



# NEWSLETTER



## ICAR-CENTRAL ISLAND AGRICULTURAL RESEARCH INSTITUTE Port Blair, Andaman and Nicobar Islands

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

*AgriSearch with a human touch*

### From the Director's Desk ....

Andaman and Nicobar Islands receive about 3100 mm of rainfall in 7- 8 months, but deficit is experienced from January April. The undulating terrain results in severe water crisis during the dry period which is aggravated by higher evapotranspiration. There are only two major rivers in the islands viz. Kalpong river in the North and Middle Andaman district and Galathea River in Great Nicobar tehsil under Nicobar District. Domestic sector is the predominant consumer of groundwater resources in A&N Islands and irrigation sector is the least consumer of groundwater resources. In the islands, the precipitation is the only source of fresh water which is recorded as 26200 MCM, of which, 75% goes as runoff eventually reaching the sea. The total utilizable water (harvested rain water, soil moisture and surface water resource) is estimated around 5240 MCM (20% of precipitation). Though surface storage capacity of the dams, reservoirs and ponds is 20 MCM (Dhanikari dam-5 MCM, Kalpong-15 MCM, others surface water - 5 MCM), the utilizable water is only 10 MCM as the entire Kalpong dam water is used for power generation.



The total estimated water demand for farm sector is 359 MCM, of which 349 MCM is directly met through rainfall and 10 MCM is met through streams, nalla and ponds during the dry season. The water demand for livestock and fisheries sector is about 2.89 and 2.33 MCM, respectively. The water demand for establishments and institutions is more (3.00 MCM) than the industries and infrastructures (1.66 MCM) in the islands. The water requirement for domestic use of water (drinking and other uses) is 12.87 MCM. The total water demand for non-agricultural purpose is 17.56 MCM. The water budget analysis in A&N Islands revealed that a total of about 32.78 MCM of water is needed to meet current annual demand by all the sectors. It is also estimated that a total of 38.12, 45.20 and 53.06 MCM of water is required to meet the various farm and non-farm sectors demand by 2031, 2041, and 2051, respectively. Hence, the best practices for water harvesting, storing and effective utilization of water resources need to be adopted by all the stakeholders in the islands.

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### RESEARCH SPOTLIGHT

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*Chakurkar*

Dr. Eaknath B. Chakurkar

## Research Highlights

### Coconut varieties recommended for release and notification by the sub-committee, Ministry of Agriculture and Farmers Welfare, Govt. of India

**B.A. Jerard, V. Damodaran, I. Jaisankar, S.K. Zamir Ahmed, K. Abirami, M. Sankaran, M.A. Suryanarayana, T.V.R.S. Sharma, V. Niral, K. Samsudeen, M.K. Rajesh and Anitha Karun**

The Central Sub Committee on crop standard its in meeting held on August 05, 2024 recommended the release of two dwarf coconut varieties viz. Dweep Haritha and Dweep Sona.

#### Dweep Haritha

A green dwarf selection with large attractive fruits, high fruit yield and desirable tender nut traits. The proposed variety gives an average fruit yield of about 88 nuts per palm per year (mean of ten years) under rainfed conditions of Andaman and Nicobar Islands with a tender nut water content of 392 ml per fruit. The variety performed well over released varieties CIARI Surya, CIARI Omkar, CIARI Annapurna and CIARI Chandan for tender nut traits. The average fruit yield of the variety at Kasaragod is 102 fruits per palm per year, and superior to the control

COD.

#### Dweep Sona

A dwarf tender nut variety with yellow coloured fruits was recommended for cultivation in Andaman and Nicobar Islands and Kerala. The variety gives average fruit yield of about 88 nuts per palm per year (mean of ten years) under rainfed conditions of Andaman and Nicobar Islands, with a tender nut water content of 470 ml per fruit. The variety performed well over released varieties CIARI Surya, CIARI Omkar and CIARI Chandan for tender nut traits. The estimated potential tender nut yield is about 150 fruits per palm per year. The average fruit yield of the variety at Kasaragod was 82 fruits per palm per year, and superior to the control COD.

### Improved varieties of Malabar tamarind

**Pooja Bohra and Ajit Arun Waman**

Malabar tamarind (*Garcinia gummi-gutta*) is a profitable cash crop for the warm and humid parts of India. In order to promote its cultivation in the Andaman Islands, two improved varieties have been released through the Institute Variety Release Committee of the Institute. Variety Dweep

Agrim is characterized by early harvesting season, thin fruit rind (5.6 mm), regular bearing with average yield of 115.1 kg/ tree/ year, while variety Dweep Vishal is characterized by large fruit size (152.4 g), thick rind (11.8 mm) and high yield of 171.1 kg/ tree/ year.

### Studies in *Centratherum anthelminticum*

**Ajit Arun Waman**

Studies on development of nursery protocol for *Aranya jeeraka* was continued in which suitable substrate for seed germination was identified. Of the four substrates viz. soil, sand, vermicompost and coir pith compost studied in the species, superior germination was noticed in sand

during early phase of germination, while the germination characteristics improved in vermicompost substrate during later part of the study. At the end of 55 days, vermicompost was statistically superior input with the highest germination percentage and seedling vigour index.

### High foliage production *Pandanus amaryllifolius* Roxb. Accession in tropical high rainfall condition

**I. Jaisankar, B. Augustine Jerard, K. Pradheep, E.B. Chakurkar and T. Subramani**

The unique high foliage producing *Pandanus* accession was collected from Malacca Village (IC No. 0646223) of Car Nicobar Islands, Andaman and Nicobar Islands followed by its conservation and evaluation. It has been observed that the plant foliage production was 430 g/ plant/ year under rainfed condition. No incidence of pest and diseases was observed. Besides, this high foliage production type is

considered unique owing to the higher foliage yield potential in terms of number of leaves per plant, which makes it suitable for processing. The identified *Pandanus* accession is being multiplied through rhizome/lateral cuttings for further evaluation. The accession was registered at ICAR-NBPGR, New Delhi with the registration number INGR 24069.



## Unique large sized leaf (*Macaranga nicobarica*) genotype from Nicobar Islands, India

I. Jaisankar, B. Augustine Jerard, K. Pradheep, V.A. Muhammed Nissar and K. Joseph John

A study was undertaken among *Macaranga nicobarica* (IC-626370), *M. tanarius* and *M. indica* to identify the species best suited for commercial plate making. Leaf characteristics with their production pattern were recorded in six branches of each species. The leaves of *M. nicobarica* turned from pale green to dark green while that of *M. indica* and *M. tanarius* turned from pale green to shaded green on maturity. The number of leaf scar per meter stem was 12 in *M. nicobarica* and *M. tanarius*; and 13 in *M. indica*. It took 30 days for a leaf to mature in *M. nicobarica* and *M. indica* when the leaves of *M. tanarius* mature in 27 days. Leaf length (96.13 cm), leaf width (74.21 cm), mid rib length (75.76 cm), leaf area (5059 cm<sup>2</sup>), petiole length

(55.57 cm), petiole diameter (2.4 cm), leaf fresh weight (158.5 g) and leaf dry weight (93.85 g) were significantly highest in *M. nicobarica* followed by *M. indica* (35.57 cm, 33 cm, 27.07 cm, 954.57 cm<sup>2</sup>, 27.31 cm, 0.54 cm, 96.53 g and 42.63 g respectively) and *M. tanarius* (24.66 cm, 21.17 cm, 21.51 cm, 511.4 cm<sup>2</sup>, 12.37 cm, 0.33 cm, 44.09 g and 21.42 g respectively). Owing to their desirable leaf area, fresh weight and colour, fresh leaves of *M. nicobarica* and *M. indica* were found to be suitable for making plates on commercial scale to reduce the usage of plastic plates in these ecologically fragile Islands. The *M. nicobarica* accession was registered at ICAR-NBPGR, New Delhi with the registration number INGR 24083.

### IC numbers for Tuber crops

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

*Colocasia esculenta* (Taro) accessions were collected from Andaman and Nicobar Islands, conserved at ICAR-CIARI, Sri Vijaya Puram and the passport data were submitted

to the ICAR-NBPGR, New Delhi for 19 accessions and obtained IC numbers (IC 653033 to IC 653051).

### Germplasm collection and conservation

Pankaj Kumar Singh and P. Prabhu

**Vegetable crops** - During the period 14 accessions were collected from Nicobar district. These include 1 wild melon (*Cucumis melo* var. *agrestis*), 4 ivy gourd (*Coccinia grandis*), 1 sponge gourd (*Luffa aegyptiaca*), 1 bitter gourd (*Momordica charantia*), 2 chili, 1 cowpea, 1 balloon vine (*Cardiospermum halicacabum*), 1 wild mango, 1 wild fruit, and 1 rudraksha (*Elaeocarpus ganitrus*). During September nine plant accessions were collected

from Shaheed Dweep, Shoal Bay and Baratang: 1 wild melon, 2 ivy gourd, 1 sponge gourd, 2 chili, 1 cowpea (*Vigna unguiculata* var. *sesquipedalis*), 1 beach pea (*Vigna marina*), 1 ash gourd (*Benincasa hispida*), 1 brinjal (*Solanum melongena*), and 1 Indian nightshade (*Solanum violaceum*). The collected Ivy gourd accessions have been conserved in Ivy Gourd Field Gene Bank and remaining accessions are in the process of seed multiplication.



a



b



c

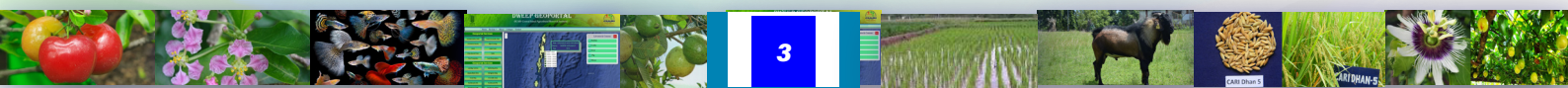


d

Plate 1. Germplasm collection : a) Wild melon (*C.melo* var. *agrestis*); b) Chili (*Capsicum annuum*); c) Indian nightshade (*Solanum violaceum*); d) Ivy gourd (*Coccinia grandis*)

**Screening of rice lines**- Research on submergence-tolerant paddy lines involved screening 63 MAGIC lines alongside 2 check varieties (Swarna and Swarna Sub 1). The experiment was conducted under both controlled (KVK Sippighat using a lined pond) and field (Bloomsdale Farm) conditions, maintaining a 10-day continuous submergence.

Comparative survivability assessments are underway, with initial findings indicating variable tolerance levels. DNA isolation and molecular characterization of these lines are also in progress, aiming to identify tolerant lines using submergence genetic markers.





a



b



c

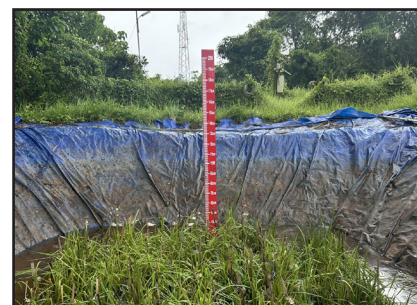
**Plate 2. Screening of rice MAGIC lines for submergence tolerance under field condition a) Pre-flowering stage before submergence; b) Complete submergence; c) ten days after submergence**



a



b



c

**Plate 3. Screening of rice MAGIC lines for submergence tolerance under controlled condition a) Pre-flowering stage before submergence; b) Complete submergence; c) ten days after submergence.**

## Augmenting livelihood, resilience and knowledge generation through coastal fisheries information hub for Nicobari tribes of Car Nicobar Island

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

Coral reef surveys were conducted to assess the corals' condition post-thermal stress during the pre-monsoon period. Bleached corals of *Acropora*, *Montipora*, and *Tubipora* spp. were photographed underwater. Soil sediments were collected from the beaches of Car Nicobar in triplicate to study the abundance of microplastics on the beaches. Two FRP fishing crafts of 30 feet overall length were dry docked at Big Lapathy beach from Mus

Jetty and painting and maintenance works were carried out. These fishing boats were given as inputs to the tribal communities to enhance their fish catch and upgrade their livelihood and employment opportunities. Educated local fishers and other stakeholders about the Citizen Science Initiatives, NICMIS app, technological advancements, and their implications for enhancing their livelihood.

## National Surveillance Programme for Aquatic Animal Diseases (NSPAAD)

**K. Saravanan, J. Praveenraj and R. Kiruba Sankar**

Collected and compiled the baseline data of freshwater fish farms with geo-reference details from a total of 17 freshwater fish farms located at Nayasahar, Manglutan, Ograbraj and Mithakhari villages of South Andaman. Altogether, four disease cases were reported from South Andaman and provided the management measures. Submitted the data for eight disease outbreak cases and

44 numbers of biological data in the National Database for Aquatic Animal Diseases hosted by ICAR-NBFG, Lucknow. Conducted an awareness programme on National Surveillance Programme for Aquatic Animal Diseases at Shoal Bay, South Andaman in which a total of 20 farmers participated.



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

Y. Gladston and S.M. Ajina

The community-based fisheries management for the conservation of baitfish resources was surveyed and recorded. An experiment on bait fish alternatives was done with the cultivated tilapia fingerlings at the tuna pole and line fishing site. A positive sign of acceptance of the alternative bait by tuna was observed on the site. It was estimated that a demand of 7 kg of tilapia fingerlings was needed by vessels per day fishing, once the alternative

fish scheme was adopted. ICAR - CIARI, Regional Station, Minicoy deployed a tuna fish aggregating device, in the Arabian Sea to enhance the productivity of tuna around the ecosystem. A total of 231 fish were dissected for biological studies during the period. It was found that the crabs of matchbox size were the major food item followed by megalopa, squid, *Acetes* shrimps, digested fishes, and baits were the major food items.

## Integrated Farming Systems for enhancing sustainable livelihood of rural tribal community of Minicoy

S.M. Ajina and Y. Gladston

One acre IFS model Coconut based goat- duck/ chicken/ quail - fish - vegetable - fodder model of 0.4 ha was model developed in the demonstration farm of ICAR-CIARI, Regional station Minicoy. It is the first IFS unit in nutrient-deficient, sandy soil of Minicoy. Coconut (Laccadive Micro and Laccadive Ordinary), goat (Konkan Kanyal and Non-descriptive breed), duck (Chara Chempalli) chicken (Sasso, Gramashree, Thalassery Nadan), quail (Nandanam). fish (*Etroplus suratensis*, *Poecilia sphenops*

and IMCs), vegetables (Tubers, vines, and cucurbits), fodder (CO-5, red napier) were introduced and evaluated in the system. The initial soil test was done and inferred that the soil is less in organic carbon, potassium, and nitrogen, deficient in manganese, boron, iron, and high in calcium and phosphorus. The enhancement of soil nutrient condition is to be evaluated in the future to analyze the soil quality change after the setup of the system.

## Schedule Tribe Component

| Programme          | Number | No of Beneficiaries (M+F=T) |
|--------------------|--------|-----------------------------|
| Trainings          | 5      | 285                         |
| Demonstration      | 6      | 128                         |
| Input distribution | 6      | 1250                        |



Plate 4. Glimpses of extension programmes conducted under STC

## Important Events Held

### Workshop on “Application of Rajbhasha Hindi in administrative works” at ICAR-CIARI

ICAR-CIARI, Sri Vijaya Puram, held a workshop on “Application of Rajbhasha Hindi in Administrative Works” on August 07, 2024, at Dr. T. R. Dutta Conference Hall. Shri. Nirmal Kumar Dubey, Assistant Director, Regional Implementation Office (Eastern Region),

Kolkata, served as the chief guest, emphasizing Hindi's role in uniting India and overcoming mental barriers in its official use. Shri. Kanisk Bhukar, Administrative Officer discussed using Hindi in e-files and software. The workshop saw active participation from 45 scientists, technical staff, and administrative personnel.

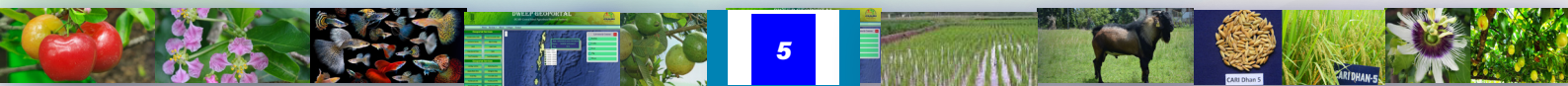




Plate 5. Workshop on promoting Rajbhasha Hindi

**State level workshop cum seminar on “Scope and challenges of Natural Farming in A & N Islands”**

The ICAR-CIARI, Sri Vijaya Puram in collaboration with the Department of Agriculture, Andaman & Nicobar Administration, organized a State-Level Workshop on "Scope and Challenges of Natural Farming in A & N Islands" on August 13, 2024. The event was inaugurated by Mr. Keshav Chandra, IAS, Chief Secretary, A&N Administration, in the presence of Ms. Nandini Paliwal, IAS, Commissioner-cum-Secretary (Agriculture), Shri B.S. Jaglan, Secretary (Agriculture), Dr. E.B. Chakurkar, Director, ICAR-CIARI, Shri. Ahishek Gulia, Director of Agriculture and Padmashri Smti. K. Chellamal. The Chief Secretary highlighted the benefits of natural farming, and Ms. Nandini Paliwal, IAS, suggested developing actionable points for its promotion. Dr. E.B. Chakurkar, Director, ICAR-CIARI emphasized nutritional security through natural farming. During the technical session, Dr. N. Ravishankar spoke on natural farming practices, while Padmashri Smti.K. Chellamal shared her experience. Dr. Y. Ramakrishna and Shri. Ramesh Kumar presented on natural farming inputs and departmental interventions. Dr. C.P. Chandrashekara discussed challenges and Dr. T. Subramani outlined the way forward. Progressive farmer Shri. Ashim Baidya shared the impact of natural farming. The workshop was attended by 120 farmers and officials.



Plate 6. Workshop cum seminar on Scope and challenges of Natural Farming in A & N Islands

**ICAR-CIARI celebrates 78<sup>th</sup> Independence Day**

ICAR-CIARI celebrated the 78<sup>th</sup> Independence Day with enthusiasm at its Garacharma campus as well as at KVK South Andaman, KVK North and Middle Andaman, KVK Nicobar and the Regional Station in Minicoy. Dr. E.B. Chakurkar, Director, ICAR-CIARI, raised the National Flag and highlighted the institute's achievements, including granting nine patents, filing four new patents, and obtaining two copyrights and one trademark. He also mentioned the certification of six technologies, registration

of three breeds, and submission of three technologies for commercialization. Dr. Himanshu Pathak, Secretary of DARE and DG of ICAR, inaugurated the KVK Nimbudera administrative building, while a modern dairy unit was also inaugurated by Dr. N. K. Krishna Kumar, the former DDG(HS). The institute also hosted a Kisan Mela, workshops on sustainable plant protection, and a seminar on natural farming in collaboration with the A&N Administration, along with a round table on climate-resilient agriculture technologies. Infrastructure developments included a dairy shed, ornamental fish breeding unit, and fish aggregating device. He also provided an overview of the research publication, noting that 56 papers have been published with a NAAS rating of 6 or higher and recognized Dr. R. Kirubasankar and Dr. K. Saravanan for their achievements. The Deputy Commissioner of Nicobar also inaugurated a Skill Development Program organized by ICAR-KVK-Nicobar.



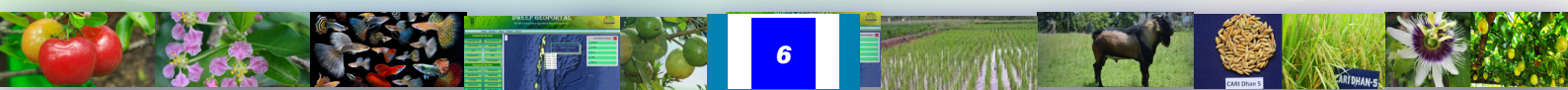
Plate 7. Independence day celebration

**Workshop and awareness programmes on yoga and meditation**

The Central Island Agricultural Research Institute Employee Welfare Association (CIARIEWA) of ICAR-CIARI, Sri Vijaya Puram, in collaboration with Prajapita Brahma Kumaris Ishwariya Vishwa Vidyalaya, organized a “Workshop on Rejuvenating Inner Strength” on August 20, 2024. Sister B.K. Sharmistha, a resource person from



Plate 8. Workshop on 'Rejuvenating Inner Strength'



Rajayoga Centre, led sessions on meditation and inner strength.

Additionally, an “Awareness Programme on Yogic, Ancient and Traditional Science for Healthy Living”

was held on August 21, 2024, with Shri. N. Sera Arasan from Sri Annai Aravind Healthcare delivering lectures on yoga, stress management, and disease prevention.

## HRD

- Shri. D Karunakaran and Dr. R Kiruba Sankar, organized a training programme on “Computer Literacy for Skilled Supporting Staff” from August 19 to 23, 2024, as part of its Human Resource Development (HRD) initiative. A total of 20 Skilled Supporting Staff participated in the program.
- A three-training programme on “Scientific Nursery Techniques in Tropical Spices” was conducted from

September 09 to 11, 2024 at ICAR-CIARI, Sri Vijaya Puram under the Human Resources Development Cell of ICAR-CIARI in collaboration with CSS-MIDH (NHM) Project on Spices. A total of 30 participants attended the programme, which was organized by Dr. Ajit Arun Waman and Dr. Pooja Bohra.

## Trainings/ Meetings/Campaigns

| Name of the training/meeting/Awareness/ campaign programme/ field day                                                               | venue                    | Date                     | Participants (M/F/T) | Organizing committee/ coordinator                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|----------------------|-------------------------------------------------------------------------------------------------------|
| Awareness Programme on National Surveillance Programme for Aquatic Animal Diseases (NSPAAD)                                         | Shoal Bay, South Andaman | 19/07/2024               | 16/04/20             | Dr. K. Saravanan<br>Dr. J. Praveenraj<br>Dr. R. Kiruba Sankar<br>Dr. Chittaranjan Raul                |
| Demonstration on NICMIS Android App (Fishermen)                                                                                     | Car Nicobar              | 19/07/2024               | 20/0/20              | Dr. R. Kiruba Sankar<br>Dr. K. Saravanan<br>Dr. J. Praveenraj<br>Mr. D. Karunakaran                   |
| Induction programme on Sea safety gears (Fishermen)                                                                                 | Car Nicobar              | 20/07/2024               | 20/0/20              |                                                                                                       |
| Awareness on citizen science initiatives (Fishermen)                                                                                | Car Nicobar              | 20/07/2024               | 20/0/20              |                                                                                                       |
| Awareness programme on marine fauna (Students)                                                                                      | Car Nicobar              | 22/07/2024               | 75/65/0              |                                                                                                       |
| Awareness on citizen science initiatives (Students)                                                                                 | Car Nicobar              | 22/07/2024               | 75/65/0              |                                                                                                       |
| Sensitization programme on livelihood augmentation through diversification of fishing technologies and Input distribution under STC | Minicoy                  | 29/07/2024 to 31/07/2024 | 14/0/14              | Dr. Y. Gladston<br>Dr. S.M. Ajina<br>Shri. H. Shareefudden<br>Shri. M.I. Arif<br>Dr. R. Kiruba Sankar |
| Awareness programme on marine fauna (Teachers)                                                                                      | Car Nicobar              | 02/08/2024               | 20/22/42             | Dr. R. Kiruba Sankar<br>Dr. K. Saravanan<br>Dr. J. Praveenraj<br>Mr. D. Karunakaran                   |
| Awareness on citizen science initiatives (Teachers)                                                                                 | Car Nicobar              | 02/08/2024               | 20/22/42             |                                                                                                       |
| Demonstration on NICMIS android app (Teachers)                                                                                      | Car Nicobar              | 02/08/2024               | 20/22/42             |                                                                                                       |
| Induction program on sea safety gears (Teachers)                                                                                    | Car Nicobar              | 02/08/2024               | 20/22/42             |                                                                                                       |
| Demonstration on NICMIS android app (Students)                                                                                      | Car Nicobar              | 04/08/2024               | 75/65/140            |                                                                                                       |
| Induction program on sea safety gears (Students)                                                                                    | Car Nicobar              | 04/08/2024               | 75/65/140            |                                                                                                       |

| Name of the training/meeting/Awareness/ campaign programme/ field day                                                               | venue                        | Date                 | Participants (M/F/T) | Organizing committee/ coordinator                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------|----------------------|-------------------------------------------------------------------------------------------------------|
| Awareness programme on yogic, ancient and traditional science for healthy living-prevention of diseases, stress and pain management | ICAR-CIARI, Sri Vijaya Puram | 21/08/2024           | 40/20/60             | Dr. D. Bhattacharya<br>Dr. K. Saravanan<br>Mr. S. Sundar Rao<br>Mr. Prakash Mondal                    |
| Scientific nursery techniques in tropical spices                                                                                    | ICAR-CIARI, Sri Vijaya Puram | 09/09/24 to 11/09/24 | 11/19/30             | Dr. Ajit Arun Waman<br>Dr. Pooja Bohra                                                                |
| Awareness on organic farming and input distribution                                                                                 | Minicoy                      | 27/09/2024           | 23/10/33             | Dr. Y. Gladston<br>Dr. S.M. Ajina<br>Dr. R. Kiruba Sankar<br>Shri. H. Shareefudden<br>Shri. M.I. Arif |

## Publications

- Bohra, P., Waman, A.A. and Devi R.K. (2024). Variations in horticultural characteristics in *Garcinia gummi-gutta* (L.) N. Robson: a cash crop of the humid tropics of India. *Genetic Resources and Crop Evolution*, <https://doi.org/10.1007/s10722-024-02133-w>
- Halder, N., Sunder, J., De, A.K., Bhattacharya, D. and Joardar, S.N. (2024). Probiotics in poultry: a comprehensive review. *The Journal of Basic and Applied Zoology*, **85**(23): <https://doi.org/10.1186/s41936-024-00379-5>
- Jaisankar, I., Prabhu, Pari., Abhilash, B.A., Jerard, Subramani., T, E.B. Chakurkar and Arthi, N. (2024). Growth and yield performance of *Pandanus amaryllifolius* Roxb. accessions under Andaman Padauk plantation in Andaman and Nicobar Islands, India. *Journal of the Andaman Science Association*. **29**(1): 93-100.
- Kiruba-Sankar, R., Saravanan, K., Praveenraj, J., Eswaran, Y. and Soratur, A. (2024). Release of a Hawksbill turtle caught live in a ghost net - an outcome of citizen science initiatives at Car Nicobar, Andaman and Nicobar archipelago. *Indian Ocean Turtle Newsletter*. **40**: 8-10.
- Kumar, K.V., Swathi, M., Prajakta, Bokade, P., Bharath, V., Kumari, S., Sunder, J., Hemadri, D., Shome, B.R. and Balamurugan, V. (2024). Emrging and changing pattern in prevalence of anti-leptospiral antibodies against different serogroups in livestock in Andaman-Islands ecosystem. *Proceeding of National Academy of Science India, Section B Biological Sciences*. <https://doi.org/10.1007/s40011-024-01589-1>
- Praveenraj, J., Uma, A., Saravanan, K., Ahilan, B., Gopalakannan, A., Manikandavelu, D., Kiruba-Sankar, R. and Kumar, G. (2024). Characterization of *Piscinoodinium* sp. associated with epizootics and mortality in non-native and endemic freshwater fish of the Andaman Islands, India. *Diseases of Aquatic Organisms*, DOI: <https://doi.org/10.3354/dao03821>.
- Waman, A.A., Bohra, P., Devi R.K., Lokesha, A.N. and Shivashankara, K.S. (2024) Stem of Woody Pepper (*Piper pendulispicum* C. DC) as a source of phenolic acids and piperine. *Indian Journal of Plant Genetic Resources*, **37**(2): 294-300. <https://doi.org/10.61949/0976-1926.2024.v37i02.12>

## TOT including radio talks/ TV programme broadcast

| Date       | Speaker                  | Topic                                                         | Platform                      |
|------------|--------------------------|---------------------------------------------------------------|-------------------------------|
| 22/08/2024 | Dr. Talaviyaharshang K.  | Good agricultural practices for Island agriculture            | Doordarshan, Sri Vijaya Puram |
| 05/09/2024 | Dr. A.K. De              | Malnutrition and its management                               |                               |
| 19/09/2024 | Dr. Debasis Bhattacharya | Uncommon zoonotic parasites                                   |                               |
| 26/09/2024 | Dr. Chittaranjan Raul    | Shrimp culture in biofloc systems                             |                               |
| 03/10/2024 | Dr. T. Sujatha           | Entrepreneurship development through rural poultry production |                               |
| 17/10/2024 | Shri. D. Karunakaran     | ICT & AI in agriculture and allied sectors                    |                               |
| 24/10/2024 | Dr. Y. Ramakrishna       | Preparation of natural farming products                       |                               |



## IPRs/Commercialization of technologies

### Patent granted for “new and safe method of blood collection from Pig”

ICAR-Central Island Agricultural Research Institute, Sri Vijaya Puram, Andaman and Nicobar Islands has been granted a patent for an invention entitled A new and safe method of blood collection from farm pigs (Patent No. 544874, date of grant: 12/07/2024). The present invention describes an innovative technique of blood collection in which blood is collected from a different anatomical site of farm pigs which has not been described earlier in patented and non-patented literature. The present invention does not require any premedication prior to the collection of blood and at least 20-30 ml of blood can be collected at a time from an animal. This technique is applicable to pigs of any age group and blood can be collected multiple times a day. In the present invention, blood can be collected without any discomfort to the animals, does not require any special care after collection of blood and animals can be returned immediately to their respective pens. Thus, the novel method of blood collection will be helpful for research purpose. This technology was invented by team of scientists comprising of Dr. Arun Kumar De, Dr. Perumal P, Dr. Jai Sunder, Dr. T. Sujatha, Dr. D. Bhattacharya, Dr. P.A. Bala and Dr. E.B. Chakurkar.

### Registration of Industrial Designs for 'Closed water circulatory system' and 'Cinnamon bark rubbing tool'

ICAR-Central Island Agricultural Research Institute, Sri Vijaya Puram has registered Industrial Design for the invention closed water circulatory system, a laboratory aid useful for condensation operation during the process of extraction of phytochemicals from spices, medicinal and aromatic plants, fruits etc. Such extraction

processes involve continuous use of running tap water for condensation, which results in considerable wastage of water; while the sophisticated recirculatory chillers are too costly for most of the small laboratories. Thus, the invention would not be only affordable but also water-saving solution for the researchers and academicians dealing with various aspects such as extraction of essential oils, fixed oils, refluxing of samples etc. The second invention is cinnamon bark rubbing tool, which is a handy tool that facilitates extraction of inner bark of cinnamon from the harvested stems. Cinnamon is an ancient spice and country imports huge quantities of produce causing loss to the national exchequer. High labour requirement in various stages of harvesting is the main factor deterring cinnamon cultivation in the country. In order to facilitate the harvesting, availability of user-friendly tools are required and this invention is a timely attempt to meet this gap. Both the technologies were invented by team comprising of Dr. Ajit Arun Waman and Dr. Pooja Bohra, Senior Scientists, ICAR-CIARI.

### ICAR Certifies Dweep - Carp Grower Feed Technology

Dweep - Carp Grower Feed Technology was certified by ICAR, New Delhi, on July 16, 2024.

Technology developers: Dr. K. Saravanan, Dr. T. Sivaramakrishnan, Dr. R. Kiruba Sankar, Dr. J. Praveenraj, and Dr. Sreepriya Prakasan.

### Dweep Geo Portal

Dweep Geo portal was designed and developed and updated the distribution soil map of North and Middle Andaman. This can be viewed on <http://192.168.200.53/ciari-geoportal/>.

## Women empowerment activities/trainings

| S. No. | Name of the training                                                     | Venue                                      | Date                     | Participants (M/F/T) | Organizing committee/ coordinator                                                            |
|--------|--------------------------------------------------------------------------|--------------------------------------------|--------------------------|----------------------|----------------------------------------------------------------------------------------------|
| 1      | Value addition in Jackfruit                                              | ICAR - Krishi Vigyan Kendra, South Andaman | 22/07/2024 to 26/07/2024 | 0/20/20              | Dr. Y. Ramakrishna<br>Dr. Pooja Kapoor<br>Mr. Mohit                                          |
| 2      | Skill development training on organic oyster mushroom cultivation (SHGs) | Panchwati, Rangat                          | 11/09/2024 to 13/09/2024 | 06/38/44             | Dr. V. Damodaran<br>Mr. Yatharth Sharma<br>Mr. Mohit<br>Mr. Subam Debroy<br>Mr. Rakesh Dawar |

## Participation in seminars/ symposia/ conferences/ workshop

| Name                                                                         | Programme                                                                                                                      | Details                                                                                                                                                                         |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dr. T. Subramani                                                             | Consultative workshop on moving towards sustainable water, waste management and energy in A& N islands                         | Dr. B.R. Ambedkar Institute of Technology, Sri Vijaya Puram during August 01-02                                                                                                 |
| Dr. Abhilash<br>Mr. D. Karunakaran                                           | 1 <sup>st</sup> International conference on computational intelligence for security, communication and sustainable development | Dr. B.R. Ambedkar Institute of Technology, Sri Vijaya Puram during August 05-06, 2024                                                                                           |
| Mr. T. Harshang kumar                                                        | 16 <sup>th</sup> Annual workshop on MPRNL                                                                                      | ICAR-National Agriculture Science Complex, New Delhi on August 08, 2024                                                                                                         |
| Dr. R. Kiruba Sankar<br>Dr. K. Saravanan<br>Dr. P. Prabhu<br>Dr. Pooja Bohra | IP-Week online awareness programme                                                                                             | ICAR - Indian Institute of Horticultural Research, Bengaluru during August 08-14, 2024                                                                                          |
| Dr. K. Saravanan<br>Dr. J. Praveenraj                                        | Virtual demonstration programme on WHONET software                                                                             | ICAR - National Bureau of Fish Genetic Resources, Lucknow on September 20, 2024                                                                                                 |
| Dr. Ajit Arun Waman                                                          | Annual review meeting                                                                                                          | 33 <sup>rd</sup> Annual Review Meeting of the AICRP on Palms project held at BAU, Sabour from August 21-23, 2024.                                                               |
| Dr. Abhilash                                                                 | Two weeks training on remote sensing and GIS Applications in agricultural water management                                     | Indian Institute of Remote Sensing, ISRO, Department of Space, Govt. of India, during August 19-30, 2024                                                                        |
| Dr. V. Damodaran                                                             | Annual zonal workshop for KVKs under Zone-V, ATARI, Kolkata                                                                    | Odisha University of Agriculture & Technology, KVK, Puri during August 27-29, 2024                                                                                              |
| Dr. Ajit Arun Waman<br>Dr. Pooja Bohra<br>Dr. Raj Narayan                    | Editor's workshop (online)                                                                                                     | Editor's workshop on "Enabling A Research Ecosystem" on September 24, 2024                                                                                                      |
| Dr. Raj Narayan<br>Dr. Ajit Arun Waman                                       | Technical committee of High Value Agriculture Development Agency (HVADA)                                                       | 61 <sup>st</sup> meeting of Technical Committee of High Value Agriculture Development Agency (HVADA) held on September 27, 2024 at Directorate of Agriculture, Sri Vijaya Puram |

## Distinguished visitors

### Lakshadweep MP visits ICAR-CIARI Minicoy station, Praises Livelihood Initiatives

Hon'ble Lakshadweep Member of Parliament, Adv. Hamdullah Sayeed, visited ICAR-CIARI Regional Station, Minicoy, on July 12, 2024, expressing appreciation for its efforts in livelihood security for Lakshadweep communities. He highlighted the value of Integrated Farming System (IFS) for future land-limited production and witnessed initiatives like intercropping in coconut orchards and the Fish Aggregating Device to boost tuna productivity.

### Assistant Commissioner (HQ) visit to KVK, Nicobar demonstration fields

KVK Nicobar organized a significant visit for Assistant Commissioner (HQ) Shri. Singh Piyush Vijaykaran, DANICS to KVK demonstration fields in Car Nicobar, with the primary objective of showcasing the modern agricultural activities and practices implemented. The visit was coordinated by Dr. Santosh Kumar, Head of KVK Nicobar, who was joined by Subject Matter Specialists.



Plate 9. Member of Parliament visits RS (Minicoy)



Plate 10. Assitant Commissioner (HQ) visits KVK, Nicobar



## New projects/ initiatives & Infrastructure development

### Water harvesting structures at Chowra Island

Chowra Island faces significant water-related challenges that stem primarily from its unique geographical and climatic conditions. So, the renovation of the existing pond in New Basti, Kuitasukh village, focused on enhancing water retention capacity and the construction of a new pond in Old Basti, Kuitasukh village was done to address water scarcity affecting domestic, agriculture and livestock.

### ICAR-CIARI Agrometeorological Observatory Data Digital Database

A new digital database, entitled “ICAR-CIARI Agrometeorological Observatory Data,” has been developed by the division of Natural Resource Management to streamline the availability and use of weather data recorded at the ICAR-CIARI

Agrometeorological Observatory. The database offers an interactive, web-based platform where weather parameters are presented in graphical form for easy access and visualization. To ensure long-term preservation, the data is also being digitized and archived in a SQL-based database for institutional records. The web-based platform, hosted on a Linux-based server, can be accessed via the following URL: [http://117.252.242.45/InteractivePlots/current\\_year\\_rainfall](http://117.252.242.45/InteractivePlots/current_year_rainfall). Access to the platform requires login credentials. It will serve as a valuable resource for scientists of the institute which need weather data for various research purposes.

The development and conceptualization of this platform involved Dr. Abhilash, Mr. H. Talaviya Harshankumar, Dr. T. Subramani and Dr. I. Jaisankar.

## Personnel

### Appointment

- Ms. Sushma, SMS (Spices, Plantation Medicinal and Aromatic Plants) joined ICAR-CIARI, KVK, Sippighat on June 28, 2024.
- Mr. Deepoo Meena, SMS (Agricultural Structures and Process Engineering) joined ICAR-CIARI, KVK, Nicobar on June 28, 2024.
- Mr. Ajmal. S., SMS (Agricultural Economics), joined on ICAR-CIARI, KVK, Nicobar on July 03, 2024.
- Mr. Yatharth Sharma, SMS (Home Science) joined ICAR-CIARI, KVK, North & Middle Andaman on July 05, 2024.
- Mr. Subam Debroy, SMS (Aquaculture) joined at ICAR-CIARI, KVK, North & Middle Andaman, on July 08, 2024.
- Mr. Sanketh G.D., SMS (Agronomy) joined at ICAR-CIARI, KVK, Nicobar on July 08, 2024.
- Mr. Rakesh Dawar, SMS (Agronomy), joined at ICAR-CIARI, KVK, North & Middle Andaman on July 09, 2024.
- Dr. Raj Narayan, Principal Scientist joined ICAR-CIARI on July 29, 2024.



Dweep Haritha



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|-------------------------|---|--------------------------------------------------------------------------------------------|
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