

ISLAND AGRICULTURE

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From Director's Desk ...

ICAR-CIARI, Port Blair has done significant research, development, and extension works during this trimester of October to December 2022.

Two dwarf varieties of coconut (Dweep Haritha and Dweep Sona) have been recommended for release by the Annual Group Meeting of AICRP on Palms. A successful attempt was made to standardize the technique for Palmyrah tuber production under Island conditions. Collection, conservation, and characterization of sword bean, tree bhendi, wild ginger, chili accessions, mitha bhaji, elephant foot yam, colocasia, and



unique, traditional paddy cultivars were carried out. Mapping of the mangrove community zone was carried out, wherein, 19 different communities of Mangroves were identified in Andaman and Nicobar Islands. Morphological and biochemical evaluation of identified germplasm of tejpat revealed significant differences in oleoresin content. The proximate composition of value-added products from *Garcinia* species has been carried out. A study on seaweed highlights its role as a valuable and sustainable feed additive for the rural poultry farming system of these Islands.

During this period, our institute has conducted a National Symposium on Panchmahbhoot in collaboration with Andaman Science Association (ASA) and Bharatiya Kisan Sangh, wherein, more than 150 delegates participated. A joint workshop on “Meeting of Livestock farmers and Agriculturists with NIAB Scientists (MILAN)” was organized in collaboration with DBT-National Institute of Animal Biotechnology, Hyderabad. Our institute celebrated; Vigilance Awareness Week, Agriculture Education Day, World Fisheries Day, and World Soil Day.

Our institute has licensed “Dweep Vertigrow” a vertical farming model for growing leafy vegetables in a kitchen/terrace garden M/s. Jaisankar Industries, South Andaman. As a part of the STC and extension activities and in collaboration with KVK, our scientists at Main Campus and Regional Station are doing excellent work in the dissemination, translation, and demonstration of the technologies for the farming communities of A&N Islands and Lakshadweep Islands.

I thank all the officials of SMD for their 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

Coconut varieties released and recommended

B. Augustine Jerard, V. Damodaran, I. Jaisankar & K. Abirami

Proposals for release of dwarf coconut varieties viz., Dweep Haritha (Selection from Andaman Green Dwarf) and Dweep Sona (Selection from Andaman Yellow Dwarf) have been recommended by the 31st Annual Group Meeting of AICRP on Palms held at ICAR-CPCRI, Kasaragod during 16-18th September 2022 for submission to Central sub-committee for Crop standards and release and notification of varieties of Horticultural crops. IC numbers for the developed and recommended varieties (Dweep Haritha – IC646051, Dweep Sona – IC646052) were obtained from ICAR- NBPGR, New Delhi.

Dweep Haritha IC646051: It is a selection from Andaman Green Dwarf population that was originally collected from South Andaman and conserved at ICAR-CIARI. The variety performed well over released varieties CIARI-Surya, CIARI-Omkar, CIARI-Annapurna and CIARI-Chandan for tender nut traits under Andaman and Nicobar conditions. The variety is recommended for coconut growing tracts of Andaman and Nicobar Islands and Kerala based on the superior performance of the selection at ICAR-CIARI, Port Blair (Island conditions) and CPCRI, Kasaragod in coastal Kerala for tender coconut purpose. The palms are regular bearers and commence flowering in 36 to 48 months after planting under rainfed conditions of Andaman and Nicobar Islands. Tender nut water is sweet, quantity ranges from 300 to 450 ml per nut. The average quantity of tender nut water is about 392 ml. Based on the organoleptic test; the tender nut water is classified as “Very good” in taste with a TSS of 6.4⁰ Brix. The nutritive value of tender nut water: total sugars – 5.73 g/100 ml, reducing sugars – 2.05 g/100 ml, sodium – 26 ppm, potassium – 2510 ppm. Owing to the tender nuts having more water with good taste of tender nut water and tender endosperm, nut yield, dwarfness and regular production of bunches, it is a preferred variety for plantations and home gardens.

Dweep Sona IC646052: It is a selection from Andaman Yellow Dwarf population that was

originally collected from South Andaman and conserved at ICAR-CIARI. The variety performed well over released varieties CIARI-Surya, CIARI-Omkar, CIARI-Annapurna, and CIARI-Chandan for tender nut traits. The variety is recommended for coconut growing tracts of Andaman and Nicobar Islands and Kerala based on the superior performance of the selection at ICAR-CIARI, Port Blair (Island conditions) and CPCRI, Kasaragod in coastal Kerala for tender coconut purpose. The palms are regular bearers and commence flowering in 30 to 50 months after planting under rainfed conditions of Andaman and Nicobar Islands. The average quantity of tender nut water is about 472 ml. Based on the organoleptic test; the tender nut water is classified as “Very good” in taste with a TSS of 6.6⁰ Brix. The nutritive value of tender nut water: total sugars – 4.75 g/100 ml, reducing sugars – 2.15 g/100 ml, sodium – 24 ppm, potassium – 2320 ppm. Owing to the attractive yellow colour of fruits and graceful appearance of palms with drooping canopy, it is preferred for avenue planting in landscapes besides plantations and home gardens for tender coconut purpose.



Plate 1: Dweep Haritha

Plate 2: Dweep Sona

Technique for Palmyrah tuber production under Island conditions

B. Augustine Jerard & I. Jaisankar

Although tuber production from palmyrah seeds is not generally practiced in Andaman, the palmyrah tubers that are brought from mainland are being sold in the markets. Considering the scope, an attempt was made to produce palmyrah tubers under Port Blair conditions using the ripe palmyrah fruits from the selected tree AJP01. The 60 cm raised beds made with loose soil, sown with seeds separated from fully

ripe fruits took about 70 to 90 days to show first sprouts. The entire lots were harvested when one or two early sprouts appeared in the beds and measured for tuber traits. The length of edible portion of tuber varied from 24 to 48 cm although the seeds are from same palm, indicating the possible genetic variability exists among the progenies and the heterozygous nature of the palm. The fresh starchy, tuber weight (marketable) ranged from 95 to 200g harvested after 90 days of sowing. The technique could be used to utilize the palmyrah fruits hitherto unused.



Plate 3: Palmyrah tubers

West African Okra- an ideal vegetable crop for home gardens

B. Augustine Jerard & I. Jaisankar

A wild relative of Bhendi or West African Bhendi, locally called Maravendai or Tree Bhendi, *Abelmoschus caillei* was collected, conserved and characterized for morphological traits and yield. The individual plants of this flowered in about 7 months after sowing at a height of over 2.1 m when single stem was allowed whereas when the apical portion was cut at 1 m height, it produced several branches and flowered. After initial flowering, the flowering and fruiting was continuous from September to May. The tender fruits are with more mucilage and the matured fruits yield soft and delicious seeds used for preparing curries. The fruits can be dried, whole or sliced, for storage. The number of seeds per pod ranged from 51 to 62 and the average seed yield per pod was 8.8g. In three seasons (2020-2022), average yield of 42 fruits per plant was recorded at a spacing of 1.5mx1.5m. Unlike the released varieties and cultivars of Bhendi, the tree bhendi plants were observed to be free from Yellow Vein Mosaic virus, and sucking pests and very less incidence of borers. The yield, disease free status, amenability for the home gardening and ethnobotany information highlight the scope of this plant to be



Plate 4 : West African Okra

potentially grown as a perennial vegetable source under Island conditions.

Better performing Sword bean accession identified

B. Augustine Jerard & I. Jaisankar

Evaluation of three accessions of Sword bean, *Canavalia gladiata*, one from N&M Andaman and two from Nicobar districts having white, black and brown seed traits respectively revealed variability for flower size, leaf size, flower colour, growth habit and pod yield and quality. The white seeded accession exhibited bush type growth habit, less spreading, long pods, better growth and recorded early flowering (38 days) and fruiting. The yield and quality of pods in terms of attractive colour, tenderness and taste was better in white seeded type from N&M Andaman. More vegetative growth and more fibre with short dark green coloured pods were the traits recorded in black seeded type which exhibited a climbing habit. The brown seeded type recorded semi-bush type growth habit, very late flowering, 7 months after sowing, the pods are very tough and short. The white seeded accession is identified to be promoted as a putative climate resilient, high yielding perennial vegetable crop in poor and marginal conditions as well as for home gardens.



Plate 5: Better performing sword bean type

Wild ginger accession conserved

B. Augustine Jerard & V. Damodaran

IC number obtained for wild ginger accession collected and conserved during 2016. The accession of *Zingiber parishii*, (IC-0646452), which was reported for the first time from India during 2009 was collected by CIARI from South Andaman and a block of 60 plants established at Sippighat farm. The plants produce very attractive spikes during July to October and hence identified for its promotion as ornamental plant. Seed set was also observed in the species to the tune of upto 300 seeds per spike. Further studies are in progress to explore the other uses of the rhizome and seeds and to use the species in crop improvement.



Plate 6: Wild ginger accession

Better performing Chilli accession under Island conditions

B. Augustine Jerard, I. Jaisankar, V. Damodaran & S.K. Zamir Ahmed

Evaluation of chilli genotypes resulted in identification of one long duration accession of *Capsicum annum* with high yield, attractive fruit colour, flavour and suitability for container gardens as well as for field cultivation. The per plant yield of the accession was ranged from 800g to 1100g in 260 days with plant height ranging from 82cm to 120 cm and plant spread of 67 cm. Seeds of the identified chilli genotype produced for further evaluation.



Plate 7: Better performing chilli accession

Champeria manilana – a potential, perennial leafy vegetable source

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

Flowering was observed in conserved Mitha Bhaji (*Champeria manilana*), a unique leafy vegetable

accession at field gene bank. IC number was obtained (IC0646451) for the conserved accession for further promotion as a promising perennial, leafy vegetable source for Island conditions with climate resilience. Fruits of another two accessions of Mitha Bhaji were collected from South Andaman and sown for conservation and to test the performance. The tender leaves of Mitha Bhaji are preferred as a nutritious leafy vegetable in delicious preparations by local community. Owing to the continuous harvesting of newer growth, most trees were found without regular flowering and fruiting. Efforts by the Institute has resulted in collection of seeds and production of seedlings of Mitha Bhaji to establish a conservation block for further utilization



Plate 8: Mitha bhaji – new growth, inflorescence and fruits, seedlings

Ecotypes of Elephant Foot Yam – suitable for Island conditions

B. Augustine Jerard & V. Damodaran

Evaluation of two collections of Pidikarunai which were made one each from South Andaman and Tamil Nadu, along with the Gajendra variety of EFY under Island conditions revealed the suitability of these for Island conditions.. This tuber type,



Plate 9 : Ecotypes of elephant foot yam

belong to *Amorphophallus* spp, is locally called ‘Karunaikizhangu’ or ‘Pidikarunai’ are preferred for curry preparations for its medicinal value and taste. The regular EFY, Gajendra was found to produce, normal round, flat, large tubers whereas the Pidikarunai types produced a very small round tuber surrounded by longer bold finger tubers. The duration of pidikarunai is 30 days earlier to EFY. The pidikaruani types were found suitable for growing under coconut plantations, pot culture and smaller spaces in gardens.

Rapid multiplication of Colocasia bunda type

B. Augustine Jerard & V. Damodaran

An experiment conducted in Colocasia to accelerate the planting material production resulted in 9 to 23 plantlets per mother corm in 40 days. The plantlets could be separated and planted successfully which can give uniform growth and development. The better treatment included the decapitation of main growing point, burying in sand to induce the side shoots and roots, maintaining conducive substrate moisture and temperature. The method could be very useful in producing uniform planting material in large number in short time duration when compared to the traditional method of using differently sized corms from among the harvested produce.



Plate 10 : Rapid propagation in Colocasia

Unique, traditional paddy cultivars collected for conservation

B. Augustine Jerard & P. K. Singh

Seeds of twenty traditional, unique paddy cultivars were collected from a farmer of Wayanad (Mr. Praseed Kumar) district, Kerala who is spearheading the spread of traditional varieties of paddy. The seeds of cultivars viz., Adukan, Thavalakannan, Thondi, Navara, Kalabath, Nazeerbath, Jeeraga Samba, Assam Black, Ramlili, Kalyani Violet, Karuup Gauni, Mullam Puncha, Gandhaka Shala, Senthura

Madhushala, Krishna Gaumod, Babur Shala, Raktha Shala, Mallikuruva, Karuvachi and Kari basumathi were collected during Mega Kisan Mela held at Kidu farm, Karnataka, organized by ICAR-CPCRI, Kasaragod during the month of November 2022. The cultivars exhibited great diversity for size of seeds, colour, shape and texture. They are reported to be varying in growing season, duration, quality of grains and taste having multiple uses. The seeds were provided to Division of Filed Crops Improvement for conservation, evaluation and further upscaling under Island conditions.



Plate 11: Paddy diversity collected from Kerala

Total biomass estimation of the Multi - purpose trees under coconut plantation

I. Jaisankar & B. Augustine Jerard

Destructive sampling was done in the multipurpose tree species (MPT's) planted as an intercrop in coconut plantation. The mean highest total green biomass of 114 kg was recorded in *Callophyllum inophyllum* followed by *Pterocarpus dalbergioides* (11.45 kg) and least green biomass was recorded in *Sageraea elliptica* (4.9 kg). The dry biomass of the MPT's were recorded after two months. The highest total dry biomass was recorded in *Callophyllum inophyllum* (19.52 kg) followed by *Pterocarpus dalbergioides* (6.79 kg) and least dry biomass was recorded in *Sageraea elliptica* (1.34 kg).

Sequential cropping system

I. Jaisankar & B. Augustine Jerard

To develop and evaluate the suitable padauk based sequential cropping system, an experiment was initiated with the following intercrops under padauk plantation, bhendi, pine apple, banana, sweet potato, tapioca, cinnamon, blackpepper, sword bean, chilli, brinjal. The experiment was initiated at existing three year old padauk plantation at Garacharma Research Farm of the Institute in the month of October 2022.

The mean height of the padauk tree was 3.2 m with 5.6 cm DBH. The initial soil samples were collected and analysed for the NPK content so as to study the impact of sequential cropping on soil properties. The results revealed that the soil available nitrogen ranged from 176 kg/ha to 189 kg/ha, phosphorous ranged from 14.0 kg/ha to 15.5 kg/ha and potassium ranged from 79.7 kg/ha to 94.6 kg/ha.

Mangrove community zonation mapping

I. Jaisankar

Survey was conducted in the mangrove field locations to study the species occurrences, phytosociological data (Dominance, abundance, frequency, important value index) and position in tidal range. A total of 19 different communities of mangroves were identified in Andaman and Nicobar Islands. Species wise categories were prepared such as *Avicennia* sp., *Acanthus* sp., *Acrostichum* sp., *Nypa fruticans* sp., *Phoenix* sp., *Excoecaria* sp., *Pandanus* sp., *Rhizophora* sp., *Bruguiera* sp., *Sonneratia* sp., and *Lumnitzera* sp., mangrove patches observed in the field survey were *Nypa-Acrostichum*, *Acanthus-Acrostichum*, *Phoenix-Acrostichum*, *Xylocarpus-Rhizophora*, *Avicennia-Rhizophora*, *Bruguiera-Rhizophora*, *Avicennia-Excoecaria*, *Sonneratia-Rhizophora*. Other categories of mixed mangrove patches and degraded mangroves patches were also recorded for the reference. Based on these field data and IRS LISS IV satellite imagery for Mangrove upgradation of Andaman and Nicobar Islands, 17 different scenes of IRS LISS IV satellite imageries were used for layer stacking in ArcGIS platform and developed the study area satellite imagery to extract the mangrove patches accurately.

Yield performance of *Morinda citrifolia* reference varieties

I. Jaisankar

Month wise fruit yield and fruit characters of eleven year old trees were recorded for all the four reference varieties to assess the month wise fruit yield potential of the reference varieties and influence of weather on fruit yield. In general, the fruit yield was higher than the previous year. The mean values of the fruit yield per tree showed the significant difference among the varieties. Highest fruit yield of 27 kg/tree was recorded in CIARI Dweep Sampada variety and on par with CIARI Dweep Samridhi (26.5kg/tree) followed by CIARI Dweep Sanjivini (25.10 kg/tree) minimum fruit yield of 21.35 kg/tree was recorded in CIARI

Dweep Rakshak. In all four varieties the highest fruit yield per plant was recorded in the month of April and CIARI Dweep Sampada variety recorded the highest fruit yield of 3.20 kg/tree in the month of November.

Morphological and biochemical evaluation of identified germplasm of tejpatta

Ajit Arun Waman and & Bohra

In order to identify superior germplasm of Indian bay leaf for cultivation in the islands, morphological and biochemical studies were conducted in 6 collections during second season of analysis. Results revealed significant differences among the collections for the studied parameters such as drying percentage (43.20 to 61.11%), essential oil (0.2 to 0.4%) and oleoresin content (8.08 to 12.15%). Photosynthetic pigments in fresh and dry leaves, which are among the important quality parameters of tejpatta, also showed variations among the studied collections apart from total phenolic content.

Popularization of woody pepper as a novel crop

Ajit Arun Waman & Pooja Bohra

Data on the planting material distribution/ sale of Woody pepper to different stakeholders was analyzed to know the status of the crop in the islands. Between March 2020 and December 2022, planting of woody pepper was taken up by 210 stakeholders and a total of 676 plants reached the stakeholders. Estimated area under woody pepper between this period was 6,084 m² with average of 3.22 plants per stakeholder.

Proximate composition of woody pepper products

Ajit Arun Waman & Pooja Bohra

The issue of limited shelf life of woody pepper stem was addressed by processing the produce into value added products *viz.* dehydrated powder and steeped preserved stem pieces. These products would not only facilitate marketing of woody pepper in the distant markets but would also ensure availability of the produce throughout the year. Proximate analysis of the dehydrated powder revealed that it had 48.69% carbohydrates, 31.89% crude fibre, 9.30% total ash, 7.34% protein and 2.78% total fat with 249 kcal energy. The steeped preserved product on the other hand, had 40.48% crude fibre, 40.01% carbohydrate, 13.85% total ash, 4.21% protein and 1.45% total fat with 190 kcal energy.

Proximate composition of value added products from *Garcinia* species

Pooja Bohra & Ajit Arun Waman

In the process of popularization of underutilized species, development of value added products is a crucial step. Sweetened rind product was developed from endemic Andaman Kokum (*Garcinia dhanikhariensis*) and analysis of its proximate composition revealed that the product has high amounts of carbohydrates (90.84%) and crude fibre (6.56%) with 373.61 kcal energy. The product also had 1,302 ppm iron as Fe. Further, dehydrated powder was prepared from the rind of Malabar tamarind which showed 82.51% carbohydrate, 9.21% crude fibre, 4.32% fat, 1.99% protein and 1.97% total ash. The product also had 2,492 ppm iron as Fe and 376.88 kcal energy.

Popularization of underutilized fruit species

Pooja Bohra & Ajit Arun Waman

Underutilized fruits such as Andaman Kokum and blood fruit have been identified as potential crops for diversification of agriculture in the islands after systematic studies at ICAR-CIARI, Port Blair. As the crops are perennial and new to most of the stakeholders, analysis of data on planting material distribution was carried out to estimate the area coverage under these crops. A total of 59 stakeholders took up cultivation of Andaman Kokum and 332 plants were sold during the period of 2020 to 2022, covering an estimated area of about 11,952 m² at an estimated spacing of 6 m × 6m. In case of blood fruit, a total of 373 plants were taken by 99 stakeholders with estimated area coverage of 13,428 m² so far. This shows that cultivation of these crops is slowly picking up in the islands.

Seaweed as feed and water additive in feeding of Native Nicobari Fowl

T Sujatha, Jai Sunder, A.K. De & D. Bhattacharya
Sargassum species of seaweed were collected from coast of Wandoor beach and Chidiya Tapu-off shore of South Andaman coast, Port Blair. The collected seaweeds were then washed and cleaned with tap water to remove all the sand and extraneous substances. Portion of seaweed was dried at room temperature. 100g of each of dried and fresh samples were cut into small pieces and were weighed into glass bottles with 500 ml of distilled water @ ratio of 1:5 and was

overnight stored in shaker incubator. The samples were then ground in a grinder to obtain a mash form. Finally the mash was filtered to remove the insoluble material.

The chickens were provided with the seaweed as water and feed additives. A total of 72 grower Nicobari fowls were randomly arranged in to 6 treatments such as., T1: water supplementation of 5ml fresh sea-weed aqueous extract per chicken; T2: water supplementation of 5ml sundried sea-weed aqueous extract per chicken; T3: 5g of fresh seaweed added with regular feeding schedule; T4: 5g of dried seaweed added with regular feeding schedule; T5: (control 1) feed without any supplementation; T6: (control 2) feed without any antibiotics. Blood samples were taken from experimental birds on 0, 4, 12 and 16th week of feeding. Sea weed supplementation did not affect body weight gain and significantly highest 16th week body weight of 672 ± 96 gms was recorded with fresh sea weed feed supplement and it was comparable with fresh sea weed extract group (660 ± 94.2). Haemoglobin content was increased by 2 gm/dl across all supplemented groups. Free radicals, the oxidative stress parameters through TBARS and NBT assay were quantified. Non significant values of supplemented groups with control groups indicated that sea weed water or feed additives did not cause any oxidative stress to the birds.



Plate 12: *Sargassum* sp. and Egg yolk

The growth hormone quantified through ELISA method was highly correlated to body weight gain. Roch yolk colour score of egg yolk from seaweed supplemented groups was improved; Yolk Comparison between different feed groups were : Fresh Sea - Weed > Fresh Extract > Dried Sea-Weed > Dried Extract > Control. This study highlights the research on seaweed as a valuable and sustainable feed additive for rural poultry farming system of these Islands.

Exploration of fishery, biology and market potential of tuna resources of Minicoy

Y. Gladston, S.M. Ajina, S.K. Zamir Ahmed and E. B. Chakurkar

The structured questionnaire has been prepared to find out the market channel of tuna in Minicoy. The biological analysis of two tuna species i.e. skipjack, yellow fin tuna and long tail tuna was done. A total of 75 samples were dissected and bait fish resources were documented for the period. Ichtyofaul diversity studies were carried out at landing and intertidal area. One seaweed raft prepared and put in western side with *Gracellaria sp.* with the help of local Administration for performance studies

Outreach of CIARI technologies to the farmers of ANI

D. Karunakaran, R. Jaya Kumaravardan, S.K. Zamir Ahmed

The research output and proven technologies are disseminated to farmers through various extension activities viz. capacity building programmes, trainings, demonstrations, field days, kisan mela, awareness programme, commercialization. A study conducted to assess the extent of adoption of CIARI technologies among the farmers of Andaman & Nicobar Islands since 2017 revealed that, 59 potential CIARI technologies comprising Horticulture, Crop Science, Fisheries, Animal Science and Natural Resource Management have been adopted by 428 farmers across the three districts of Andaman and Nicobar Islands. Among them, 59.11% of the beneficiaries were from South Andaman, followed by N&M Andaman (39.72%) and Nicobar (1.17%).

The highest adoption of technology was in Ferrargunj Tehsil (134 farmers) followed by Port Blair (115 farmers) and Rangat (91 farmers). The highest number of farmers adopted scientific goat farming (143 farmers), Scientific pig management (84 farmers), Mini incubator (49), Tri-Model therapy for Humpsore (42 farmers) followed by black pepper cultivation in arecanut, blood fruit cultivation, roof-top gardening, CIARI Dhan 5, CIARI Mung 1, CIARI Urd 1, Vermicompost, Homestead IFS and carp feed.

Table. Number and Percentage of Technologies adopted by the farmers of Andaman and Nicobar Islands

District	No of farmers adopted	Proportion of farmers adopted
South Andaman	253	59.11
North & Middle Andaman	170	39.72
Nicobar	5	1.17
Total	428	100.00

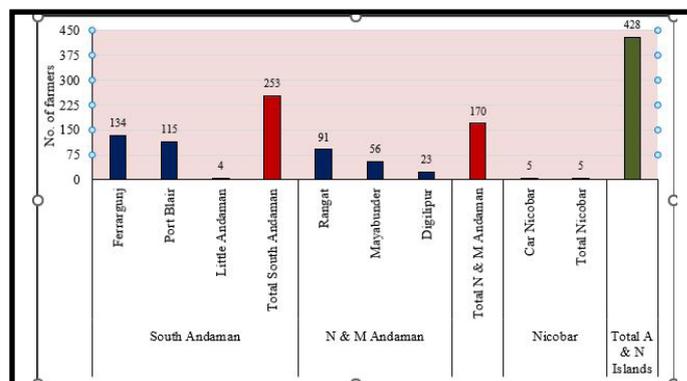


Fig 1: Tehsil-wise number of farmers adopted CIARI technologies from 2017 to 2022

Konkan Kanyal Goats introduced by R.S. Minicoy in Lakshadweep Islands

Gladston Y, Ajina S.M, Abdul Gafoor, S.K. Zamir Ahmed and E.B Chakurkar

On 21st December 2022, ICAR -CIARI Regional Station, Minicoy introduced 5 numbers (3 females and 2 males) of Konkan Kanyal Goats from ICAR-CCARI, Goa for the first time at its Regional Station, Minicoy in Lakshadweep Islands. These goats are mainly black with a white marking in a specific pattern—the ventral surface of the body is white and the legs have white ‘stockings’. Konkan Kanyal goats have a bilateral white strips from nostrils to ears; a flat and broad forehead; flat, long drooping ears; backward, straight, pointed, cylindrical horns; white muzzle and long legs, laterally black, medially white from knee to the fetlock joint. The goats are presently weighing 15-22 kg each at 7 to 9 months



Plate 13: Konkan Kanyal goats

of age are being introduced as one of the most vital component for performance studies under Integrated Farming System enabling rapid cash return for better livelihood.

Important events held **National Symposium by Andaman Science Association, CIARI and Bharatiya Kisan Sangh**

A two day National Symposium on “Harmonizing Land Use for Emerging Challenges and Opportunities in the Island and Coastal Region” jointly organized by the Andaman Science Association (ASA), ICAR-Central Island Agricultural Research Institute (CIARI), Port Blair and Bharatiya Kisan Sangh got inaugurated on 12th October ICAR-CIARI, Port Blair. Speaking on the occasion the Chief Guest Dr. A. K. Singh, Deputy Director General, (Horticulture Science), ICAR, New Delhi, appreciated the efforts taken by the institute and the association in conducting the National Symposium addressing the five most vital component of the nature (Air, Water, Fire Earth and the Space) *i.e.* Panch mahabhoot .He assured for extending all scientific support from different ICAR institute in mainland under the gamet of Division of Horticulture Science with respect to availability of quality seeds and seedlings in Horticulture crops. Dr. Suresh Kumar Chaudhari, DDG (Natural Resource Management) gave the keynote address on the topic Current and emerging challenges for sustainable land use in the Island and coastal region. The Guests of Honour, Dr. N.C. Gautam, Former Vice-Chancellor, Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya and Chairman RAC, ICAR- CIARI ,dwelt in length on the pros and cons of the vital elements and stressed on imparting awareness program among the masses. Shri. Dinesh Kulkarni, Bharatiya Kisan Sangh, spoke on the value addition part in the Panchmahabhoot in which the island ecosystem will be represented & recommendations will be made for the benefit of the island and coastal ecosystem. Shri H.Manoj ,GM, Regional office NABARD ,Port Blair and Swami Sudhanand, Chinmaya Mission also spoke on the occasion. Beside Smt.Bhanumathi and Shri. Pachamuthu Progressive farmers from Rangachang and Calicut villages shared their experiences on Integrated Farming System and Water resources development. The dignitaries also released publications for the benefit of the stake holders. Earlier, Dr. Eaknath B. Chakurkar, Director, ICAR-

CIARI & President, Andaman Science Association welcomed the august gathering and expressed his happiness on CIARI being roped in for conduct of ninth program in the series on Panchmahabhoot. More than 150 delegates comprising of Scientists, technocrats, Change agents, including progressive farmers representing different part of Island and main land are participating in this event which is having five technical session.



Plate14: National symposium by Andaman Science Association

KVK-CIARI, South Andaman organised Kisan Samman Sannam

The ICAR-Krishi Vigyan Kendra, South Andaman, organized a programme for online participation in Kisan Samman Sannam on 17th Oct 2022 at KVK, Sippighat by inviting farmers, farmwomen and public representatives. The online programme was inaugurated by Hon’ble Prime Minister, Shri Narendra Modi at Indian Agricultural Research Institute at PUSA, New Delhi. Union agriculture minister Narendra Singh Tomar, Union fertiliser and chemicals minister Mansukh Mandaviya, Union minister of state for fertilisers and chemicals Bhagwanth Khuba, and Union ministers of state for Agriculture Kailash Choudhary and Shobha Karandhlaje and other senior officials also participated in the event. On this occasion the Prime Minister also inaugurated 600 Pradhan Mantri Kisan Samruddhi Kendras (PMKSK) under the Ministry of Chemicals & Fertilisers. Furthermore, the Prime Minister also launched Pradhan Mantri Bhartiya Jan Urvarak Pariyojana - One Nation One Fertiliser. Shri Madan Mohan Joydhar, a very progressive farmer from Chouldhari was invited as the chief guest during the programme. Speaking on the occasion he motivated the participants to take integrated farming system for sustainable livelihood

.Dr. Y. Ramakrishna, Pr. Scientist & Head, KVK in his key note address briefed about the activities of KVK and also highlighted the present need for starting agripreneurship in the Islands. Dr. N. Bommayasamy SMS (Agronomy) and Dr Pooja Kapoor, SMS (Home Sc) also spoke on Natural farming and Importance of Value addition on the occasion. A total of 72 farmers, farmwomen and others were benefitted from the programme. The programme was organized under the guidance the guidance and supervision of Dr. Eaknath B. Chakurkar, Director CIARI, Port Blair and Dr. Y. Ramakrishna, Pr. Scientist & Head, KVK.

Adamala and Shri. Shyam Sundar Rao.

ICAR-CIARI celebrates Vigilance Awareness Week - 2022

ICAR-Central Island Agricultural Research Institute, Port Blair celebrated Vigilance Awareness Week - 2022 with the theme “Corruption-free India for a Developed Nation” during 31st October to 6th November, 2022. Various events were conducted by ICAR-CIARI to mark the celebration of Vigilance Awareness Week - 2022. The celebration of Vigilance Awareness Week - 2022 was started with integrity pledge taking ceremony by the employees of ICAR-CIARI on 31-10-2022. Gram Sabha was conducted on the topic “Menace of corruption and the measures for its redressal” on 02-11-2022 at Badmaspahad village, South Andaman by ICAR-CIARI and KVK, South Andaman. Besides, an essay writing competition on “Promising anti-corruption measures for a developed nation” was conducted for the staff and their children on 02-11-2022 at ICAR-CIARI. Painting competition was conducted on the topic “Anti-corruption” for the School and College students on 03-11-2022.

A seminar on “Preventive vigilance measures” was delivered by Ms. Ragini Kumari, Assistant Professor (Law), Andaman Law College on 04-11-2022 for the benefit of staff of ICAR-CIARI. Awareness rally on “Vigilance” was conducted from ICAR-CIARI to Bathu Basti on 04-11-2022 to spread awareness among the stakeholders. Finally, Vigilance Awareness Week - 2022 was ended with valedictory programme and prize distribution on 07-11-2022 in which the winners of various competitions were felicitated. The week-long programme was conducted under the Chairmanship of Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI, Dr. Jai Sunder, Vigilance Officer, CIARI and the team comprising of Dr. K. Saravanan, Dr. Rafeeque Rahman Alyethodi, Dr. R. Jaya Kumaravaradan, Dr. J. Praveenraj, Dr. Sirisha



Plate 15: Vigilance Awareness Week celebration

Agriculture Education Day

Agriculture Education Day was celebrated from 15th November to 05th December 2022 in commemoration of the birth anniversary of Shri Rajendra Prasad, the first President of India. During the 21-day programme, various competitions ondebate, painting, quiz, concept paper writing were conducted for school and college students; and photography competition for the staff of CIARI. Scientific teams visited various schools and interacted with the students about the career opportunities in agriculture and allied sectors. A Seminar Lecture by Dr. Lal Ji Singh, Joint Director and Head, Botanical Survey of India, Port Blair was organized wherein 200 students across 8 schools of South Andaman participated on virtual mode. Overall, 1,459 students from 18 schools and 6 colleges across South Andaman district participated in one or other events the programme. A similar programme was conducted at the Regional Station, Minicoy, Lakshadweep wherein 239 students participated. The programme was organized under the guidance and



Plate 16: Agriculture Education Day celebration

supervision of Dr. Eaknath B. Chakurkar, Director CIARI, Port Blair and Nodal officer Dr. S.K Zamir Ahmed, Coordinators Shri. D Karunakaran and Dr. R Jaya Kumara varadan.

Workshop on “Meeting of Livestock farmers and Agriculturists (MILAN)”

A joint workshop on “Meeting of Livestock farmers and Agriculturists with NIAB Scientists (MILAN)” was organized by ICAR-Central Inland Agricultural Research Institute, Port Blair in collaboration with DBT-National Institute of Animal Biotechnology, Hyderabad on 21st November 2022 at ICAR-CIARI, Port Blair. The workshop was conducted on the theme of Implications of the Human-Animal Interface in Public Health and to understand the issues and challenges faced by livestock farmers, thereby making suitable technological interventions for improving the productivity and health of livestock. The workshop was attended by 130 participants including livestock farmers, Veterinarians, scientists from ICAR-CIARI, and NIAB, Hyderabad. 89 Shri. H. Manoj, GM, NABARD, Port Blair was the Chief Guest of the function. In his address, he appreciated the CIARI for organizing such an important workshop for the benefit of livestock farmers and veterinarians. The Guest of Honour, Dr. Ashok Gupta, Director, DAHVS, A & N Administration emphasized the various advanced biotechnological tools for their application at the field level. Dr. G. Taru Sharma, Director, NIAB, Hyderabad thanked the Director, CIARI for hosting the event and in her address, highlighted the activities, achievements, and future thrust areas of the institute. Dr. Syed Faisal, Scientist E, NIAB, Hyderabad gave a brief presentation about the various technologies developed by the NIAB. In this presidential address, Dr. E.B.Chakurkar, Director, CIARI, Port Blair motivated farmers on how their role and involvement are important to identify field problems that can be the base for research priority. Dr. D.Bhattacharya, HoD, Animal Science Division briefed about the higher prevalence of parasitic cases in livestock and prevention of Ranikhet Disease in poultry. Later, a farmers-scientists interaction session was convened, wherein various field-level problems related to livestock health and production were discussed in detail, and spot solutions were suggested. Earlier, Dr. Jai Sunder, Pr Scientist welcomed the gathering while Dr. A.K. De, Sr Scientist proposed a vote of thanks. The programme was coordinated by

Dr. T.Sujatha, Dr. P.Bala & Dr. A.K.De as organizing secretaries & Dr. P.Perumal, Dr .K. Muniswamy, and Dr. R.R.Alyethodi as co-organizers.



Plate17: MILAN programme at CIARI

World Fisheries Day Celebration

World Fisheries Day was celebrated at Regional Station of ICAR-CIARI at Minicoy, Lakshadweep on 21st November 2022 with participation of staff, fishermen, fisher women representatives of SHG, representative of Department of fisheries and fisheries cooperatives at its Regional campus. Speaking on the inaugural occasion, the Chief Guest Dr. Shrikant R. Tapdiya, the Deputy Collector Minicoy and guest of honour Shri. Hussain Manikfan, Chairperson, Village Dweep Panchayat, Minicoy, expressed their happiness on the celebration of the day by displaying value added products from fishes and other development activities of the station. The team of ICAR-CIARI, Regional Station, Minicoy in collaboration with Minicoy Island Novelty Mas Producer’s Society Ltd. made an exhibition on 21 value added products made from fishes; namely the traditional products- Mas Appam, Mas Riha Appam, Riha Appam, Mas Fookuthu, Rihakuru-Tuna fish extract, Mohi, Majala, Mas Chutney, Hikki Mas, Vallo Mas, Kundi Mas and other products such as Fish Cutlet, Fish Roll, Fish Pizza, Fish Finger, Dried Tuna Chutney, Dried Tuna Fry, Tuna Fish Pickle, Tuna Chunks in Vegetable oil, Yellow fin Tuna Flakes in Sunflower oil, and Dried Tuna Ground were displayed during the occasion. The scientific team comprising of Dr. Gladston Y., Scientist in-charge, ICAR-CIARI, RS, Minicoy and Dr. Ajina S. M. Scientist interacted with the fishers and made awareness on sustainable marine fisheries, candidate fishes for value addition, scope of value addition, health benefits of fish consumption, value added products and ICAR-CIARI expertise for

adoption at farmer's level of the islander. A total 34 comprising of 12 women, 16 men and 6 officials participated the program. Dr. Gladston Y & Dr. Ajina S. M., Conveners, Shri Shareefuddeen Hassan, Senior Technical Assistant & Shri. Arif. M.I, Senior Technician, Co-Conveners and the Nodal Officer, Lakshadweep, Dr. S.K Zamir Ahmed coordinated the overall conduct of programme under the Chairmanship of Dr. Eaknath B. Chakurkar, Director, ICAR-CIARI, Port Blair.



Plate 18 : World fisheries day celebration at Regional Station , Minicoy

Human Resource Development

Sirisha Adamala delivered talk on 'Water resources of the islands: Status and Future challenges' as Lead Speaker II in National Symposium on Harmonizing Land Use for Emerging Challenges and Opportunities in the island and coastal region, organized by ICAR-CIARI, ASA, and Bharatiy Krishi Sangh during 13th -14th October, 2022

Awards/ Honours

- Dr. B. A. Jerard has delivered an invited lead talk on 'Conservation and Utilization of Horticultural crops wild relatives of Andaman and Nicobar Islands' at National Conference on enhancing competitiveness in Horticulture through technology interventions held at ICAR-CPCRI, Kasaragod during 17th to 18th November 2022.
- Dr BA Jerard has served as an invited expert to prepare road map for breeding in Palmyrah and to deliver a lead lecture on dwarf palmyrah and palmyrah genetic resources of Andaman Islands held at AC&RI, Killikulam, on 28th October, 2022.
- Dr. Pooja Bohra served as a reviewer for the journals- Food Chemistry Advances, Journal of the Applied Research on Medicinal and Aromatic Plants (Elsevier); National Academy Science Letters and Erwerbs-Obstbau (Springer-Nature).

- Dr. Pooja Bohra received Best Oral Presentation Award for the paper entitled 'Conservation and Bioprospection of native *Garcinia* species of Bay Islands, India' during International Conference on Environment and Sustainable Development (ICESD-2022) held at NEHU, Tura Campus, Meghalaya during November 24-25, 2022.
- Dr. Pooja Bohra and Dr. Ajit Arun Waman served as Editors for the Special Issue (Underutilized Horticultural Genetic Resources: Conservation and Utilization) of the Journal of the Andaman Science Association.
- Dr. B. A. Jerard has conducted a Training session on 01-12-2022 on Tuber crops genetic resources in Andaman Nicobar Islands at ICAR Winter school "Sustainable Exploitation of Genetic Resources of Neglected and Underutilized Tuber Crops for Enhancing Climate Resilience and Nutritional Security held at ICAR-CTCRI, Thiruvananthapuram from 29th November -19th December 2022 wherein 20 Assistant/ Associate professors/ scientists of various SAUs and Institutes have participated.
- Dr. B. Augustine Jerard has organized National Conference on Enhancing competitiveness in horticulture through technology innovations held during 17-18 November 2022 at ICAR-CPCRI, Kasaragod as a Member in Organizing committee as President of Indian Society for Plantation crops
- Dr. Sirisha Adamala received First prize in Essay writing competition on "Promising Anti-corruption Measures for a Developed Nation" under Vigilance Awareness Week – 2022 during 6th November, 2022
- Dr. Sirisha Adamala served as Reviewer for Journal of the Indian Society of Remote Sensing and Arabian Journal of Geosciences

Exposure Visit NCS students to ICAR-CIARI

An educational trip was conducted to enlighten the young minds of the students representing Class IX & X (65 nos in each) of Navy Children School (NCS), Port Blair along with five faculty, on the ongoing R & D activities in Organic farming, Soil water conservation and watershed management, Integrated Farming System, Specialty flowers & Dragon fruits, at Garacharma Research Complex of ICAR-CIARI, Port Blair on 26th and 27th October, 2022. Dr. Sirisha Adamla, Scientist (Land and

Water Management Engineering), dwelt in length and gave practical exposure on the subject *viz* Organic Farming, Integrated Farming System & Water shed management. Beside the students were informed about the role of Agricultural Economics in production system by Dr. R. Jaya Kumaravaradan, Scientist (Agricultural Economics), and on the IoT of computer application in agriculture by Shri. D. Karunakaran, Scientist (Computer Application in Agriculture), Dr. V. Baskaran, Principal Scientist (Floriculture) exposed the students on the importance of speciality flowers, & dragon fruits. Earlier Dr. S.K. Zamir Ahmed, Principal Scientist (Agricultural Extension) welcomed and introduced the Institute and its role in furthering agriculture in these Islands, beside he stressed on building up scientific temperament, and becoming the ambassador of ICAR-CIARI hereafter. The students expressed their happiness on the knowledge gain due to exposure to ICAR-CIARI and interacted with the team of Scientists to get their doubts cleared. They also showed interest in seeing the other activities during future visit. The two days visit was coordinated by the team, of Social Science comprising of Dr. S.K.Zamir Ahmed, Principal Scientist & In-charge, Social Science, Dr R. Jaya Kumaravaradan, Scientist, Shri. D. Karunakaran, Scientist, along with Shri Ali Akbar, Technical under the plan & guidance of Dr. Eaknath B Chakurkar, Director, ICAR- CIARI, Port Blair

activities of KVK and also to discuss in detail different sustainable income generating opportunities available for the youth of Andaman. The students were exposed to demonstration units at KVK like kitchen garden, vermicompost unit, mushroom spawn production unit, organic mushroom cultivation, beekeeping, various value-added products of locally available fruits, fishpond, hatchery unit etc. Dr B.K Nanda, SMS (Agriculture Engg.) welcomed the gathering and explained in detail about the roles and responsibilities of KVK. Dr N. Bommayasamy, SMS (Agronomy) delivered a lecture on the “Economic importance of Apiculture”. Dr Pooja Kapoor, SMS (Home Sc) discussed about “Value Addition in locally available fruits and vegetables for enterprise development”. Dr. Nitu Sindhu, Woman Scientist (DST) highlighted about “Tissue culture technology for spawn production and mushroom cultivation”. A total of 102 students and six staffs participated and were benefitted from the programme. The programme was organized under the guidance and supervision of Dr. Eaknath B. Chakurkar, Director CIARI, Port Blair and Dr. Y. Ramakrishna, Pr. Scientist & Head, KVK.

Field Days

Vegetable cultivation (Tomato) under coconut plantation at R.S. Minicoy

Field day on vegetable cultivation (Tomato) under coconut plantation was held for the tribal farmers of Minicoy on 30th Dec 2022. A total of 20 participants including farmers and farm women from Bodouthiri, Rammedu, and South Bandaram attended the program. A total of 61 kg fully matured tomato were harvested in the presence of Deputy Collector, Minicoy. The vegetable kits (Tomato) and tomato seedlings (30 nos) were distributed among the farmers in the presence of officials of Department of Agriculture, Minicoy Unit. A total of 15 women and 5 men farmers participated.



Plate 19 : Exposure visit of NCS Student

KVK-CIARI, South Andaman organizes Exposure Visit of Teachers Trainees

Exposure visit of teacher trainees of U.G. Ed. III year students from Tagore Govt. College of Education was organized by ICAR- Krishi Vigyan Kendra, South Andaman, on 27th Oct 2022 at KVK, Sippighat. The field visit was organized with the objective to create awareness among students regarding various



Plate 20 : Field Day on tomato cultivation

Publications

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- Abirami K, Baskaran V and Augustine Jerard B (2022). ICAR-NBPGR IC number IC-0647063 Banana – Korangi Kela ABJ02
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Commercialization of technology

ICAR-CIARI licensed “Dweep Vertigrow” in Andaman & Nicobar Islands

ICAR-Central Island Agricultural Research Institute, Port Blair signed Memorandum of Understanding on 3rd November, 2022 for licensing of technology ‘‘Dweep Vertigrow’’ in the Islands. Dr. E.B. Chakurkar, Director, ICAR-CIARI transferred the technology to

M/s. Jaisankar Industries, South Andaman. Dweep vertigrow is a vertical farming model for growing leafy vegetables in kitchen/terrace garden with a spatial coverage of 5 m² which can accommodate 100 pots and one tray (2 m²). This has the provision for soilless cultivation, rain protection and rainwater harvesting. The system is suitable for year round cultivation of high value leafy vegetables and other herbs besides aesthetic orchids/ornamental plants with efficient use of water, nutrients and space. The model has been by the team of ICAR-CIARI scientists; Dr.T. Subramani, Dr.V. Baskaran, Dr.A. Velmurugan and Dr.T.P. Swarnam.



Plate 21 : Licensing of Dweep Vertigrow

Swachh Bharat Abhiyan

Under the guidance of the Ministry, CIARI along with its KVKs at Sippighat, Nimbudera and Car Nicobar; and Regional Station at Minicoy, Lakshadweep conducted a fortnightly programme of Swachhta Pakwada from 16th to 30th December 2022. Various activities were conducted by involving the staff, their family and farmers of nearby villages. At the outset, all staff took swachhta pledge and planted various tree saplings in the Garacharma Research farm. All office records were sorted out and old files, furniture and junk materials were disposed off. All staff cleaned their office premises. A scientific team visited the farmers at Creekabad and gave agro-advisories on how to maintain hygiene and sanitation in fish pond, and goat and pig sheds. An awareness programme was conducted for the fisher folk at Jungligat fish landing centre and fish marketon biodegradable and non-biodegradable waste management. During the Kisan Diwas on 23.12.2022, Shri. Narendra Singh Tomar, Hon’ble Minister for Agriculture and Farmers Welfare address the farmers through video conference. A painting competition was conducted for the school students on cleanliness. A massive community mobilization for plastic waste shramdaan

was conducted at Bathubasthi in which the public were urged to curb the use of single use plastic and discourage the use of plastic in the work place, composting of kitchen and home waste materials, promoting clean and green technologies and organic farming practices. All the staff of CIARI went on a rally through the residential area to create awareness about efficient waste disposal mechanism, rainwater harvesting and sewage maintenance; and cleaned the drainage lines. They also visited the waste disposal site at CIARI and learned about how to segregate the household waste into bio-degradable and non-biodegradable, and how to convert waste into compost. On 30.12.2022, PBMC Chairperson Smt. U. Kavitha participated in the Swachhhta activity along with all the staff of CIARI at Garacharma campus and appreciated the efforts to keep the campus neat and clean.



Plate 22 : Swachh Bharat Abhiyan at CIARI

Schedule Tribe Component

Distribution of planting material and farm implements to PVGTs

During November- December, 350 spice seedlings, 1640 fruit saplings, 200 Khurpi and 100 rosecan were distributed to 594 Jarawa tribes at Tirur, Jirkatang, Kadamtala and Inlet Bay; and 77 Great Andamanese at Strait Island.

(Coordinator: S.K. Zamir Ahmed, R. Jaya Kumaravaradan & D. Karunakaran)



Plate 23: Distribution of planting material

Exposure visit of Nicobari youth

Exposure visit on technological option in agriculture and allied field was conducted for nicobari tribal youth of Harminder Bay wherein 13 male and 12 female totaling to 25 youth participated. They were exposed to IFS, Horticulture farm, Animal Science, Marine ornamental fish & other activities.

(Coordinator: S.K. Zamir Ahmed, R. Jaya Kumaravaradan & Y. Ramakrishna)



Plate 24: Exposure visit of nicobari youth

Training Programme on Improved Cultivation and Postharvest Handling of Spices for Nicobarese farmers

In order to equip the Nicobarese tribal farmers with scientific spice production and processing technologies, a three days training programme on 'Improved Cultivation and Postharvest Handling Techniques for Producing Quality Spices' was organized by ICAR-CIARI, Port Blair under the Scheduled Tribe Component during November 28 to 30, 2022. Dr. Ajit A. Waman, Coordinator of the programme dealt in detail about the techniques of spices cultivation in the islands through audio visual presentation, which was followed by SWOT analysis of spices farming by Dr. Pooja Bohra, Co-coordinator of the event. During the programme, field visits were made to experimental blocks of black pepper, cinnamon, woody pepper, turmeric, mango ginger, lemon grass, tejpatta, Malabar tamarind and spices based intercropping blocks wherein various agro-techniques followed for these crops were demonstrated. An exposure visit was also paid to the Spices Nursery and Horticultural Plants Propagation Unit of the Institute to showcase various protected structures, irrigation setups and diversity of horticultural plants of the islands. Practical sessions on propagation of spices and hands on experience on postharvest processing technologies were carried out. To improve the marketing prospects, various value

added products such as powdered spices, spice mixes and essential oils were exhibited along with value added products developed by the Institute. Guidance on various aspects of marketing and cooperative farming was also provided. During valedictory session, Mr. Festus Nathaniel, Secretary, Tribal Council and First Headman, Mr. Andrew Moses, expressed happiness over the programme contents and overall practical exposure provided during the event. To promote the cultivation of spices, planting material of various spices was distributed to the participants. The programme was organized in technical collaboration with CSS-NHM project on Spices and AICRP on Palms which was attended by 25 Nicobarese tribal farmers from Harminder Bay, Little Andaman Island.



Plate 25: Training programme under TSP at CIARI

Training & Awareness Programme

(Coordinator: P. K Singh & D. Karunakaran)

- On 16.12.2022, a training for Nicobari tribal farmers on “Application and importance of bio control agents in crops” was conducted and delivered a lecture on “Application of Trichoderma capsules to control diseases and growth promotion for sustainable crop production” at Harminder bay, Little Andaman. Also distributed Trichoderma capsule (1500 nos.) to 60 farmers for control of soil-borne diseases in coconut plantation.

(Coordinator: T.P Swarnam)

- On 17.12.2022 an awareness Programme on “Waste recycling and rain water harvesting” for Nicobar tribal farmers was conducted at Harminder Bay, Little Andaman.
- 167 tribal farmers including 90 women farmers participated in the programme on “Improvement and Conservation of Native Poultry among Tribal Farming community ” conducted at tribal farming community of Campbell Bay and Car Nicobar from 24-29, November 2022. During the programme, inputs such as feed and water supplements and

deworming and wire mesh were distributed to the tribal farmers

- The scientific team of Regional Station, Minicoy of ICAR-CIARI Port Blair, conducted awareness on Shade nets- Vegetable cultivation (Cucurbits) under coconut plantation on 14/10/2022 at farmer’s field. A total of 8 farmers participated. Demonstrated technology of scientific tomato farming and value added fishery products.

Participation in national seminars/ symposia/ conferences/ workshop

National Conference

- R. Jaya Kumaravaradan participated in the National Conference on “Emerging Trends and New Vistas in Applied Sciences” jointly organized by the Society for Nature and Applied Sciences and Nandha College of Pharmacy & Nandha Group of Institutions at Erode, Tamil Nadu, on 31.12.2022 through virtual mode and presented a poster on “Problems and prospects of vegetable supply chain in Diglipur market area, Andaman and Nicobar Islands”.

Workshop

- R. Jaya Kumaravaradan delivered a lecture on 01.12.2022 on the topic “Climate change and its impact on agriculture” during the 2-day capacity building workshop on “Climate change in sustainable development for school teachers” organized by Jawaharlal Nehru Rajkeeya Mahavidyalaya (JNRM), Port Blair.
- On 21st November 2022, S.K. Zamir Ahmed, R. Jaya Kumaravaradan and D. Karunakaran attended the Workshop meeting of Livestock farmers and Agriculturists with NIAB Scientist (Milan) 2022-23 organised by CIARI and DBT at CIARI.
- On 08th December 2022 S.K. Zamir Ahmed attended the “Andaman Food Processing Conclave” towards awareness of PMFME Scheme and Technology Upgradation at Megapode Resort, Port Blair, Andaman & Nicobar Islands conducted by Department of Industries, MOFPI, ICC and ACCI.

Kisan Mela

Dr . B. A, Jerard has coordinated, participated, and put up an exhibition stall of ICAR-CIARI depicting Island Agriculture technologies at Kisan Mela

organized at ICAR-CPCRI Research Centre, Kidu, Karnataka from 19th – 23rd Nov, 2022 wherein over 3500 farmers and entrepreneurs have visited and interacted.

e-workshop

On 20th October 2022, S.K. Zamir Ahmed and R. Jaya Kumaravaradan attended the e-workshop

conducted by the Centre for Agricultural Technology Assessment and Transfer (CATAT), IARI, New Delhi with ICAR Institutes/SAUs under National Extension programme to discuss the progress and future plan of work on Rabi 2021-22 and Kharif 2022. Presented the “Performance Report of IARI Technologies” for Port Blair centre.

Others

Ajit Waman	Arun	Andaman Food Processing Conclave	Organized by Andaman Chamber of Commerce and Indian Chamber of Commerce at Megapode Resort, Port Blair on 08/12/2022
Ajit Waman	Arun	National Seminar on Agricultural Transformation and Rural Development in India with Special Reference to Andaman and Nicobar Islands: Issues, Challenged and Possibilities	Organized by Jawaharlal Nehru Rajkeeya Mahavidyalaya, Port Blair on 25/11/2022
		Invited resource person during the online training programme organized for the Forest Guards	Organized by Forest Training Institute, Wimberligunj on November 17, 2022
Pooja Bohra		International Conference on Environment and Sustainable Development (ICESD-2022)	Organized by Northeast Hill University during November 24-25, 2022 at NEHU, Tura Campus, Meghalaya
		Convergence Meet organized by NABARD and gave presentation on achievements and scaling up opportunities for the project handled by the undersigned (30.11.2022).	Organized by NABARD at Lemon Tree Hotel, Port Blair on November 30, 2022
B A Jerard		National Symposium on “Harmonizing Land Use for Emerging Challenges and Opportunities in the Island and Coastal Regions”	Organized by Andaman Science Association at ICAR-CIARI, Port Blair during October 12 to 13, 2022.
		ICAR-CTCRI Webinar on Genetic Resources of Underutilized Tuber Crops for Nutritional Security” - Delivered Lead talk on Conservation and utilization of germplasm of tuber crops in A&N islands	ICAR-CTCRI on 27th Aug, 2022
		Delivered lead talk on ‘Conservation and Utilization of Horticultural crops wild relatives of Andaman and Nicobar Islands’ at National Conference on enhancing competitiveness in Horticulture through technology interventions	ICAR-CPCRI, Kasaragod during 17 th to 18 th November 2022
		Palmyrah Breeders Meet. Invited as expert to prepare road map for breeding in Palmyrah and to deliver lecture on dwarf palmyrah and palmyrah genetic resources of Andaman Islands	AC&RI, Killikulam, on 28 th October 2022
		Invited lecture titled “Tuber crops genetic resources in Andaman Nicobar islands - Potential Source for varieties development with climate resilience and abundant nutrients”.	ICAR-CTCRI, Thiruvananthapuram on 1 st December 2022
		XXVI Meeting of ICAR Regional Committee-II	XXVI Meeting of ICAR Regional Committee-II
		XXVI Meeting of ICAR Regional Committee IV on virtual mode	ICAR-IIVR, Varanasi on 7 th November 2022
		National Symposium on “Harmonizing land use for emerging challenges and opportunities in the Island and coastal regions”	ICAR – CIARI, Port Blair during 12-13 th October, 2022

B A Jerard	Andaman Food processing Conclave and presented the food processing opportunities in Andaman and Nicobar Islands	Ministry of Food Processing Industries, Government of India through Indian Chamber of commerce and Dept of Industries, A&N administration on 8th December 2022
I.Jaisankar	National symposium on Harmonizing land use for emerging challenges and opportunities in the Island coastal region	12-13 th October 2022 organized by Andaman Science Association in association with ICAR-CIARI, Port Blair and Bharatiya Kisan Sangh, held at ICAR-CIARI, Port Blair
	National seminar on Agricultural transformation and rural development in India with special reference to Andaman and Nicobar Islands Issues, challenges and possibilities	JNRM college, Port Blair on 25.11.2022
Sirisha Adamala	Refresher Course on Mechanical Processing of Natural Fibre	ICAR-National Institute of Natural Fibre Engineering and Technology (NINFET), Kolkata during 11-20th October 2022
	One-day symposium on "Soils: Where Food Begins"	Division of Soil Science and Agricultural Chemistry (SS&AC), ICAR-IARI, New Delhi in association with the Delhi Chapter of the Indian Society of Soil Science (ISSS) on hybrid mode on 30th November 2022
A Velmurugan Sirisha Adamala, T Subramani, T P Swarnam	National Symposium on Harmonizing Land Use for Emerging Challenges and Opportunities in the island and coastal region,	ICAR- CIARI, Port Blair, 13-14th October 2022

Presentations in conferences/ symposia/ seminars

Ajit Arun Waman and R. Karthika Devi (2022). Technological Interventions in Woody Pepper for Improving Profitability of Island Agriculture. Oral presentation in the National Seminar on Agricultural Transformation and Rural Development in India with Special Reference to Andaman and Nicobar Islands: Issues, Challenged and Possibilities held at Jawaharlal Nehru Rajkeeya Mahavidyalaya, Port Blair on 25/11/2022.

Ajit Arun Waman, Pooja Bohra and R. Karthika Devi (2022). Biochemical composition as influenced by stem thickness and drying method in woody pepper (*Piper pendulispicum*): a novel spice from Andaman Islands. Oral Presentation in the International Conference on Environment and Sustainable Development held at NEHU, Tura Campus, Meghalaya during November 24-25, 2022.

B Augustine Jerard (2022). Conservation and utilization of horticultural crop wild relatives of Andaman and Nicobar Islands. In: Book of Abstracts of National Conference on enhancing

competitiveness in Horticulture through technology innovations, 17-18 November 2022, ICAR-CPCRI, Kasaragod. 10p.

B. Augustine Jerard and I. Jaisankar (2022). Characterization of tree Bhendi– a potential perennial vegetable crop of Andaman and Nicobar Islands. In: Book of abstracts of AICRP VC Golden Jubilee symposium held at ICAR-IIVR, Varanasi from 20-22 December 2022.

K Pradheep, Joseph John K, I Jaisankar, VA Muhammed Nissar, BA Jerard and SP Ahlawat (2022). Survey and collection of plant genetic resources from Andaman & Nicobar Islands representing Indo-Burma and Sundaland biodiversity hotspots, *In: NCPGRM* (2022) Abstracts Book of the 1st National Conference on Plant Genetic Resources Manag. P 35.

Pooja Bohra, Ajit Arun Waman and R. Karthika Devi (2022). Conservation and Bioprospection of native *Garcinia* species of Bay Islands, India. Oral Presentation in the International Conference on Environment and Sustainable Development held at NEHU, Tura Campus, Meghalaya during November 24-25, 2022.

Mera Gaon mera Gaurav (MGMG)

On 19.11.2022, Team 2 visited the farmers of Chouldari and sensitized them about the importance of maintaining sanitation in farm ponds, pig shed and goat shed for the good health of fish, pig and goat.



Plate 26: MGMG team visited the farmers

Appointments/ promotion/ transfer/ retirement/ obituary

Transfer

- Dr A. Velmurugan, Pr. Scientist & I/c Head, NRM transferred as ADG (SWM), to ICAR, New Delhi



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