N= 120). Land use land classification (LULC) maps were generated for Car Nicobar Island.

Lineage analysis of Teresa goat using Next generation sequence based whole mitochondrial genome analysis

Arun Kumar De, D. Bhattacharya and Jai Sunder

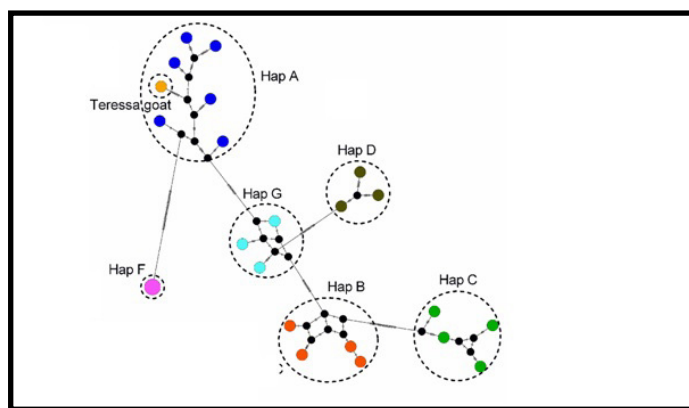


Plate3: Haplogroup assignment of Teresa goat using concatenated nucleotide sequence information of mtDNA protein coding genes (PCGs).

Teresa goat, a recognized Indian goat breed (Accession Number: INDIA_GOAT_3300_TERESSA_06025), is native to Teresa Island of Nicobar group of islands. As the origin and genetic lineage of the breed is not known, next generation sequence based whole mitochondrial genome analysis was done to delineate the genetic lineage of the breed which will cast light on the origin and migration history of the breed. Six major genetically diverse lineages of domestic goats (haplogroup A-D, F and G) have been reported. Phylogenetic analysis based on concatenated nucleotide sequences of protein coding genes of the whole mitochondrial genome revealed that the Teresa goat falls under haplogroup A (Plate 3).

Moreover, it was found that Teresa goat shared a close genetic relationship with Xiangdong black goat of China (KM998968), Longdong black goat of China (MW563732), Jintang black goat of China (KP231536) and Jamnapari goat of Bangladesh (KY305183) (Plate 4).

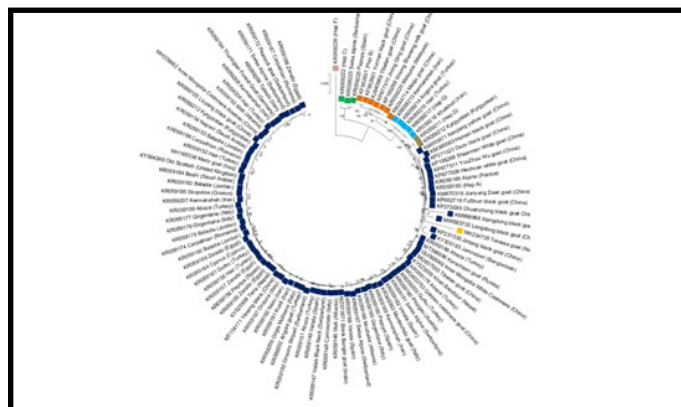


Plate 4: Phylogenetic relationship of Teresa goat with different goat breeds all over the world. ML phylogenetic tree was constructed based on concatenated nucleotide sequence information of mtDNA protein coding genes (PCGs)

Impact of controlled environment for local duck farming to reduce antibiotic resistance bacteria

T. Sujatha, Jai Sunder, D. Bhattacharya & A.K. De

Next to chicken, duck is the most preferred poultry in A & N Islands and is the only chicken protein source in some pockets of these Islands. However, predominantly it is reared by small-scale farmers under a free range system although with a flock size of fifty numbers. Ducks are extremely predisposed to environmental pathogens including human excreta from indiscriminate antibiotic uses. The level of antibiotic resistance of bacteria in the environment can be indirectly tested by pathogens isolated from free-range birds. This preliminary *in vitro* study was conducted on the impact of the system of duck rearing on antibiotic susceptibility of indicator bacteria *E.coli* from the duck. A total of 12 cloacal swabs were collected from healthy ducks from both intensive and free-range systems. Before sampling, basic information on management, feeding, uses and disposal of unused antibiotics were gathered. Swabs were processed through a routine culture method for isolation and identification of the organisms. Antimicrobial susceptibility testing was performed on some antibiotics which are commonly used in human medicine such as amoxycylav, rifampicin, erythromycin, sulfafurazole, cefoxitin, oxytetracycline, and penicillin. All the isolates from controlled farm conditions were susceptible to these antibiotics with the zone of inhibition ranging from 10.0 to 16 mm. Multiple antibiotic resistance was shown to four antibiotics (*oxytetracycline, penicillin, erythromycin, and sulfafurazole*) by all the isolates from the free range system. Extensively reared

ducks accessed dumping places of drug containers, latrine, and medicine disposal systems. Hence, drug remains and containers were haphazardly disposed of in the household surrounding environments which may expose ducks to the antibiotic. Therefore, the intensive management system of ducks can help to minimize the unnecessary exposure of ducks to antibiotic residues.

Seasonal calendar (*Hinruolo-kahe*) of Nicobari tribe and climate change

A.Velmurugan, T.P.Swarnam & T.Subramani

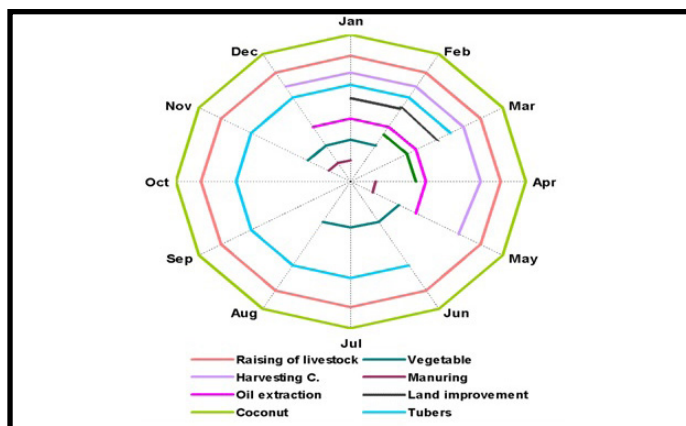


Plate 5: Hinruolo-kahe (Seasonal Calendar) of the Nicobarese

Climatic variability over Nicobar Islands has been significant as indicated by recent analysis and the Nicobari tribe are known to possess credible information on climate and adaptation measures. The agricultural practices carried out in different gardens and in coconut plantations are regulated by seasons, for which *Nicobarese* developed their traditional calendar based on different seasons by which they undertake cultivation and other economic activities (Plate 5). According to the Nicobari elders the seasons are broadly divided into *sikehagō* (summer season) *sung* or *yuuch* (rainy season). Onset of south-westerly winds from sea indicates the arrival of the rainy season while the change of wind direction marks the withdrawal of rains and onset of dry months. Based on this, bush cleaning and firing in January (Ranch) is carried out after Christmas and New Year celebrations followed by *Hachuhha-un* (fencing) in March and *Hakonpanō-o* (Dibbling seeds/ plants) in April. *Vito-anpanō* (late gardening works) is carried out from May to June.

Nicobarese start harvesting *kinreai* (jackfruit), mango, jamun etc., onwards from *Ranch* or *Sung* besides from the forest. Its seeds (*kulal*) are preserved for consumption in the rainy season or sowing during

the pre-monsoon season. It is their custom to avoid harvesting tubers during peak monsoon season. Further, the seasonal calendar indicates limited socio-economic activities during the dry period. They do restrict fishing activity during March – April to avoid catching juveniles and brooders in the back waters which are scientifically well established. For this reason it is observed that the tribal society rotates consumption of a variety of foods in certain seasons due to non-availability of certain resources and hence alternative subsistence is found based on their traditional calendar. Most notable observation was a shift in seasonal farming operations depending on onset or withdrawal of monsoon besides restarting short duration crops after cyclonic storms.

Moisture stress management for vegetables

T.Subramani, T.P.Swarnam & A. Velmurugan



Moisture stress management in Okra

Moisture stress management in Tomato

Plate 6: Moisture stress management in vegetables

During the dry period, the effect of moisture stress management practices with horizontal (Drip+plastic mulch, Sub-surface drip and surface irrigation) and vertical treatments (Hydrogel, hydrogel + K spray, hydrogel + Ca spray, hydrogel + K & Ca spray) on growth, yield attributes and yield of vegetable crops was studied (Plate 6). From the results of experiments, it is concluded that the drip irrigation with plastic mulch, application of pusa hydrogel and foliar spray of K (as Potassium Nitrate) and Ca (as Calcium Nitrate) is the best option to mitigate the moisture stress and get higher yield and water productivity in vegetable crops (Brinjal, tomato & okra) under island condition

Success Stories/Case report

Transition of unemployed youth into maker of home-made mini incubator

Ms. Deepika from New Manglutan, South Andaman is a school drop-out youth of 23 years old. They have a land of 3.0 ha with only areca nut and coconut



Plate 7: Ms. Deepika, New Manglutan unemployed youth into maker of home-made mini incubator

plantations. She thought of initiating livestock rearing in particular desi poultry farming. However, she had nil knowledge of livestock farming. Hence, she approached DBS-Biotech Kisan Hub through KVK, South Andaman to get information on livestock and poultry farming. She joined a training program on poultry farming and acquired knowledge on practices of housing, feeding, and vaccination for poultry. She got interested in setting up a mini incubator and then installed a mini incubator of 120 eggs capacity. Eggs were set and skill on how to operate the machine was imparted. Knowledge on setting conditions for eggs up to 18 days and hatching conditions for the last 3 days, candling, fumigation, and cleaning of incubators were taught to her. A pamphlet on the operation of the mini incubator was given to her for reference.

She could able to hatch out chicks and charge a hatching cost of ₹ 20 per egg of both desi and duck. More than 100 farmers have benefited in this remote area. Farmers bring desi poultry and duck eggs and use this mini incubator as an incubation facility. Through this service, she is earning a net income of ₹ 4500 per month. She has become a supplier of rural poultry chicks and the availability of chicks has improved significantly in this area and the difficulty in getting day-old chicks is gradually abolishing in this area. She is planning to start her duck unit.

(Facilitator :T.Sujatha and Jai Sunder)

Successful graduated woman on advanced rural poultry farming for laying purpose with balanced feeding

Smti. Rajeshwari aged 40 years from Maymyo village, South Andaman is a graduated woman. She has a small land of 6 acres wherein she was rearing four goats which were housed in a small kutch house. She had 10 numbers of backyard poultry. She



Plate 8: Smti. Rajeshwari, Mameyo

did not have any knowledge of scientific feeding, housing, and management of poultry. She wanted to use the land fruitfully and was interested in improving the livestock component. She applied for the DBT Bitoechkisan hub farmers fellowship program and underwent fellowship training under Biotech Kisan hub for one month. At the end of the training after acquiring all the technical skills in scientific poultry farming, she was interested to establish desi poultry farming for egg purposes. She availed a loan from the local cooperative bank. She started practising all scientific methods of housing, feeding, and health management for desi poultry. Within three years, she was able to increase the flock size to 100 hens with 68 cocks. Egg production has been increased from 60 to 2490 with hen-housed egg production of 34 nos. In one year, she sold around 200 kgs of meat @ ₹500 per kg for a sum of ₹ 1,00,000/- and sold eggs @ ₹ 18 per egg for ₹ 44820/- and excluding expenditure on feeding for ₹ 48500/-, she could earn net income of ₹ 96320/-. This net income could contribute significantly to repaying her bank loan. She is planning to expand her desi poultry unit with her own mini feed mill *(Facilitator: T. Sujatha and Jai Sunder)*

Livestock Farming at Minicoy enhances the income of Smti. Ayeshomma Beegum

Smt. Ayeshomma Beegum, aged 40 is a school dropout with 8th Std. She has loved animals since her childhood days. Along with her trustworthy husband she started a dairy unit with two cows of Jersey breed without any technical know-how in the South Pandaram area of Minicoy Island in the year 2020. Hardly had she used to get 5 liters of milk daily. After the contact with the team of RS Minicoy and the guidance offered, she augmented the number to 6 cows which included HF, Jersey, and local breeds, as a result, the milk production increased from 5 litres



Plate 9: Smt. Ayeshomma Beegum, women entrepreneur

to 53 litres. Presently, she is supplying milk for 93 daily customers around Minicoy along with door-to-door service also. Later on perceiving her curiosity and dedication, ICAR-CIARI, Regional Station, Minicoy encouraged her to attend a hands-on training on Mini-incubator under Biotech Kisan Hub, which inspired her to incorporate poultry components also in the farm. She hatched 207 chicks of layers with the services provided under Biotech Kisan Hub. On seeing the potential of a mini-incubator, she purchased her incubator with a capacity of 540 eggs. To date, she has hatched nearly 1000 eggs of broiler & layers and sold the chicks at a rate of ₹ 25-30/chick.

The scientific team of the ICAR-CIARI provided all the technical guidance regarding scientific management practices, feeding mineral supplements, vitamins, and timely deworming. A plot of fodder (CO5 variety), was also established in an area of 338 which created support for the green fodder requirement for the cattle. Nearly 50 m² areas are managed under chili cultivation in grow bags (seedlings taken from ICAR-CIARI, Regional Station farm). The manure generated from the farm is properly used for fodder and vegetable cultivation.

With the technical support of the ICAR-CIARI, milk production has increased from 5 litres to 53 liters, and further, there is additional revenue generation by selling eggs and chicks.

Revenue of nearly ₹ 1,89,000/- was generated annually through the sale of milk (₹ 60/litre), egg (₹ 6 /egg), and chicks (₹ 20-30 /chick). She along with her family has been motivated by the technical guidance from the ICAR-CIARI and is looking forward to incorporating components like coconut-based integrated farming system, pisciculture, and with ducks for steady income in days to come.

(Facilitator: Gladston Y, Ajina S.M, A. K. O Ratheesh, Sharefuddeen Hassan Kararngothi, S. K Zamir Ahmed, Jai Sunder & B.A. Jerard)

A tribal destitute women turns farm women for supporting livelihood through backyard duckery, and nutritious kitchen garden

Smt. Aneesa Hinavage, aged 48 was mainly focussing on vegetable cultivation (Solanaceous vegetables and okra) in her backyard. She maintains one local breed of cow and a calf along with 5 rabbits. When the ICAR-CIARI scientific team visited her and found there is high potential in escalating her livelihood the team encouraged her to attend a hands-on training in Mini-incubator. Thereafter, in the year 2021 she started rearing Kuttanad breed of ducks 10 (8 females and 2 males) numbers under the banner of ICAR-CIARI, Regional Station, Minicoy, which helped her to boost revenue generation in addition. Till dateshe has sold nearly 1250 eggs @ ₹ 10/egg. She also sold a bull for ₹ 60000/- on demand. In an area of 120 m² she is cultivating cucurbitaceous vegetables like Sponge gourd (Local variety) and bottle gourd. She has sold 248 Kg of Sponge @ ₹ 20/Kg which adds to additional revenue. Scientists of the ICAR-CIARI provided all the technical guidance regarding scientific management practices on pest and disease and feeding mineral supplements. Nearly 140 m² area is under chilli, brinjal, amaranthus and tomato cultivation which is managed in grow bags for household purposes. With the technical support of the ICAR-CIARI, rearing ducks fetched additional income for her family and she is looking forward to enhancing the stock. Revenue of nearly ₹ 77,460/- was generated annually. She along with her family is satisfied by the technical guidance from the ICAR-CIARI team and is looking forward to enhancing the number of ducks to 50 numbers, Also she wants to add high milk producing breeds like HF and Jersey cattle. She has also started to make enclosures by demarcating the land for vegetable cultivation.



Plate 10: Smt. Aneesa Hinavage, Farm women entrepreneur

(Facilitator: Gladston Y, Ajina S.M, A. K. O Ratheesh, Sharefuddeen Hassan Kararngothi, S. K ZamirAhmed, Jai Sunder & B. A. Jerard)

High value vegetable cultivation under rainout shelter



Vegetable cultivation under rainout shelter

Plate 11: Mr. Varatharajan, Beodnabad

Mr. Varatharajan, resident of Beodnabad village, South Andaman is having 2 ha of hilly land with coconut plantations, banana and vegetables. During the rainy season, he was struggling to cultivate vegetables due to continuous rain. However, during the post monsoon season (Oct-Apr), he used to cultivate a few vegetables like brinjal, cowpea, okra and gourds to meet the family requirement. Under the situation, the Division of Natural Resource Management, ICAR-CIARI with the financial support of NABARD has demonstrated high value vegetable cultivation and vermicompost production under rainout shelter. The rainout shelter was constructed on hilly land to grow high value vegetables. The vermicomposting was done using the crop residues to meet the nutrient requirement of vegetables. The vegetables like tomato, chilli, brinjal, okra, coriander and palak were cultivated under rainout shelter during the rainy season also. Now, the farmer is getting income round the year from vegetable cultivation besides meeting the family requirement. The farmer is earning more than ₹ 10,000/ month through vegetable production from small (75 m²) rainout shelters.

(Facilitator : Dr. T. Subramani)

Integrated Farming Systems for climate change adaptation



Plate 12: Mrs. Mallika, Maccapahad

Smti. K. Mallika, resident of Maccapahad, South Andaman has 1 ha of hilly agricultural land. Arecanut

is the dominant plantation crop followed by coconut and no intercrops were found. Vegetables are the major annual crop grown by the farmer. The farmer has 4 cows, 6 goats & 40 backyard poultry birds. NRM division of ICAR-CIARI has demonstrated an integrated farming system model at farmer's fields with the financial support from NABARD. A shed was constructed for poultry, goat besides for making vermicompost. The farmer was given 5 numbers of goat kids (4+1), 50 vanaraja birds and a composting bag for residue recycling. Spices viz., black pepper, clove, nutmeg were given and introduced as intercrops in the existing plantations. Azolla was grown in shallow bags and used as supplementary feed for poultry and goats. The crop residues were collected and composting was done after one day training the farmer. Now, the farmer is getting regular income from livestock and vegetables besides meeting the family nutritional requirement. The farmer is getting ₹ 1.5 lakh/year as additional income after the intervention.

(Facilitator: Dr. T. P. Swarnam)

Important events held

ICAR-CIARI conducted Annual Sports-2022



Plate 13: Teal house awarded with 'Overall Championship Trophy'

ICAR-Central Island Agricultural Research Institute (ICAR-CIARI), Port Blair celebrated its Annual Sports-2022 from 25 to 27 April, 2022. The event was inaugurated by Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI. In his inaugural address, he accentuated the importance of sports to lead a healthy lifestyle. A total of 60 events including outdoor, indoor and athletic events were conducted for the staff and their family members. Teal House was awarded with 'Overall Championship Trophy' for their splendid performance in all the events. Besides, 'Best Athlete Trophies' were awarded to Shri. A. Babuswamy and Smt. Nutan Roy. The event was organized under the

guidance of Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI by Dr. Jai Sunder, Chairman and Dr. K. Saravanan, Member Secretary of Sports Committee along with the committee members.

World Veterinary Day Celebrated

ICAR-CIARI, Port Blair organized a one day workshop on Zoonoses: An Emerging Public Health Threat as a part of *Azadi ka Amrit Mahatsov* on the auspicious occasion of World Veterinary Day – 2022” on 30.04.2022. Dr. P. Vijayachari, Director, ICMR-RMRC, Port Blair was the Chief Guest. Dr. Ajay Varma, Director (I/C), DAH & VS, A&N Administration and Dr. Avijit Roy, Deputy Director (Health) & Nodal Officer (COVID-19) were the Guest of Honor while Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI, Port Blair presided over the function. A total of 74 participants including Senior Veterinary Officers from DAHVS, Scientist and SMS from CIARI and KVK, farmers, stakeholders, NGO attended the programme. Dr. Eaknath B. Chakurkar in his address signifies the role of Veterinarians in playing a crucial role in public health particularly one health approach to understand the dynamics and epidemiology of zoonotic diseases. He appreciated the veterinarians who are working directly with the farming community and stressed on creating an awareness about the zoonotic diseases so as to curb the impact on public health. A total of 74 participants including Senior Veterinary Officers from DAHVS, Scientist and SMS from CIARI and KVK, farmers, stakeholders, NGO attended the programme.



Plate 14:celebration of World veterinary day

9th Research Advisory Committee meeting conducted

The second meeting of the 9th RAC of ICAR-CIARI, Port Blair was held under the Chairmanship of Professor N.C. Gautam on 21.05.2022 at Dr. N.T. Singh Conference Hall, ICAR-CIARI with Dr.



Plate 15: 9th RAC meeting of ICAR-CIARI



Plate 16: Field visit conducted

B.S. Dwivedi, Member (NRM), Dr. P. Mahapatra, Member (Horticulture) and Dr. Nitu Sindhu and Shri. Ravindra Das, Farmers’ Representatives joined physically while Dr. R. K. Jain, Member (Breeding/ Plant Protection) and Dr. S.S. Dana, Member (Animal Science) joined online. At the outset, Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI welcomed the Chairman, Members and all the participants for the meeting. Subsequently, Dr. S. K. Zamir Ahmed, Member Secretary, RAC presented the Action Taken Report (ATR) on the recommendations of RAC given during the last meeting held on 23.04.2021. This was followed by a presentation of Director, ICAR-CIARI on the overall research, development and extension achievements of the Institute for the period 2021-22 thereafter Division-wise presentation by respective Heads.

Two days National Conference on Underutilised Horticultural Genetic Resources

ICAR- Central Island Agricultural Research Institute, Port Blair in collaboration with Andaman Science Association and Department of Biotechnology, New Delhi organised two days virtual National Conference on “Underutilised Horticultural Genetic Resources: Conservation and Utilisation” on the occasion of World Environment Day during June 3-4, 2022. The conference was inaugurated by Dr. Chittaranjan Kole, Former VC, BCKV, Kalyani. He emphasised upon conserving the precious biodiversity of the islands and its sustainable utilisation for mitigating the challenges posed by the climate change. Dr. B. K. Pandey, ADG

(HS), ICAR was the Guest of Honour, highlighted the importance of native species and the urgent need of research on these. Dr. N. K. Krishna Kumar, Former DDG (HS), ICAR, served as the Guest of Honour and delivered a Keynote lecture. He explained the interdependence of various organisms, which forms the balance of the system in total. He also highlighted the need of adopting the holistic approach to achieve environmental, ecological and economic security. Padma Shri Dr. Brahma Singh, Founder, Prof. Brahma Singh Horticultural Foundation, New Delhi delivered his Keynote address on importance of underutilised horticultural genetic resources with special reference to Sea buckthorn. He also sensitised the participants about the potential of local species to cater the global markets. Dr. E. B. Chakurkar, Director, ICAR-CIARI and President, Andaman Science Association in his welcome address highlighted the purpose of conducting this important conference. He also threw light upon the work carried out by the Institute in the field of horticultural genetic resources. A total of 291 participants from 89 organisations of 30 states/UTs were present.

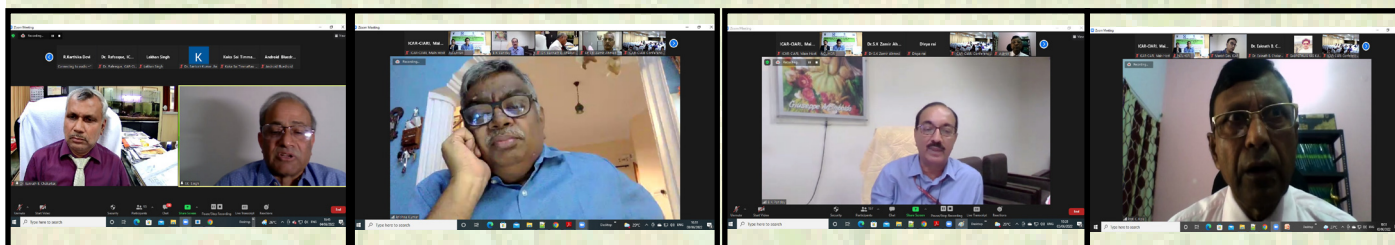


Plate 17: National Conference on Underutilised Horticultural Genetic Resources

Regional Station, ICAR- CIARI, conducted Plantation Drive, at Minicoy, Lakshadweep

The scientific team of ICAR-CIARI Regional Station, Minicoy organized a plantation drive on 05th June, 2022 in connection with World Environment Day celebration 2022'. The program was inaugurated by Dr. Shrikant R. Thapdiya, Deputy Collector, Minicoy as chief guest. The planting drive was carried at ICAR-CIARI RS Minicoy Farm & Indian Army base, Minicoy unit under the campaign slogan "Only One Earth" with the focus on "Living Sustainably in Harmony with Nature". The plantation was done with varieties like sapota, guava, annual moringa, Avacado and star gooseberry. The scientific team comprising, Dr. Gladston Y., Mrs. Ajina S.M. & Dr. S.K Zamir Ahmed along with Mr. Shareefuddeen Hassan (T3) conducted the programme under the Chairmanship of Dr. E. B. Chakurkar, Director ICAR- CIARI.



Plate 18: Plantation drive on World Environment day at Minicoy

XV Institute Research Council meeting conducted

The XV Institute Research Council meeting for institute funded projects was held during 6-8th June, 2022 under the Chairmanship of Dr. E. B. Chakurkar, Director, ICAR-CIARI, Port Blair. All the scientists of the Institute have attended the meeting and presented the progress of ongoing projects. At the outset Dr. Jai Sunder, Member Secretary welcomed the Director and all the scientists for the meeting. He informed that a total of 34 ongoing projects and 11 new Institute funded projects will be discussed and reviewed during the meeting. In his opening remarks, Chairman stressed that projects should come out with some deliverables and technology for the farmers and end users. He urged all the scientists to take active participation for improving the quality and outcome of the research projects. Presentations were made by all PIs followed by detailed discussion of all the institute funded projects.



Plate 19: XV Institute Research Council meeting

Celebration of 8th International Day of Yoga



Plate 21: Celebration of 8th IDY at main campus

The 8th International Day of Yoga (8th IDY) was celebrated by the staff of ICAR-CIARI, Port Blair on 21st June, 2022 with the theme “Yoga for Humanity” under the aegis of *Azadi Ka Amrit Mahotsav*. In his inaugural address, Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI accentuated the health benefits of yoga and also urged the staff of ICAR-CIARI to inculcate the habit of practising yoga on a regular basis to reap the long term benefits. During the programme, various common yoga protocols were demonstrated by Smt. M. Tamil Selvi, Yoga Instructor from Port Blair. Altogether, 43 staff from ICAR-CIARI have participated in the programme.

The team of ICAR-CIARI Regional Station, Minicoy and AYUSH, Minicoy unit jointly celebrated the 8th International Day of Yoga (8th IDY) on 21st June, 2022 at ICAR-CIARI, RS Minicoy under the theme “Yoga for Humanity”. The programme was inaugurated by Dr. Rubiya Koya, In-charge, AYUSH, Minicoy. Special lectures were delivered on the topics such as ‘Role of yoga during COVID-19 pandemic, health and happiness and benefits of yoga in our daily life’. The special lectures were followed by demonstrations of yoga asanas which was instructed by the AYUSH team. A total of 15 staff were benefited by the programme.



Plate 21: 8th IDY celebration at Regional Station of ICAR-CIARI at Minicoy, Lakshadweep

The team comprising of Dr. Gladston Y., Mrs. Ajina S. M., Mr. Shareefuddeen Hassana and Dr. S. K. Zamir Ahmed conducted the programme under the Chairmanship of Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI.

ICAR-CIARI, Port Blair celebrates its 45th Foundation Day

ICAR-Central Island Agricultural Research Institute, Port Blair celebrated its 45th Foundation Day on 23rd June, 2022. Shri. P. Subramanyam, IFS, Principal Chief Conservator of Forest, A & N Islands was the Chief Guest. While Dr. T.V.R.S. Sharma, Ex- G.B. Member, ICAR and Dr. Ashok Gupta, Director, Department of Animal Husbandry & Veterinary Services, A & N Admn. were present as Guests of Honour. Dr. Anjani Kumar Srivastava, Former Head, Division of Biochemistry, IVRI, Izatnagar delivered Foundation Day lecture on “Inner Science”. He elaborated how to lead the better life through inner science. The Chief Guest, Shri. P. Subramanyam, IFS, PCCF, A & N Islands congratulated the Institute for its achievement for the growth and developments of Islands. He expressed, CIARI is the unique agricultural institute among other institutes working in other parts of India. He urged the institute to address the issue of biodiversity and ecology security of the Islands. CIARI can work towards nutritional security and self-sufficiency especially in the field of endemic fruits and vegetables. He also suggested propagating vegetable seed production technology to make the island self-sufficient. Bee-keeping is another emerging area which needs more thrust. He urged the Director to conduct more capacity building programmes and demonstrations for its mass promotion. Dr. Eaknath B Chakurkar, Director, ICAR-CIARI, appreciated the efforts of all the staff members and lauded the good work rendered by the Social Science Section and KVKs in dissemination of the technologies. The Director briefed about the various achievements of the Institute during the last year and expressed that through basic and adoptive research many high rated papers were published and commercialised four technologies during this year. He further urged the scientists to work in a team mode not in a group towards the best outcome and betterment of the farmer’s community. A total of 15 publications including technical bulletins, Annual Report- 2021 and Newsletter (January- March 2022) were released and Institute new website was also launched on this



Plate 22: 45th Foundation Day of ICAR-CIARI

occasion. Eighteen progressive farmers from Andaman Nicobar and Lakshadweep Islands were also awarded for successfully adopting the CIARI technology. Scientists and staff members were also awarded and felicitated for their outstanding contribution in the field of technology development, commercialization, best experimental field, best section, best research publication and efficient staff members. All the staff members of ICAR-CIARI including its Regional Station at Minicoy, Lakshadweep, KVK, North & Middle Andaman, KVK, Nicobar and officials from other ICAR institutes also participated in the event through virtual mode.

HRD

Name	Training programme	Date/Venue/Organizer
Dr. Pooja Bohra	Online training programme on “Agripreneurship through Banana based Technologies- An Avenue for Atmanirbhar Bharat”	Organized by ICAR-NRC for Banana and MANAGE, Hyderabad from June 15 th to 17 th , 2022
All scientists Grammarly training		Organised by Bridge People Technology Solutions Pvt. Ltd. on 16 th June, 2022

Awards/ Honours

- Dr. Ajit Arun Waman and Dr. Pooja Bohra received Team Award for Commercialization of Technology on Dweep HanGreens for the year 2021-22 from ICAR-CIARI, Port Blair on the occasion of 45th Institute Foundation Day of ICAR-CIARI, Port Blair.
- Dr. A. Velmurugan & team has received the award for commercialization of technology: Dweep-Micro for the year 2021 from ICAR-CIARI during the 45th Institute Foundation Day held at ICAR-CIARI, Port Blair on 23 June, 2022.
- Dr. K. Saravanan and team has received the award for commercialization of technology on Dweep-Carp Grower Feed for the year 2021-22 from ICAR-CIARI during the 45th Institute Foundation Day held at ICAR-CIARI, Port Blair on 23 June, 2022.
- Dr. Jai Sunder & team has received the award for commercialization of Dweep Tickure technology for the year 2021-22 from ICAR-CIARI, Port Blair on the occasion of 45th Institute Foundation Day of ICAR-CIARI, Port Blair.
- Dr. S. K. Zamir Ahmed was awarded for “New Initiatives for Research and Development Activities at Regional Station, Minicoy, Lakshadweep” during the 45th Foundation Day of CIARI.
- Dr. A. Velmurugan, Er A. Selvam, Er Tripty Dubey has received award for new initiatives in the field of efficient water resource management at Garacharma campus from ICAR-CIARI during the 45th Institute Foundation Day held at ICAR-CIARI, Port Blair on 23rd June, 2022
- Dr. K. Saravanan and team has received the best research paper award for the year 2021 from ICAR-CIARI during the 45th Institute Foundation Day held at ICAR-CIARI, Port Blair on 23 June, 2022.
- Shri. K. Erraya, LDC has received an award for Efficient Staff for the year 2021-22 from ICAR-CIARI during the 45th Institute Foundation Day held at ICAR-CIARI, Port Blair on 23rd June, 2022
- Store Section has received the award for Best section for the year 2021-22 from ICAR-CIARI during the 45th Institute Foundation Day held at ICAR-CIARI, Port Blair on 23rd June, 2022.

- ITMU Cell has received an award for the Best Cell for the year 2021-22 from ICAR-CIARI during the 45th Institute Foundation Day held at ICAR-CIARI, Port Blair on 23rd June, 2022.
- Dr. Pooja Bohra and Dr. Ajit Arun Waman received the Award for Best Experimental Field of Underutilised Fruits Germplasm Block for the year 2021-22 during ICAR-CIARI Foundation Day- 2022 (June 23, 2022).
- Dr. I. Jaisankar, Dr. V. Damodaran and Shri. Mohamed Sarief received the appreciation certificate from Tribal Council, Car Nicobar for initiating the custom service centre for the benefit of tribal farmers of Car Nicobar on 27.04.2022.
- Dr. R. Kirubasana has received Certification of Appreciation from the Office of the Chairman, Tribal Council, Car Nicobar for launch of activities under the Coastal Fisheries Information Hub of ICAR-CIARI-DST initiative.
- Dr. T. Subramani has received best oral presentation award during 5th International Conference on Advances in Agriculture Technology and Allied Sciences (ICAATAS 2022) on June 4-5, 2022 (Hybrid mode) organised by the Society of Agriculture Research and Social Development, Odisha and Association of Rice Research Workers (ARRW), NRRI.
- Dr. Pooja Bohra joined as a Review Editor for the journal Frontiers in Horticulture, Switzerland.

Trainings / Meetings/Field day conducted

Training on Floriculture: production technology and value addition

One day training on Floriculture: production technology and value addition” on 13th April 2022 at Tushnabad, South Andaman along with demonstration in the three days programme on “Floriculture, mushroom cultivation and vermicomposting. A total of 50 trainees were trained.

Training programme on “Development of By-products from Fishery Wastes”

ICAR-Central Island Agricultural Research Institute conducted a training programme on “Development of By-products from Fishery Wastes” at Marine Hill during 08-15 April, 2022. The programme was organised to sensitise the stakeholders regarding the potential of fishery wastes in processing and by-product development and the scope of by-product

technology in the Island scenario. Practical sessions on the production of fish meal, fish oil, fish amino acid, and fish bone powder and fish guano were included in the training programme. Various topics such as the importance of fishery wastes and their application, scope of the by-product technology, diverse fishery by-products, application of fishery by-products and the requirements for unit operation etc. were explained to the fisher folk. A total of 21 trainees from New Pahargaon and Dairy Farm have participated in the programme. The programme was organised under the NABARD funded project entitled, “Sustainable utilisation of fish wastes for byproduct development – an initiative for entrepreneurship development in the Island” by Mrs. Sreepriya Prakasan, Dr. R. Kiruba Sankar, Dr. K. Saravanan and Dr. J. Praveenraj, Mr. Benny Varghese and coordinated by U. Abarna and Rithika Sarkar.

PMFME Training organised in collaboration with Department of Industries, Andaman & Nicobar Administration



Plate 23: PMFME Training organized by ICAR-CIARI Under PMFME, conducted a 3-day training programme on “Value Added Fish Products” from 19th to 21th April 2022. The three days training programme covered different aspects of Fish Processing and value addition. Resource persons from ICAR-CIARI, Department of Industries, Fisheries department-Andaman and Nicobar Administration and NABARD interacted with the trainees on various aspects of Value addition, Schemes under PMMSY, different Bank schemes available for value addition and details of PMFME schemes. Trainees were exposed to both theory and practical classes and hands-on training on different product preparations like fish pickle, surimi and dry fish were demonstrated to the trainees. 33 aspiring entrepreneurs was attended the training in collaboration with Department of Industries, A&N Administration.

Training on Fodder Production at Ranchi Basti, Wandoor

Animal Science Division of ICAR-Central Island Agricultural Research Institute, Garacharma, South Andaman conducted three days training on “Fodder production to improve livestock productivity in South Andaman” from 21-23 April, 2022 at Church premises of Ranchi Basti, Wandoor. The programme was conducted under the NABARD funded project “Establishment of sustainable model village on fodder production at South Andaman”. Director addressed the participants on strategies to improve milk yield in cattle, where he stressed the role of nutrition in production and reproduction.

Field Day cum demonstration on “Dragon fruit cultivation-a potential commercial Venture in the Island”



Plate 24: Field Day cum demonstration

ICAR-CIARI in collaboration with NABARD, Port Blair conducted a field day cum demonstration at Temple Mayo, Collinpur, South Andaman on 25th April, 2022 which was attended by 25 farmers. The programme was organised with financial assistance from NABARD. Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI briefed the farmers' about the integrated farming system and advised them to move towards agro-tourism for more economic returns and sustainable livelihood. The status and prospects of dragon fruit cultivation in the Islands was explained by Dr. Augustine B. Jerard, HoD, ICAR-CIARI.

Inception meeting of the Coastal Fisheries Information Hub at Car Nicobar

An inception meeting of the project was held on 16th May 2022 at the office of the Tribal council to sensitise the discuss the course of action of the project activities along with the members of the Tribal council. Field level awareness and sensitization programmes were

also conducted at Car Nicobar to generate awareness. on marine fishing activities during 16-19 May 2022. A total of 26 participants attended the meeting.



Plate 25: Meeting with Tribal council

Capacity Building Training on Value Addition in Coconut and Coconut based Food Products



Plate 26: Training on Value Addition in Coconut



Plate 27: demonstration on Neera Tapping, VCO, coconut vinegar, chips, lemonade, cookies, copra, desiccated coconut

Four day training from 25th to 28th May, 20200 was conducted for 30 aspiring entrepreneurs, wherein they were exposed to demonstration on Neera Tapping, VCO, coconut vinegar, chips, lemonade, cookies, copra & desiccated coconut by the expert team of CIARI comprising of Dr. I. Jaisankar, Dr. A. A. Waman and Dr. Pooja Kapoor. Dr. R. Jayakumara Varadan

undertook pre & post evaluation which exhibited increase in the knowledge level of the trainees about the basics of coconut production and processing from 11% to 67%. The programme was inaugurated by Dr. Eaknath B. Chakurkar, Director, CIARI in the presence of Deputy Director, Department of Industries. Director, CIARI as chief guest gave away certificates and impressed upon the trainees to decide the best avocations to start as business mode for which the team of CIARI will support in imparting the technical do how for skill development .

Field day on “Fodder production strategies in the Islands”



Plate 28: Field day on “Fodder production strategies in the Islands” conducted

Animal Science Division, ICAR-CIARI, Port Blair conducted a Field Day on 7th May 2022, under NABARD funded project to augment the fodder production in the islands in-order to improve the productivity of the livestock. A total of 24 farmers from Hasmatnagar, Ranchi Basti and Indira Nagar were imparted with first-hand knowledge and fodder production technologies at the Fodder Germplasm unit of Animal Science Division. At the outset Dr. P. A. Bala, Course Director led the participants around the Cattle & buffalo unit, followed by piggery, goat and poultry unit. He explained the daily chores of the individual units and their management. Dr. E. B. Chakurkar, Director, ICAR-CIARI in his address, explained about the importance of feeding balanced nutrition for increasing productivity. He urged the farmers to take advantage of the Field Day and try to translate in their village to develop as a fodder village. Fodder slips of Bajra Napier Hybrid were also distributed to the farmers.

Training cum demonstration on Flower arrangement and bouquet making

A training cum demonstration was conducted on 20th June, 2022 at Department of Defence. in collaboration



Plate 29: Flower arrangement and bouquet making with A & N Administration on flower arrangement and bouquet making. A total of 34 women entrepreneurs participated in the training.

Training cum-awareness on Scientific Management of HYV of Rice at North and Middle Andaman

Two training cum-awareness programmes were conducted on Scientific Management of HYVs of Rice at North and Middle Andaman by ICAR-CIARI for the benefit of rice farmers at Basantipur, Gram Panchayat Hall, Nimbudera on 27th June, 2022 in association with KVK, Nimbudera on 28th June, 2022 at Madhupur Gram Panchayat Hall, Diglipur. The team is composed of Dr. P. K. Singh, Principal Scientist and Course Director along with Dr. S. K. Zamir Ahmed, Principal Scientist, Dr. K. Venkatesan, Scientist, Course Convenors and Er. Manoj Kumar, SMS with the technical support of Mr. Shyam Sunder Rao explained in detailed on the best management practices for better yield, like selection of seeds & varieties, nursery management, use of farmers wisdom / rural people knowledge in pest and disease management, importance of quality seed production, harvesting, milling along with marketing involving forward & backward linkages. The farmers were asked to witness the promising rice varieties



Plate 30: Training cum-awareness on Scientific Management of HYV of Rice

demonstrated at KVK farm at every stage and offer their feedback for its upscaling.

The interaction session was followed by field visit and documentation of farmers and youth perception towards farming as livelihood. Total of 4 quintal truthfully labelled seeds of pulses produced through participatory mode were obtained from trained farmers of North Andaman under AICRP on Seed (Crops) project for technological application during Rabi season. Also the team selected farmers for conducting FLD on vegetables under National Extension Programme during Kharif at North Andaman. Shri. Shyamal Debnath, Gram Pradhan was the Chief Guest at Madhupur Gram Panchyat. He was of great appreciation to the intervention carried out by CIARI and requested for many more sensitization programmes in allied fields also. He also put forth the farmer's aspirations and the need for farming as better livelihood. A total of 47 farmers (42 male and 5 female) participated in both the trainings.

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Jaisankar I., Varadan R.J., Jerard B.A., Nabanita G., Rajkumar M., Velmurugan A., Ahmed S.K.Z. and Moses E.M. 2022. Natural regeneration potential of Andaman Padauk (*Pterocarpus dalbergioides*) in sustaining the tropical forests of Andaman & Nicobar Islands, India. *European Journal of Forest Research*. (NAAS Rating: 8.62)

Abstract

KirubaSankar, R., Saravanan, K. and Praveenraj, J., 2022. The pandemic impact on the coastal fishing practices of the Nicobar traditional communities in Car Nicobar, Nicobar archipelago. *In: Kumar, P., et al., 2022. Souvenir and abstracts of National Symposium on Self-Reliant Coastal Agriculture, 11-13 May, 2022, Goa, ICAR-Central Coastal Agricultural Research Institute, Goa, India. Pp. 75. Paper ID: S2-EP15.*

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fisheries information hub in the Car Nicobar Island – a concept appraisal. *In: Kumar S.S., et al., 2022. Fish for Nutritional Security and Economic Sustainability - Book of Abstracts of 12th Indian Fisheries and Aquaculture Forum, 5-7 May, 2022, Chennai, India. Pp. 890. Paper ID: 16349.*

Praveenraj, J., Saravanan, K., Uma, A., Kiruba-Sankar, R. and Singh, R., 2022. New reports of bacterial diseases from the freshwater fishes of Andaman and Nicobar Islands, India. *In: Kumar S.S., et al., 2022. Fish for Nutritional Security and Economic Sustainability - Book of Abstracts of 12th Indian Fisheries and Aquaculture Forum, 5-7 May, 2022, Chennai, India. Pp. 393. Paper ID: 16359.*

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Book

A.A. Waman, Pooja Bohra, D. Karunakaran and E.B. Chakurkar (2022) Book of Abstracts. Virtual National Conference on Underutilized Horticultural Genetic Resources: Conservation and Utilization (NCUHGR-2022), ICAR-Central Island Agricultural Research Institute, Port Blair- 744 105, Andaman and Nicobar Islands, India, pp. 1-123.

Book chapters

Pooja Bohra and Ajit Arun Waman (2022), Blood Fruit (*Haematocarpus validus* (Miers) Bakh. f. ex Forman): A Potential Genetic Resource from Andaman and Nicobar Islands for Livelihood and Nutritional Security. In (Patil et al., Eds.), Melon Breeding and Genetics, American Chemical Society, Washington DC, pp: 139-145.

Technical bulletins

Ajit Arun Waman and Pooja Bohra (2022) Woody Pepper: A Potential Novel Spice Crop for the Islands. Technical Bulletin, ICAR-Central

Island Agricultural Research Institute, Port Blair, India, pp. 1-8.

Ajit Arun Waman and Pooja Bohra (2022) Woody Pepper: *Dweepo ke Liye Ek Sambhavit Masala Fasal*. Technical Bulletin, ICAR-Central Island Agricultural Research Institute, Port Blair, India, pp. 1-8.

Popular articles

Sreepriya Prakasan, Abarna, U. and Ajina S.M., 2022. Sustainable utilization and recycling of fish wastes-an emerging livelihood avenue. The Echo of India dated 22-04-2022.

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T. Subramani, A. Velmurugan, V. Baskaran, T.P.Swarnam and sirisha Adamala. 2022. Deep vertigrow model for high value vegetables (Folder).



CIARI Organised Sensitization cum Distribution Programme on Woody pepper



Plate 31: Sensitization cum Distribution Programme

A sensitization cum planting material distribution programme on “Conservation and Cultivation of Woody Pepper for Diversification of Island Agriculture” was organised on 23rd April, 2022 at Lal Pahad village under Department of Biotechnology, New Delhi funded project on Woody Pepper to commemorate the Azadi Ka Amrit Mahotsav. During the inaugural session, Dr. E. B. Chakurkar, Director, ICAR-CIARI, emphasised upon the role of spices in diversifying income avenues to the island farmers. He advocated adoption of scientific farming to enable the farmers in getting optimum benefits of the technologies. He also highlighted the importance of self-help groups and involvement of communities in taking up such initiatives. The programme was

attended by 75 farmers and 150 planting materials of woody pepper were distributed to the participants. Smt. Chaitali Roy, Panchayat Samiti Member, Chouldari coordinated the programme.

KVK-CIARI, South Andaman organised a campaign under Azadi Ka Amrit Mahotsav on “Bharatiya Prakritik Krishi Paddhati”

The ICAR-Krishi Vigyan Kendra, South Andaman, organised a National campaign under *Azadi Ka Amrit Mahotsav* on “*Bharatiya Prakritik Krishi Paddhati*” under *Kisan Bhagedari Prathamikta humare* on 26th April 2022 by inviting farmers, farm women and Public representatives. The objective of the programme was to create awareness about the need and importance of Natural Farming along with discussion on Millets, oil seeds and bio fortified crops. Dr. Eaknath B. Chakurkar, Director CIARI, graced the occasion as chief guest and Smt. Tapashi Saha, Pradhan, Chouldhari were the guests of honour. Speaking on the occasion Dr. Eaknath B. Chakurkar, highlighted the ways in which farmers can play their role and contribute in strengthening agriculture in our country. He also discussed the principles and practices of Natural farming. A total of seventy eighty farmers and farm women participated in the programme.

ICAR-CIARI conducted Workshop on Common Yoga and Y-Break Yoga Protocols under Azadi Ka Amrit Mahotsav

As a part of celebration of 8th International Day of Yoga, a Workshop on Common Yoga and Y-Break Yoga Protocols was conducted at ICAR-CIARI, Port Blair during 30-05-2022 to 01-06-2022 for the benefit of the Institute staff under the aegis of Azadi Ka Amrit Mahotsav. During the inaugural programme, Dr. Kalyan P. Kadbhane, Deputy Director (AYUSH), Andaman and Nicobar Administration mentioned about the importance of celebration of International Day of Yoga (IDY) and also informed about the elaborate preparations made by the Andaman and Nicobar Administration for the grand celebration of upcoming 8th IDY on 21st June, 2022. In his presidential address, Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI accentuated the significance of yoga to lead a healthy life and advised the participants to reap maximum benefit from this workshop. He also appreciated the efforts of AYUSH, Andaman and Nicobar Administration to conduct the workshop with great fervour. During the workshop, various common

yoga and Y-break yoga protocols were demonstrated by Ms. M. Ashwini, Yoga Instructor from AYUSH, Andaman and Nicobar Administration for the benefit of the participants. Altogether, 50 staff from ICAR-CIARI have participated in the workshop. The programme was conducted under the Chairmanship of Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI by the team consisting of Dr. K. Saravanan, Shri. A. K. Tripathi, Shri. Shyam Sundar Rao and Shri. P. Simhachalam.



Plate 32: Glimpses of the Workshop on Common Yoga and Y-Break Yoga Protocols conducted at ICAR-CIARI, Port Blair

Swachh Bharat Abhiyan



“Regional Station, ICAR- CIARI, conducts Beach Cleaning Drive, at Minicoy, Lakshadweep”

The scientific team of ICAR - CIARI Regional Station, Minicoy organised a beach clean-up drive at Western side of the coast along with officials from ALHWin a stretch area of 200 metres (site to the boundary near to Naval detachment unit, Minicoy) on 05/06/2022 under Swachh Bharat Abhiyan on ‘World Environment Day 2022’. The team collected around 12 bags of litter consisting of abandoned

nylon nets, plastic caps, bottles, plastic bags, drums, cans, Styrofoam, etc. The team sensitised the people in the area on good citizen science practices to be followed and to spread the message of clean and green India. Also Aim to spread the message to work towards a plastic-free, litter-free and pollution-free towards sustainable environment. The scientific team comprising, Dr. Gladston Y., Mrs. Ajina S.M. & Dr. S.K Zamir Ahmed along with Mr. Shareefuddeen Hassan (T3) conducted the programme under the Chairmanship of Dr. E. B. Chakurkar, Director ICAR- CIARI.



Plate 33: Beach Cleaning Drive

STC/TSP

Workshop on Impact of feed supplements in livestock and poultry at Tribal farming Community, Harminder bay by ICAR-CIARI

Division of Animal Science, ICAR-Central Island Agricultural Research Institute, Port Blair conducted three days workshop on Impact of feed supplements in livestock and poultry at tribal farming community of Harminderbay from 16 to 18, May 2022 under Scheduled Tribal Component in collaboration with DBT-Biotech Kisan Hub. Shri. Andrew, 1st Captain, Tribal Farming Community, Harminder bay and



Plate 34: Workshop on Impact of feed supplements in livestock and poultry

Mr. Festes, Secretary, Harminderbay along with 100 tribal farmers including 50 women farmers participated in the programme. Dr. T. Sujatha, Sr. Scientist & Coordinator of the programme narrated about the importance of feed supplements in livestock and poultry. She explained how the balanced feed in livestock and poultry improves their overall performance by alleviating micronutrients deficiency and in-turn has significant influence in one health programme of preventing animal diseases.

Activities under STC

Programme	No.	No. of Beneficiaries
Training	3	214
Distribution of seed & planting materials	3800	200
Distribution of inputs	151	151



Plate 35: Training on "Organic home gardening with vegetables, fruits, flowers for sustainable living"



Plate 36: Training on Climate resilient horticultural interventions for sustainability at Car Nicobar

Participation in national seminars/ symposia/ conferences/ workshop

Name	Programme	Date/Venue/Organiser
Dr. S.K. Zamir Ahmed & Dr. R. Jaya Kumaravaradan	E-workshop on National Extension Programme	IARI, New Delhi on 16 th April, 2022
Dr. S.K. Zamir Ahmed & Dr. R. Jaya Kumaravaradan	Workshop on “Zoonoses: an emerging public health threat” on the eve of World Veterinary Day	30 th April, 2022 at CIARI
Dr. B. Augustine Jerard, Principal Scientist	40 th Annual Group Meeting of AICRP on Vegetable Crops held online	15 th to 17 th June, 2022 conducted by ICAR-IIVR- AICRP on Vegetable crops, Varanasi
Dr. I. Jaisankar, Senior Scientist	Participated and presented the progress report of the NMPB funded project entitled “Bio-prospecting of Pandanus sp. (Kewda) of Andaman and Nicobar Islands for its medicinal properties”	75 th Project Screening Committee for “Research & Development” of NMPB to be held on 23 rd May, 2022
Dr. I. Jaisankar, Senior Scientist	one day international webinar on “Prospects of Varieties/Crops Developed through Genome Editing (regulatory framework, technologies and experience)”	24 th May 2022 conducted virtual mode by the Protection of Plant Varieties and Farmers’ Rights Authority, New Delhi under Indo-German Cooperation on Seed Sector Development.
Dr. I. Jaisankar, Senior Scientist	one day seminar on Island Biodiversity of Andaman and Nicobar Islands as a part of celebration of World Environment Day 2022	5 th June, 2022 conducted by ANRC, ZSI, Port Blair.
Dr. S. K. Zamir Ahmed	Attended Startup Boot Camp 2022 participated & delivered a lecture on “Startups in Agriculture”.	organized by the Department of Industries, Andaman & Nicobar Administration on 7 th May, 2022
Dr. V. Baskaran	Attended brainstorming session on “Cut greens”	organized under AICRP Floriculture by DFR in collaboration with Division of Floriculture, IARI, New Delhi on 4 th April, 2022
Dr. I. Jaisankar, Senior Scientist	participated virtual in 40 th Annual Group Meeting of AICRP on Vegetable Crops	15 th to 17 th June, 2022 conducted by ICAR-IIVR, Varanasi.
Dr. I. Jaisankar, Senior Scientist	participated and presented Island agroforestry systems to Stakeholders Workshop on “Forestry Research prioritization with special emphasis on Agroforestry”	14 th June, 2022 conducted by ICFRE-IFGTB, Coimbatore by Virtual mode.
Dr. K. Saravanan	Attended 12 th Indian Fisheries Forum & presented two posters on aquatic disease surveillance and coastal fisheries information hub	Chennai during 5 th to 7 th May, 2022
Dr. Pooja Bohra	Annual Group Meeting of the AICRP on Women in Agriculture	12 th & 13 th May, 2022 at ICAR-CIWA, Bhubaneshwar
Dr. Ajit Arun Waman & Dr. Pooja Bohra	National Symposium on Self-Reliant Coastal Agriculture organized by ICAR- CCARI, Goa India	11 th -13 th May, 2022 in Virtual mode

Distinguished visitors

- **Mr. P. Subramanyam, IFS, PCCF, ANI** visited Horticultural Plants Propagation Unit and interacted about the native fruit species of the islands and sought Institute's help in propagation of the same.
- **Mr. Birendra Chaudhary, IFS, DCF (Silviculture)** and his team visited *Garcinia* conservation block and Horticultural Plants Propagation Unit to get information about underutilised fruit species of the islands and procurement of its planting material.
- **Dr. Shrikant R. Tapdiya**, the Deputy Collector visited the Regional station Minicoy on 05/06/2022 for inaugurating plantation drive.
- **Mr. Kunjikoya, unit in-charge**, Department of Agriculture visited Regional station Minicoy on 18/06/2022 for exposure to farm activities.
- **Dr. Prof. N. C. Gautam, Chairman of RAC** along with Members Dr. B.S. Dwivedi, Dr. P. Mahapatra, Dr. Mrs. Nitu Sindhu and Shri Ravindra Das visited the Institute during 21st and 22nd May 2022.

New projects/ initiatives

- Two new projects were initiated for the first time at ICAR-CIARI RS, Minicoy during IRC 2022 held on 6-8 June 2022. The two new projects are "Exploration of fishery, biology and market potential of tuna resources of Minicoy & Integrated farming systems for enhancing sustainable livelihood of the rural tribal community of Minicoy".
- On the occasion of Institute's 45th Foundation Day on 23rd June 2022, the revamped Institute's Website was launched under the guidance of the Director.
- A new project on Standardization of freshwater aquaculture practices to promote livelihood and employment opportunities in South Andaman was sanctioned by NABARD, Port Blair with a budget of ₹ 10.0 Lakhs.
- Custom service centre Inaugurated at the premises of ICAR KVK, Car Nicobar in the presence of the participants and First Head man of the Perka village and urged the tribal farmers to make use of the implements and machineries through the custom service centre kept in the KVK, Car Nicobar.

- Submitted the online application and hard copy for registration of cluster bearing noni accession in to the ICAR-NBPGR, New Delhi on 28.06.2021

Establishment of Mini Incubator at Baratang by ICAR-CIARI

Division of Animal Science, ICAR-Central Island Agricultural Research Institute, Port Blair has launched the programme on Establishment of BIOTECH KISAN-HUB funded by DBT, Govt of India with the main aim for dissemination of livestock and poultry production technologies for enhancing the farmers livelihood of Andaman Nicobar Islands. Under this programme, Mini unit of incubator of 240 eggs capacity for hatching of poultry chicks was established as community based field unit at Crafters Creek, Baratang. The functioning of incubator was inaugurated by Mr. T. Sathis Kumar, Councillor, crafters Creek on 27.04.2022. Dr. T. Sujatha, Sr. Scientist & Principal Investigator demonstrated the operation of mini incubator and she narrated the importance and benefits of the mini incubator in their area. The incubator is of paramount important for the area since farmers have only desi poultry and is very much need of the hour to increase the desi egg and chick production to improve their livelihood. The unit will be immensely benefitting those resource poor farmers for chicks. A total of 25 farmers in the programme were awareness on the success of mini incubators that are being used in other parts of these Islands.

Inauguration of Staff Canteen

On the occasion of the Institute's 45th Foundation Day, the revamped Canteen was inaugurated by the Director for the welfare of the staff on 22.06.2022. A total of 15 staff members were present at the inauguration.



Plate 37: Inauguration of canteen

Appointments/ promotion/ transfer/ Superannuation/ obituary

Promotion

- Dr. K. Muniswamy, Scientist has been promoted from Research Grade Pay 8000/- with effect from 26th February, 2019
- Dr. Arun Kumar De, Sr. Scientist has been promoted from Research Grade Pay 8000/- with effect from 21st April, 2019
- Dr. R. Kirubasankar, Sr. Scientist has been promoted from Research Grade Pay 8000/- with effect from 9th December, 2019.
- Shri. Praveen raj. J, Scientist has been promoted from Research Grade Pay 7000/- with effect from 1st January, 2020
- Dr. ProkasanandaBala, Sr. Scientist has been promoted from Research Grade Pay 9000/- with effect from 8th January, 2020.
- Dr. Perumal Ponraj, Sr. Scientist has been promoted from Research Grade Pay 8000/- with effect from 30th April, 2020.
- Dr. T. Subramani, Sr. Scientist has been promoted from Research Grade Pay 9000/- with effect from 26th June, 2020
- Dr. K. Venkatesan, Sr. Scientist has been promoted from Research Grade Pay 8000/- with effect from 15th September, 2020
- Dr. I Jaisankar, Sr. Scientist has been promoted

from Research Grade Pay 9000/- with effect from 7th January, 2021

- Dr. R. Jaya Kumaravaradan, Scientist has been promoted from Research Grade Pay 6000 to 7000 with effect from 5th July, 2022.
- Shri. Thanmai Paul, Sr. Technical Assistant (T-4) has been promoted to Technical Officer (T-5)
- Shri. Sanjeev Kumar Singh, Sr. Technical Assistant (T-4) has been promoted to Technical Officer (T-5)
- Shri. Shareefudeen Hassan Karangothi, Technical Assistant (T-3) has been promoted to Sr. Technical Assistant (T-4)
- Smti. Nutan Roy, Sr. Technician (T-2) has been promoted to Technical Assistant (T-3)
- Shri. Nemai Chandra Paul, Technician (T-1) has been promoted to Sr. Technician (T-2)
- Shri. Raj Narayan Tiwari, Technician (T-1) has been promoted to Sr. Technician (T-2)

Superannuation

- Shri V. Umapathi, Skilled supporting staff on 31st May, 2022
- Shri. Albanus Xess, Skilled supporting staff on 31st May, 2022
- Smti. Shibani Sengupta, DDO, ICAR-CIARI on 30th June, 2022
- Shri. Shivnath Ram, Skilled supporting staff on 30th June, 2022



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