भाकृ अनुप
ICAR

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ICAR-CENTRAL INSTITUTE OF FRESHWATER AQUACULTURE
(An ISO 9001 : 2015 Certified Institute)

सीफा समाचार
CIFA NEWS

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CONTENTS

Dr. Pramoda Kumar Sahoo appointed as Director of ICAR-CIFA

Dr. Pramoda Kumar Sahoo has been appointed as the Director, ICAR-Central Institute of Freshwater Aquaculture, Kausalyaganga w.e.f. 10 November 2022. Dr. Sahoo, a NAAS Fellow, was earlier working as Principal Scientist at the same institute and was also bestowed with the prestigious ICAR National Professor award by the Indian Council of Agricultural Research, New Delhi early this year. He has been a world-renowned researcher, working in the area of fish health management for the past three decades. He is one among Stanford University's top 2% scientists list for the years 2020 and 2021. He has more than 230 research and technical publications to his credit. Development of disease-resistant fish, immunomodulation, and disease surveillance across the country are among his focus area of research. Through his research, he has been attempting to find out the solutions for the argulosis, which

is one of the most challenging issues in aquaculture across the globe causing severe economic loss. He has created "TreatMyFish" app and youtube videos on freshwater fish diseases. He has played a key role in establishment of the National Referral Laboratory for Freshwater Fish Diseases at ICAR-CIFA. He is the editor and reviewer of many high rated peer reviewed national/international journals and also a member of various renowned scientific societies. He urged the staff of the institute to work harder in order to deliver new technologies and solutions to the fish farming communities and other stakeholders, and to attain top position among the agricultural research Institutes in India.

DIRECTOR'S DESK

Warm greetings to all readers!

During the period under report, the ICAR-CIFA had made a fairly good work in research and developmental fronts. The major research highlights during the period are the study on antibacterial activity of *Anacyclus pyrethrum* leaf extract on pathogenic bacteria isolated from striped murrel, *Channa striata*, assessment of morphometric indices of erythrocytes in *Macrognathus pancalus* collected from natural sources, evaluation of haematology profile of *Macrognathus pancalus* under polyculture system with *Labeo rohita* and *Ompok bimaculatus,* study the growth performance of *Labeo kontius* fed varied levels of dietary protein, broodstock management of red-bellied pacu (*Piaractus brachypomus*), metagenomic analysis of gut microflora of *Channa striata* during spawning season, estimation of hormonal variation in *Channa striata* during spawning season, discovery and retention of SNPs linked to body weight trait in genetically improved rohu, 'Jayanti' and study on efficacy of oxytetracycline (OTC) antibiotics for multidrug-resistant (MDR) bacterial isolates. The two success stories during this period are the commercial production of magur and singhi seeds by Shri Rahamatulla Shah from Nirakarpur, Khordha, Odisha and Shri Kantu Giri from Baghmari, Purba Medinipur, West Bengal with the technical support of ICAR-CIFA.

The important events organized during the period under report are the observation of Vigilance Awareness Week, direct telecast of hon'ble Prime Minister's address to the farmers on the occasion of Kisan Samman Sammelan, World Antimicrobial Awareness Week (WAAW-2022), Women in Agriculture Day, World Soil Day, Kisan Samman Diwas, Celebration of World Fisheries Day, conductance of Mid-term IRC of the Institute, and organization of Rajbhasha Quarterly Workshop.

Under extension activities/technology transfer, 12 training programmes were conducted on virtual/physical mode and 964 different stakeholders on freshwater aquaculture were trained. The Institute participated in three exhibitions at Bhimtal, Uttarakhand; Guntur, Andhra Pradesh and College of Fisheries, Tripura. The Scientists-Farmers Interface, Kisan Gosthi and Institute Advisory Committee Meetings were organized under Farmers First Project. Under exposure visit, 26 groups and 973 persons have visited the Institute. Under technical guidance, 77 water, soil and fish disease samples were analyzed and 89 technical queries were attended by the Scientists. The Institute signed three MoUs with 1)NFFBB (NFDB–ERC), Kausalyaganga to propagate the latest generation of 'CIFA-GI Scampi' breeder seed, 2) Central Agriculture University (CAU), Imphal, Manipur for development of livelihood programme for people of NEH region through technological support and 3) Department of Fisheries and Fishermen Welfare, Government of Tamil Nadu on for the breeding, seed production and culture of striped murrel in Tamil Nadu under propagation of high value native Channa sp. under World Bank funded consultancy project.

With regards to international collaboration, two scientists of the Institute Dr. D. Panda, Senior Scientist, APED and Mr. Avinash Rasal, Scientist, FGBD attended the training workshop on "Genetic data analysis" at Penang, Malaysia during 07 to 17 December 2022.

Under the TSP/STC programme of the Institute, the training, demonstration, awareness creation and input distribution programmes for scientific fish farming were organized for the adopted farmers of the Gajapati, Raygada and Mayurbhanj districts of Odisha in collaboration with other sister ICAR Institutes of Bhubaneswar, State Fisheries Department, NGOs and other recognized bodies of the districts. The NEH activities of the Institute include training-cum-awareness programme on "Use of Portable FRP Hatcheries for Fish Seed Production"

for the farmers of Nalbari and research scholars of Guwahati University at Guwahati and Review Workshop-cum-Training programme on "Scientific Aquaculture" at Ziro, Arunachal Pradesh. Under SCSP, the institute organized a Scientist-Extension-Farmers interface meeting on "Ornamental Fish Breeding and Culture" at Dagarapada, Derabish Block, Kendrapara; "Training-cum-Workshop on Scientific Aquaculture Practices" for SC farmers of Puri and Kandhamal districts; awareness programme on "Recent Practices, Approaches in Freshwater Fish Farming" at Madupalli, Khammam district, Telangana; "Awareness/Training Programme on Inland Aquaculture" at Mysore, Karnataka and "Training-cum-Awareness Programme on Fish Farming in Salt Affected Regions" at Bathinda, Punjab.

Pertaining to Swachh Bharat Activities, Swachhta Campaign 2.0 and Swachhta Pakhwada were organized during this period.

The overall progress of the Institute in terms of research and developmental activities is reasonably good and I am sure in the near future the Institute will wish to contribute still better for the growth of the freshwater fish farming communities of the country.

(Pramoda Kumar Sahoo)
DIRECTOR

Visit of Dr. Himanshu Pathak, Hon'ble Secretary, DARE and DG, ICAR

Dr. Himanshu Pathak, Hon'ble Secretary, DARE & Director General (DG), ICAR, New Delhi visited the Institute on 26 December 2022. He had inaugurated "Business Development Center" constructed with the support of RKVY. The new facility will provide hand-holding support to the aquapreneurs and Start-ups. Dr.P.K. Sahoo, Director, ICAR-CIFA and Senior Officers of the Institute briefed him about the significant research achievements and other activities of the Institute. He also visited KVK, Khordha located in the Institute campus. An exhibition of farm produces and value-added products developed by Women SHGs was also organized in the KVK premises. Dr. Pathak lauded the KVK for promoting the Farmers Producers Organizations and laid emphasis on sound business plans for its growth. Later he had an interaction with all the Staffs of ICAR-CIFA and Heads of other ICAR Institutes located in Bhubaneswar and Cuttack. He stressed on 'One ICAR' wherein the disciplinary boundaries of the institutes will merge and the institutes will serve the farming community in a better way. Dr. Pathak opined the need of science to generate technologies, processes and products and to deliver these to the end users. Reaching out the farmers and enabling them to practice the most scientific way of farming in a profitable way is the focus of the whole agricultural research and extension system, said Dr. Pathak. He called for transformation and better delivery of research based on the needs of different stakeholders in fisheries and aquaculture.

Visit of Secretary, DoF, Ministry of Fisheries, Animal Husbandry and Dairying

Shri. Jatindra Nath Swain, Secretary, Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India inaugurated the newly created "CIFA-GI Scampi Selective Breeding Hatchery and Nursery Complex" at ICAR-CIFA on 26 December 2022. The new facilities were created under the Central Sector Scheme (PMMSY-CS) titled 'Scaling up of Genetic Improvement Program of

Freshwater Prawn *Macrobrachium rosenbergii* (Scampi)' sanctioned to ICAR-CIFA in 2021. The facilities created will help to scale up the the selective breeding program and production of new generations of 'CIFA-GI Scampi'- the genetically improved fast-growing strain of scampi developed by ICAR-CIFA.

The selective breeding hatchery was constructed with a cost of Rs.22.5 lakhs and it houses 72 numbers of 300 litre FRP tanks for family-wise rearing of new generations of 'CIFA GI Scampi'.

The nursery complex was constructed at a cost of Rs.48.60 lakhs and it house 100 numbers of brick and cement tanks (1.5 x1.0 x 1.0 m) for the family-wise nursery rearing of the new generations of 'CIFA GI Scampi'. With the new additional facilities, ICAR-CIFA will be able to produce around 100 families of new generations of 'CIFA GI Scampi' per generation, which will improve the efficiency of the selective breeding programme of scampi.The secretary appreciated the facilities created at ICAR-CIFA and advised the scientists to give emphasis on the cost reduction of farming for the benefit of scampi farmers. He further stressed the need to have more focus on the creation of infrastructure for frozen storage of scampi and create awareness among the consumers on the superior quality of frozen products.

RESEARCH HIGHLIGHTS

Antibacterial activity of *Anacyclus pyrethrum* leaf extract on pathogenic bacteria isolated from striped murrel, *Channa striata*

Leaf extract (methanolic and ethanolic) of akarkara plant (*Anacyclus pyrethrum*) were screened for their antibacterial effect against fish pathogen using broth microdilution and disc diffusion tests. Gram negative bacteria *Commamonas testosteroni* and *Aeromonas hydrophila* isolated from diseased striped murrel, *Channa striata* was used in the study. For the microdilution inhibition study, the leaf extract concentrations taken were 250 µg, 125 µg, 62.5 µg and 31.25 µg. The study results showed the minimum inhibition concentration (MIC) at 125 µg for both the extracts. For the zone inhibition study, the leaf extract concentrations taken were 20,000 ppm, 10,000 ppm and 5000 ppm and the zone of inhibition was observed in all concentrations with highest zone of inhibition at 20,000 ppm. The leaf extract showed clear zones against the pathogenic bacteria suggesting the antibacterial property of the akarkara plant leaf extract, which may act as a potential alternative to antibiotics in aquaculture (Figs. 1 and 2).

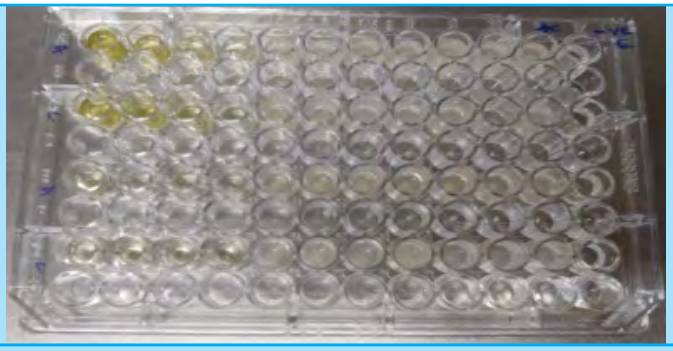


Fig. 1. Minimum inhibition concentration (MIC) determination of the *Anacyclus pyrethrum* leaf extracts against *Aeromonas hydrophila* and *Commamonas testosteroni* by broth dilution method

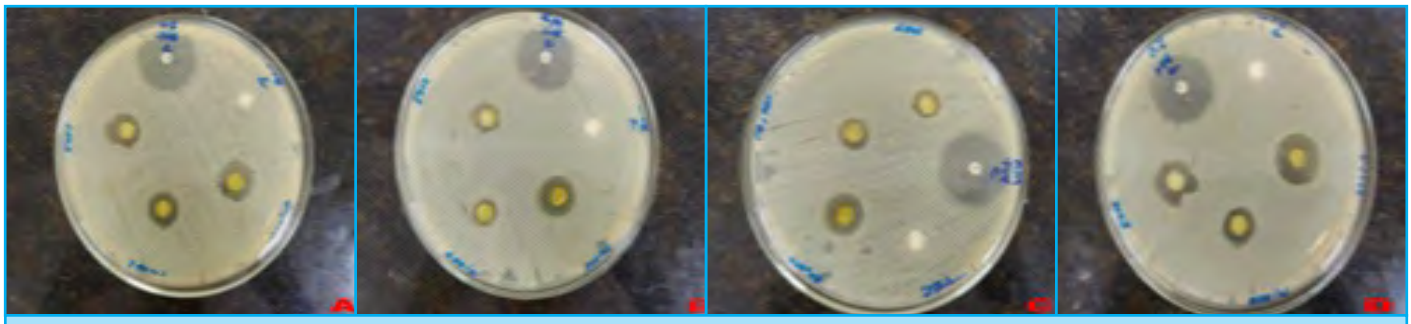


Fig. 2. Zone of inhibition of ethanolic leaf extract against *Commamonas testosteroni* B) Zone of inhibition of methanolic leaf extract against *C. testosteroni* C) Zone of inhibition of methanolic leaf against *Aeromonas hydrophila* D) Zone of inhibition by ethanolic against *A. hydrophila*.

Study of morphometric indices of erythrocytes in *Macrognathus pancalus* collected from natural sources

The erythrocyte cellular and nuclear morphometry of wild caught (collected from canals of Canning, South-24-Parganas, West Bengal) *M. pancalus* was assessed. The erythrocyte larger and minor axes were 7.69±0.20 µm and 5.78±0.56 µm, respectively, whereas, the nuclear larger and minor axes were recorded as 2.85±0.13 µm and 2.42±0.15 µm, respectively. The erythrocyte volume and surface area were 134.56 μm^3 and 34.92 μm^2, respectively. Moreover, the nuclear volume and surface area was observed to be 8.75 μm^3 and 5.45 μm^2, respectively. This study can serve as a reference range to analyze the health status and enhance the understanding of the relationship of blood characteristics with the habitat and adaptability of *M. pancalus* to the environment.

Evaluation of haematology profile of Macrognathus pancalus under polyculture system with Labeo rohita and Ompok bimaculatus

Macrognathus pancalus, Labeo rohita and *Ompok bimaculatus* was reared in a 0.10 ha pond with optimum water quality parameters for 60 days. The stocking density of adult *M. pancalus* and *O. bimaculatus* was 15,000/ha each, whereas, *L. rohita* was stocked at 5000/ha. Along with natural food, the commercial pelleted feed was provided at 2% body weight twice daily. Post 60 days polyculture, sampling was performed and six fish of each species were anesthetized using clove oil (0.1 mL/L water) and blood was collected using 2 ml syringe by caudal vein puncture. The total erythrocyte count (TEC), total leucocyte count (TLC), haemoglobin content (Hb), packed cell volume (PCV %), mean corpuscular haemoglobin (MCH), mean corpuscular volume (MCV) and mean corpuscular haemoglobin concentration (MCHC) was calculated. In *M. pancalus*, the total erythrocyte count (TEC) was 2.80 x 10^6 cells/mm^3, which was significantly less ($P<0.05$) compared to *O. bimaculatus* and *L. rohita*, where the TEC was recorded as 3.24 x 10^6 cells/mm^3 and 3.28 x 10^6 cells/mm^3, respectively. Same trend was also observed in total leucocyte count (TLC), haemoglobin content (g/dL) and packed cell volume (PCV%), which was indicative of greater efficiency in tissue oxygenation per unit red cell mass and may also be related with lower erythropoiesis in *M. pancalus* compared to *O. bimaculatus* and *L. rohita*.

Growth evaluation of *Labeo kontius* fed varied levels of dietary protein

L. kontius fingerlings (5.56 ± 0.19 cm and 2.67 ± 0.10 g) were stocked in cemented tanks with soil base @ 10,000/ha and reared for 75 days. Fish were fed with five pelleted diets containing the graded levels of protein (20% CP, 25% CP, 30% CP, 35% CP and 40% CP) and the feeding rate maintained was 5% of the body weight. Among all the protein fed groups, final weight was higher 35% and 40% CP groups although there was no significant difference ($P<0.05$) found between these two protein fed groups. The fish fed 25 to 40% CP exhibited similarity in terms of their biomass per tank and FCR. Similarly, the PER was comparable among 30 to 40% CP groups (Table 1). Carcass moisture and crude protein contents showed an inverse and direct relationship, respectively, with dietary crude protein levels (Table 2). Considering the higher and comparable final weight, biomass/tank, FCR, PER and carcass crude protein contents in fish fed diets with 35 and 40% CP, it is concluded that a dietary crude protein level of 35% is adequate for *Labeo kontius* in unmanured culture systems.

Table 1. Growth parameters (mean + SD) of *L. kontius*

	20% CP	25% CP	30% CP	35% CP	40% CP
Final weight (g)	10.53±0.15^{a}	12.20±0.13^{ab}	12.27±0.73^{b}	13.51±0.53^{bc}	14.30±0.14^{c}
Final length (cm)	10.08±0.09	10.32±0.07	10.32±0.15	10.55±0.60	10.65±0.35
Survival (%)	91±4	94±9	94±9	100±0	97±4
Biomass (g)/ tank	152.79±9.63^{a}	182.88±15.3^{b}	184.57±14.24^{b}	216.24±8.48^{c}	221.70±12.3^{c}
FCR	4.41±0.08^{a}	3.64±0.05^{b}	3.62±0.28^{b}	3.20±0.16^{b}	3.05±0.06^{b}
PER	1.11±0.02^{a}	1.05±0.01^{a}	0.87±0.07^{b}	0.86±0.04^{b}	0.80±0.01^{b}

Initial length and weight were 5.56±0.19 cm and 2.67±0.10 g, respectively.
Values with the same superscripts in a column are not statistically different (P>0.05).

Table 2. Carcass composition (%, on wet weight basis, mean+ SD) of *L. kontius*.

Diets	Moisture	Crude protein	Fat	Ash
20% CP	69.05±0.58^{a}	14.95±0.40^{a}	14.09±0.19^{a}	2.06±0.09^{ab}
25% CP	68.25±0.58^{ac}	15.30±0.26^{ac}	14.10±0.16^{a}	2.01±0.02^{a}
30% CP	67.43±1.15^{ac}	15.81±0.43^{bc}	13.94±0.21^{a}	2.37±0.12^{b}
35% CP	66.92±0.58^{bc}	16.84±0.15^{d}	13.77±0.11^{a}	2.24±0.10^{ab}
40% CP	65.07±1.15^{d}	16.90±0.12^{d}	13.78±0.49^{a}	2.13±0.03^{ab}

Values with the same superscripts in a column are not statistically different (P>0.05).

Broodstock management of red-bellied pacu (*Piaractus brachypomus*)

Broodstock raising of pacu was carried out in 0.02 ha pond at RRC, Vijayawada with the stocking density of 1500 numbers/ha. The initial mean weight and length of the male and females were recorded 1640 ± 54.33 g and 38.5 ± 2.65 cm, respectively. The feeding was given twice in a day at 3% of body weight. The broodstock diet contained 28% protein with 6% lipid. After 3 months, brooders attained an average weight and length of 2200 ± 134.25 g and 43.5 ± 3.15 cm, respectively. The average gastrointestinal index (GSI) and hepatosomatic index (HSI) of male and female was recorded 7.21 ± 0.55 and 2.12 ± 0.35, respectively.

Metagenomic analysis of gut microflora of *Channa striata* during spawning season

Sequencing of gut of *Channa striata* during spawning season reveals the presence of *Cetobacterium somera*, these bacteria are considered as an important source of Vit-B12 supplementation, which suggest that requirement of Vit-B12 in *C. striata* is getting fulfilled by these group of bacteria.

Hormonal variation in *Channa striata* during spawning season

Analysis of serum 11-ketotestosterone and estradiol during spawning season in *Channa striata* in two treatment group namely T1 (cement tank having no floating hydrophytes and soil base) and T2 (cement having floating hydrophytes and soil base) showed the higher level of 11-ketotestosterone and estradiol, which signifies maturation of gonads during spawning season

SNPs linked to body weight trait in genetically improved rohu, 'Jayanti'

A total of 14,758 SNPs were discovered and 13,822 retained after filtering using stringent criteria in STACKS software. A total of 105031 loci were found to be significantly out of HWE (<0.05) in JR population while it was 105006 nos. of loci in case of wild population. Fst Outlier analysis for selected and unselected rohu populations was performed using BayeScan v 2.1 which aims at identifying candidate loci under natural/artificial selection using differences in allele frequencies between populations. Results indicated the presence of 23 outlier loci under strong influence of diversifying selection.

Study on efficacy of oxytetracycline (OTC) antibiotics for multidrug-resistant (MDR) bacterial isolates

The bacteriostatic ability of OTC was evaluated for nine isolates of multidrug-resistant (MDR) bacterial isolates, three of each *Aeromonas* sp., *Staphylococcus* sp., and *E. coli* sp. by calculating the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC). The MBC of *Aeromonas* sp. ranged from 62.5 to 125 µg/ml, whereas the MIC of *Aeromonas* sp. ranged from 1.95 to 3.9 µg/ml. The MIC for *Staphylococcus* sp. and *E. coli* sp., on the contrary, were determined to be of higher levels, ranging from 3.9 to 8.0 and 7.8 to 15.6 µg/ml, respectively. Similar to other bacteria, these two strains of bacteria had MBCs of more than 125 and 300 µg/ml, respectively. In all calculated values, it was discovered that the MBC to MIC ratio was more than four.

SUCCESS STORY

Successful production of magur and singhi seeds by Shri. Kantu Giri at Baghmari, Purba Medinipur, West Bengal with the technical support of ICAR-CIFA

ICAR-CIFA provided hands-on training on breeding and seed production of magur and singhi to Shri Kantu Giri from Baghmari, Purba Medinipur, West Bengal during August 2022 at ICAR-CIFA, Bhubaneswar. In this training programme, he got trained on brood stock management, induced breeding, hatchery management, seed production and live feed culture. After acquiring the hands-on training, he has established the catfish hatchery with the technical guidance of Dr. S.K. Sahoo, Principal Scientist and Dr. S. Ferosekhan, Scientist, ICAR-CIFA, Bhubaneswar in his farm located at Baghmari, Purba Medinipur, West Bengal for production of magur and singhi seeds. During September to December 2022, he produced 3.0 lakhs magur and 1.8 lakh singhi seeds. The seeds were sold to different states, West Bengal, Bihar, Odisha and Assam. He informed that he has earned the net profit of 4.28 lakhs by selling magur and singhi seed. He has further informed that he wants to establish striped catfish, *Pangasianodon hypophthalmus* hatchery with the technical support of ICAR-CIFA, Bhubaneswar.

Establishment of magur and singhi hatchery at Khordha, Odisha with the technical support of ICAR-CIFA

Shri Rahamatulla Shah, a farmer from Nirakarpur, Khordha, Odisha has undertaken hands on training on magur and singhi catfish breeding at ICAR-CIFA during 2021. He got trained on brood stock management, induced breeding, hatchery management and seed production of magur and singhi along with live feed culture. Subsequently, he established a catfish hatchery with the technical guidance of Dr. S.K. Sahoo, Principal Scientist and Dr. S. Ferosekhan, Scientist, ICAR-CIFA, Bhubaneswar. During June to December 2022, he produced around 70,000 magur and 90,000 singhi seeds and sold to nearby farmers and he earned the net profit of 2.5 lakhs from magur and singhi seed sales and he has recently started the raising of *Mystus cavasius* broodstock with the technical support of ICAR-CIFA to undertake the breeding of this species in upcoming season.

IMPORTANT EVENTS

ICAR-CIFA organizes direct telecast of Hon'ble Prime Minister's address to the farmers

Hon'ble Prime Minister of India inaugurated two days long Kisan Samman Sammelan being held at New Delhi on 17 October 2022. He also visited the exhibition put up as a part of Agri-startup conclave. On this occasion, a direct live telecast programme was organised by ICAR-CIFA and KVK, Khordha for the farmers, students, staff and other stakeholders. A farmers-scientists interaction meet was also held and the queries related to agriculture and allied sectors were addressed. Over 250 farmers and farmwomen from Balianta and Balipatna blocks of Khordha district, Odisha gathered at the Institute and watched the live telecast of the Prime Minister's address to the farmers. Besides, the employees of the Institute Headquarters and Regional Research Centres too joined the programme virtually.

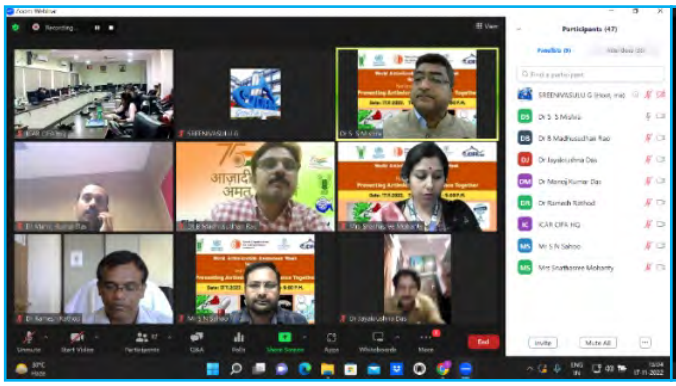
Vigilance Awareness Week Pledge Taking Meeting

The Institute conducted "Vigilance Awareness Week Pledge Taking Meeting (virtual mode)" on 31 October 2022. All the staff members participated in the meeting.

World Antimicrobial Awareness Week (WAAW-2022)

On the occasion of World Antimicrobial Awareness Week-2022, ICAR-CIFA, Bhubaneswar, organized various programmes to create awareness among the stakeholders on antimicrobial resistance and its impact on one health. Following activities and programmes were organized during the period:

A National Webinar on "Preventing Antimicrobial Resistance Together" was organized on 17 November 2022 with presentation by experts. At the outset, Dr. S. S. Mishra, Director (In-charge), ICAR-CIFA addressed the participants and briefed them about objectives of conducting Antimicrobial Awareness Week. He emphasized unless due care is taken at this stage, AMR is going to be the biggest killer in future. Dr. Manoj Kumar Das, Director (Projects), the INCLEN Trust International, New Delhi delivered a special talk on 'Antimicrobial Resistance: Impact on Human Health'. He stressed on rising AMR against commonly used antibiotics used in human medicine and the importance of "One Health" to contain AMR issues. Dr. Madhusudan Rao, Principal Scientist, ICAR-CIFT RC, Vizag, Andhra Pradesh delivered a talk on 'Bacteriophages as Natural Antimicrobials' and opined that the species specific bacteriophage trials have been effective in controlling diseases in humans and animals. Dr. Jayakrushna Das, Professor, Department of Veterinary Surgery, College of Veterinary Science & AH, OUAT, Bhubaneswar presented on the topic 'AMR in Post-surgical Cases in Animals'. He elaborated the successful use of nano-formulations in controlling antibiotic resistant isolates in post-surgical complications. Around 105 participants consisting of scientists, students, entrepreneurs and farmers participated in the webinar.



A special lecture on "Responsible Therapeutics in Fish Disease Management" was organized at ICAR-CIFA, Bhubaneswar through virtual mode (Zoom) on 18 November 2022. Dr. S. S. Mishra, PS and Head, FHMD delivered a special lecture on "Disease Occurrence Pattern, their Diagnosis, Responsible Therapeutics for Disease Control and Preventive Measures" to control disease outbreak in freshwater aquaculture. Around 65 participants including scientists, trainees at RRC-Rahara-Kalyani Centre, West Bengal and 4th Year Fisheries students from LSPN College of Fisheries, Kawardha, Chhattisgarh attended the lecture.

On this occasion, a virtual drawing competition on "Fighting Antimicrobial Resistance Together" and a debate competition on the topic "Tackling Antimicrobial Resistance is my Duty" were conducted on 18 November 2022. CIFA scholars, young professionals, 4th Year B.F.Sc students from LSPN College of Fisheries, Kawardha, Chhattisgarh participated in the events.

A Scientists-Farmers Interaction Meet and Awareness Programme on "Responsible use of Drugs and Chemicals in Aquaculture" was organized at Delang block, Puri district, Odisha on 21 November 2022. Around 60 progressive fish farmers attended the programme. The farmers were appraised about disease management practices in freshwater aquaculture and the adverse effect of irrational use of different antimicrobials in health care, household and agricultural practices, livestock production and the development of antimicrobial resistance. The harmful effects of antibiotics on human health and environment were showcased through charts and posters.

A "Scientists-Students/ Scholars: Experts Interaction Meet" and special talk by the experts on "Containment of AMR" was organized on 22 November 2022. Dr. Basanti K. Pathi, Professor (Microbiology), Kalinga Institute of Medical Sciences (KIMS), Bhubaneswar delivered the special lecture on the topic "Preventing AMR Together: From Community View Point". Dr. Balaram Sahu, Joint Director (Rtd.), AHVS, Govt. of Odisha and Founder Director of "Pathe Pathshala: a Peoples' University" delivered his talk on "Herbal Healings of Domestic Animals to Reduce AMR". Around 60 participants including scientists, scholars and students attended the programme. The winners of art and debate competitions were given prizes by the guests on 22 November 2022 during the programme.

Celebration of World Fisheries Day

The World Fisheries Day was celebrated at the Regional Research Centre, ICAR-CIFA, Rahara on 21 November 2022. A group of 20 fish farmers of North 24 Parganas attended the programme and they were told about the importance of World Fisheries Day. All the scientists and staff members of the Regional Station attended the program to observe the day. Netting operation and packing of fish seeds with oxygen was demonstrated. IMC seeds were distributed to 8 fish farmers.

Mid-term IRC of the Institute

The Institute conducted Mid-term Institute Research Council (Mid-term IRC) meeting for reviewing the on-going projects on 1 December 2022. All scientists and technical officers participated in the meeting.

Women in Agriculture Day

KVK-Khordha and ICAR-CIFA organized 'Women in Agriculture Day' on 4 December 2022. Mr. A. K. Dash, Senior Scientist and Head (I/C), KVK-Khordha welcomed the guests and dignitaries and briefed the importance and significance of celebrating the Women in Agriculture Day. In the presidential address, Dr. Pramoda Kumar Sahoo, Director, ICAR-CIFA recalled the outstanding contributions and involvement of women in agriculture and allied sectors like fisheries, animal husbandry etc. He encouraged and advised the farmwomen to adopt the scientific practices in farm to enhance production and income. Mrs. Basanti Khatua, Chairman, Panchayat Samiti, Balianta block, Khordha highlighted various role played by women in the socio-economic development and praised the SHG members and the Mission Shakti in particular for women empowerment in the state. She referred each woman as the main door of the house and without them the family is incomplete. Dr. (Mrs) Kanta Das Mahapatra, Principal Scientist of ICAR-CIFA, Bhubaneswar emphasized the diversified role played by the women

in managing the family and agricultural activities. Dr. (Mrs.) Geetanjali Das, Assistant Director, State Feed Analytical Laboratory, Bhubaneswar informed the participants about various developmental schemes on animal husbandry and urged the women SHGs to avail the opportunities for economic development through group approach. Seven progressive farmwomen from Tangi and Balipatna blocks of Khordha district were felicitated on this occasion. Director, ICAR-CIFA, Chairman, Panchayat Samiti, Balianta block and Head, KVK-Khordha distributed the vegetable seed kits and grafted mango saplings to the participants for backyard kitchen gardening. A Farmer-Scientist Interaction Meet was also organized on this occasion.

World Soil Day

ICAR-CIFA and KVK, Khordha, in association with the Office of the District Agriculture Officer, Tangi and IFFCO, Bhubaneswar organized World Soil Day on 5 December 2022 at Tangi, Khordha (Odisha). A

total of 87 farmers and farmwomen including scientists of KVK and ICAR-CIFA, officers from IFFCO and Department of Agriculture, Tangi participated in the programme. The chief guest of the programme Mr. Prasanna Kumar Mishra, District Agriculture Officer, Tangi inaugurated the event and informed the participants about the importance of this day. Mr. A. K. Dash, Senior Scientist and Head (I/C), KVK discussed on health management of soil and different scientific approaches for reviving the soil condition to keep it live for future generations. Mr. S. R. Hati, Assistant Field Manager, IFFCO, Bhubaneswar emphasized on use of bio-fertilizers for integrated nutrient management in crop production and demonstrated Nano-urea and DAP to the participating farmers and farm women. On this occasion, 35 soil health cards and 15 litres of liquid rhizobium culture were distributed to the farmers present for seed inoculation in green gram.

Kisan Samman Diwas

The KVK and ICAR-CIFA organized Kisan Samman Diwas on 23 December 2022 at Belapada, Jatni, Khordha supported by Pratisruti NGO, Jatni. A Farmer-Scientist interaction was organized during the occasion. Eight progressive farmers from Jatni Block of Khordha district were felicitated on this auspicious day for their outstanding contribution in agriculture & allied sector for achieving food security. Technical bulletins on agriculture and allied activities has been distributed to all the participants. A total of 120 officials and farmers/farmwomen had participated.

Rajbhasha Quarterly Workshop

The Institute organized Rajbhasha Quarterly Workshop on 27 December 2022 in order to promote the progressive use of official language Hindi and to comply with the acts, rules and orders related to official language. The theme of the workshop was "Work and Utility of Official Language Hindi in Offices". Dr. P.K. Sahoo, Director, ICAR-CIFA in his presidential address said that it is our constitutional obligation to work in the official language and he suggested the simplified usage of Hindi words so as to smoothen the functioning of official language usage. On this occasion, the invited keynote speaker, Sri Dinesh Bahadur Singh, Administrative Officer, National Institute of Science Education and Research, Bhubaneswar presented on the topic "Work and Utility of Official Language Hindi in Offices". He described in detail the compliance of the acts, rules and orders related to the official language. All staff members participated in the workshop. The program concluded with a vote of thanks by Dr. D. K. Verma, In-charge, Hindi Officer, ICAR-CIFA.

EXTENSION ACTIVITIES / TECHNOLOGY TRANSFER

Training Programmes

S. N.	Title of Training Programme	Duration	No. of participants		
			Male	Female	Total
1.	Hands on Training Programme on "Advanced tools in Genetics and Biotechnology"	12-17 October 2022	02	19	21
2.	Recent Advances in Fish Disease Diagnosis and Management	19-22 October 2022	22	00	22
3.	Polyculture of Scampi with Indian Major Carps for Higher Production & Income for Chhattisgarh (Virtual mode)	27 October 2022	–	–	136
4.	Polyculture of Scampi with Indian Major Carps for Higher Production & Income for Assam (Virtual mode)	28 October 2022	–	–	187
5.	Training-cum-workshop on Scientific Aquaculture practices	31 October – 2 November 2022	14	10	24
6.	Nutrition and Feeding of Indian Major Carps	9-11 November 2022	13	00	13
7.	Fish Health and Freshwater Pond Environment Management at RRC of ICAR-CIFA, Rahara	15-19 November 2022	12	04	16
8.	National Training on Freshwater Pearl Culture for Entrepreneurship Development-2nd Batch (Virtual mode)	17-19 November 2022	356	53	409
9.	Enhancement of Pond Productivity and Fish Production in Freshwater Aquaculture (Virtual mode)	29 November-1 December 2022	25	12	37
10.	Experimental Learning Program under STUDENT READY – 4th Year B.F.Sc. students, CoF, Kawardha, Chhattisgarh (1st Batch)	7-22 November 2022	00	40	40
11.	Experimental Learning Program under STUDENT READY – 4th Year B.F.Sc. students, CoF, Kawardha, Chhattisgarh (2nd Batch)	24 November-8 December 2022	33	00	33
12.	Breeding, Seed Production and Health Management of Peninsular Carps (Virtual mode) at RRC of ICAR-CIFA, Bengaluru	13-15 December 2022	21	05	26
	Total				**964**

Training Programmes

National Symposium on "Fisheries and Aquaculture for Livelihood and Nutritional Security"	ICAR-DCFR, Bhimtal, Uttarakhand	18-19 November 2022
Ag-Tech 2022	Lam Far, Guntur, Andhra Pradesh	3-5 December 2022
International Conference on "Responsible Aquaculture and Sustainable Fisheries Interact (RASHI)"	College of Fisheries, Tripura	13-16 December 2022

Celebration of 'Aquaculture Field Day' at RRC of ICAR-CIFA, Rahara

Regional Research Centre of ICAR-CIFA, Rahara, organised 'Aquaculture Field Day' on 02 December 2022 by conducting exposure visit for 28 B.F. Sc. final year students (18 males and 10 females) from Faculty of Fishery Sciences, West Bengal University of Animal and Fishery Sciences, Kolkata. The students were taught on waste water aquaculture, different advancements in aquaculture sector and the importance of fish health management in freshwater aquaculture. Different field activities were undertaken and scientific aquaculture practices were demonstrated. There was an interaction with the students on various aspects of aquaculture during the field day celebration.

Activities under Farmer First Project

Regular Scientists-Farmers Interface is an essential component of Farmer FIRST project and it helps establishing a connection with the clientele. Hence, under Farmer FIRST Project of ICAR-CIFA, Bhubaneswar, the following Interface Meetings and Kissan Gosthi were organised:

On 19 October 2022, over 105 farmers and farm women from nearby villages had participated in the interface programme at Purohitpur village, Khordha along with scientists of ICAR-CIFA and OUAT Professor. The interface was conducted to discuss about the problems faced by the farmers in aquaculture. In the meantime, awardee innovative farmers shared their farming practices adopted by them and how it has doubled their income by taking up fish based integrated farming system.

Another Scientists-Farmers Interface Meeting was held at Aquaculture Field School, Sarakana on 18 November 2022, where around 70 farmers and farm women took part. This meet was held to share with the farmers new developments in freshwater aquaculture and to elicit feedback from practicing fish farmers.

A Kisan Gosthi was organised at Anthuari, Khordha on 25 November 2022 and around 70 farmers have participated including different stakeholders, scientists from ICAR-CIFA, OUAT Professors, line department officials, members of farmers association and farmers etc. Dr. Bama Shankar Rath, Professor and HoD, Department of Agronomy, OUAT, Bhubaneswar; Dr. S.K Mishra, Principal Scientist, ICAR-IIWM and Mrs. Sandhyarani Balabantaray, AFO, Balianta graced the occasion.

A meeting of Institute Advisory Committee and Site Plan Monitoring Group of Farmer FIRST Project held at ICAR-CIFA, Kausalyaganga, Bhubaneswar on 30 November 2022 at ICAR-CIFA conference hall. The purpose of this meeting was to discuss the progress of the interventions and the target vis-à-vis achievements of Farmer FIRST project 2021-22 undertaken in 4 adopted villages and to prepare the action plan for Rabi season 2022-23.

Exposure Visit

	No. of groups	No of visitors	Male	Female
Oct 2022	03	98	78	20
Nov 2022	12	550	325	225
Dec 2022	11	325	177	148
Total:	**26**	**973**	**580**	**393**

Technical guidance (individual)

Months	Samples tested				Tech. queries
	Water	Soil	Fish disease	Feed	
Oct 2022	21	02	00	0	35
Nov 2022	19	05	02	0	30
Dec 2022	22	06	00	0	24
Total:	**62**	**13**	**02**	**0**	**89**

Training attended

S.N.	Event	Venue/Organisar	Duration	Participants
1.	Refresher Course on WHONET	ICAR & FAO, India Kolkata	05 December 2022	S.N.Sahoo
2.	Training on SimaPro software (virtual)	SimaPro, India Unit	22 December 2022	H.S.Swain

OTHER EXTENSION ACTIVITIES

MoUs signed

During this quarter the Institute has signed the MoUs with the following organizations for undertaking collaborative works.

S.N.	Name of the Institute	Date Singed	Purpose
1.	NFFBB (NFDB-ERC), Kausalyaganga	6 December 2022	To propagate the latest generation of 'CIFA-GI Scampi' breeder seed
2.	Central Agriculture University (CAU), Imphal, Manipur (ICAR-CIFA is one among six institutes to sign MoU with CAU, Imphal)	17 December 2022	For development of livelihood programme for people of NEH region through technological support
3.	Dept. of Fisheries and Fishermen Welfare, Government of Tamil Nadu	28 December 2022	Breeding, seed production and culture of striped murrel in Tamil Nadu under propagation of high value native *Channa* sp. under World Bank funded consultancy project



International collaboration

WorldFish, Penang, Malaysia organized a training workshop on "Genetic data analysis" during 07 to 17 December 2022 under ICAR-WorldFish Window 3 collaborative research project. Dr. Trịnh Quốc Trọng, Scientist (Fish Genetics), WorldFish was the faculty for this training. Dr. D. Panda, Senior Scientist, APED and Mr. Avinash Rasal, Scientist, FGBD ICAR-CIFA, Bhubaneswar, India attended the training workshop at Penang, Malaysia.

Distinguished visitors

- Dr. Didier Raboisson, Attaché; Dr Meenakshi Singh and Mr Amitava Das, in charge, Scientific and University Cooperation, North East Zone, Institute Français en Inde, Embassy of France in India visited the Institute on 2 November 2022.
- Dr. C.K. Murthy, President, SIFA, Vijayawada, A.P. visited the institute on 18 November 2022.
- Dr Himanshu Pathak, the Hon'ble Secretary, DARE and DG, ICAR, New Delhi visited the institute on 26 December 2022.
- Shri Jatindra Nath Swain, IAS, Secretary, Department of Fisheries MoFAHD, Government of India visited the institute on 26 December 2022.

Miscellaneous

ICAR-CIFA carried out PVTG tribal training programme on "Aquaculture based Integrated Farming in Gajapati and Rayagada district, Odisha" during 11-14 October, 2022.

ICAR-CIFA in collaboration with ICAR-CTCRI RS, Bhubaneswar; OPELIP, Soura Development Agency (SDA), Chandragiri, Gajapati; and OPELIP, Dangaria Kandha Development Agency (DKDA), Chatikona, Rayagada conducted training and demonstration programme to particularly vulnerable tribal groups (PVTG) in Gajapati and Rayagada, Odisha during 11-14 October 2022. Demonstration of fish seed stocking, carp culture and fish feed preparation from conventional feed ingredients along with distribution of critical inputs for aquaculture and tuber crop plantation were provided to the tribal beneficiaries. A total of 130 tribal beneficiaries from 18 women SHGs of Gajapati and Rayagada districts attended the programme.

In the programme held at SDA Chandragiri, on 11 October 2022, Dr. S. S. Mishra, PS and Head, FHMD and Team Leader, briefed the beneficiaries about how the economic upliftment and nutritional security of tribal beneficiaries can be achieved by practicing integrated aquaculture combining the horticulture, tuber crop farming, animal rearing etc., so that they can be self-reliant. Mr. Banamali Bhuyan, Special Officer, SDA, Chandragiri encouraged the farmers to adopt aquaculture as one of the livelihood options for economic growth. Dr. S.K. Sahoo, PS, APED, ICAR-CIFA elaborated on better pond management practices with water quality, and proper stocking for better production. Dr. K.C. Das, PS, FNPD, ICAR-CIFA detailed about the prospect of fish feed preparation using locally available ingredients and regular feeding for better productivity. Mr. S. N. Sahoo, Scientist, FHMD talked on fish health management. Dr. S. K. Jata, Technical Officer, ICAR-CTCRI RS, Bhubaneswar taught the farmers on plantation methods of various tuber crops like sweet potato, casava, colocasia and their culture practices. Around 60 tribal beneficiaries from 5 women SHGs attended the programme. The carp grower feed, drag nets and cast nets were distributed to the tribal beneficiaries. On next day, pond survey and stocking of 2500 advanced fish fingerlings were carried out at pond site of the adopted beneficiaries.

In another programme held on 13 October 2022 at DKDA, Chatikona, Rayagada, for PVTG Dangaria Kondha beneficiaries, Mrs. C.K.Tajan, District Fisheries Officer, Rayagada briefed about various Government schemes and urged the beneficiaries to take the benefits of these schemes for their development. Dr. S.S. Mishra, PS and Head, FHMD briefed about the objectives of ICAR sponsored STC programme for the socioeconomic improvement of tribal people in the region through aquaculture based integrated farming. Mr. Sudarshana Padhi, Manager, OPELIP, Chatikona, Rayagada advised the beneficiaries to take the technical help from ICAR scientists for the scientific farming of various fisheries and tuber crops. He also briefed about the benefits of adopting integrated farming and advised the women SHG members to add aquaculture practices along with their other farming practices for economic gain. Dr. K. C. Das, PS, FNPD, ICAR-CIFA demonstrated fish feed preparation using portable grinder and pelletizer machine and their operation for grinding other materials. Dr. S. K. Sahoo, PS, APED, ICAR-CIFA talked about the carp farming and pond management. Mr. S. N. Sahoo, Scientist, FHMD briefed about general fish health management practices. Dr. S. K. Jata, Technical Officer, ICAR-CTCRI RS, Bhubaneswar taught the farmers on plantation methods of various tuber crops and their

health benefits. Various critical inputs viz. 7500 nos of advanced fish fingerlings, 1.0 ton floating fish feed, 20 cast nets, 10 drag nets, 2 sets of fish feed preparation machines (pulverizer and pelletizer), tuber crop planting materials (casava, sweet potato and colocasia) etc. were distributed to the tribal beneficiaries on this occasion. Around 70 tribal beneficiaries from 13 women SHGs from Rayagada attended the programme. Mr. S.N. Sahoo, Scientist and Mr. D. P. Rath, STO coordinated the programme.

Training-cum-workshop on "Aquaculture based integrated farming development and field demonstrations to the tribal women SHGs from Gajapati and Rayagada districts, Odisha"

With more than 54.29% Scheduled Tribe (ST) population, Gajapati and Rayagada Districts have primitive tribes of Sauras, Langia sauras and Danagaria Kandhas. For the skill development in aquaculture and integrated farming, and to enhance their livelihood security and economic upliftment, one training-cum-workshop on "Aquaculture based integrated farming development and field demonstrations to the tribal women SHGs in Gajapati and Rayagada districts, Odisha" was organized at ICAR-CIFA, Bhubaneswar during 14-16 December 2022. Total 64 tribal beneficiaries from Gajapati and Rayagada and officials from Saura Development Agency, Lanjia Saura Development Agency, Gajapati and Dangari Kandha Development Agency, Chatikona, Rayagada participated. Dr. Aurobindo Behera, Retd. Senior IAS, former Collector and Secretary SC-ST Department, inaugurated the programme. He admired the effort of scientists for the development of new technologies and farming practices which can be adopted by the tribals for their livelihood development and nutritional security. He narrated his experiences of working in tribal areas in various capacities, and lauded that tribals are the saviour of our culture, heritage and they need to be empowered. Dr. P. Routray, Principal Scientist, highlighted the purpose of the workshop and expressed that field demonstration will help them in practicing the fish culture. Dr. S. S. Mishra, Head, FHMD and Team Leader, Gajapati & Rayagada programme, briefed about the activities being undertaken by ICAR-CIFA in Gajapati and Rayagada since 2018. He made a concern that after the 75th year of independence also the tribals are still not uplifted and urged the beneficiaries to effectively utilize the inputs and resources for their economic upliftment. Dr. K. N. Mohanta, TSP/STC project Coordinator, briefed about objective of this flagship programme of Government of India and also highlighted the activities and achievements of TSP/STC programmes of ICAR-CIFA in various adopted districts of the country. Dr. P. Das, Director (I/c), ICAR-CIFA congratulated the team for conducting such an important programme. He suggested having a benchmark survey and impact analysis study to ascertain whether really there is an impact of our interventions. During the programme one book on "CIFA Intervention in Tribal Zones of Gajapati Since 2018-22" and a documentary film on "CIFA's Activities during the Last Four Years" was released. The scientists from collaborating institutes, Dr. K. Laxminarayan, SIC, CTCRI RS, Bhubaneswar; Dr. G. C. Acharya, SIC, ICAR-CHES, Bhubaneswar and Dr. S. K. Mishra, PS, ICAR-DPR RS, Bhubaneswar highlighted the integration option of tuber crops, horticulture, duckery and poultry with the aquaculture to get sustained income and nutritional security. During the event, the documentary film on ICAR-CIFA interventions in Gajapati District, Odisha was showcased. The participants also displayed their tribal songs and folk dances. Dr. K. C. Das, PS, FNPD thanked all guests and participants for their participation in the programme. During the 3 days programme, the trainees were trained on carp culture, ornamental fish culture, feed formulation and management, integrated farming system development, tuber crop farming, horticulture, backyard poultry and duckery. The beneficiaries were

taken to the CIFA farm facility, NFFBB farm, ICAR-CTCRI Regional Station, ICAR-CHES in Bhubaneswar for an exposure visit and demonstration of various activities. The programme was coordinated by Mr. Satya Narayan Sahoo, Scientist and Mr. Durga Prasad Rath, STO.

Under TSP/STC programme, two "Awareness-cum-demonstrations and input distribution programmes" were conducted at village Khudisila, Thakurmunda Block and Rairangpur Block of Mayurbhanj district, Odisha during on 23 and 24 November 2022, respectively. This was undertaken under the aegis sub-project entitled "Livelihood improvement of tribal communities through introduction of improved fish varieties and other technological interventions in the Mayurbhanj District of Odisha".

The first Awareness-cum-demonstrations and input distribution program was conducted at Khudisila, Thakurmunda Block, Mayubhanj, Odisha. A team of scientist comprised of Dr. K. Murmu, Dr. S. K. Sahoo, Dr. P. Swain, Dr. K. N. Mohanta and Dr. L. Sahoo along with DFO, Mayurbhanj; AFO, Baripada; AFO, Thakurmuda; AFO, Rairangpur; JFTO, Kusumi; Mr. Dolagobinda Panda and Mr Amritesh Kumar, Team Coordinators, PRADAN (NGO) participated in the event. More than 60 farmers from nearby villages participated in the programme. The officials of PRADAN also narrated their activities on fish culture in Mayurbhanj district. The DFO, Mayurbhanj appraised the participants on different schemes of Government of Odisha on fish culture. A Scientist-Farmer Interactive Session was also organized, in which all farmers have actively participated and clarified their problems related to different aspects of Aquaculture. The meeting ended with distribution of inputs to the ten selected beneficiary farmers of the block.

The second Awareness-cum-demonstrations and input distribution program was conducted at ITDA conference hall, Rairangpur Block. The Scientists of ICAR CIFA along with AFO, Rairangpur, JFTO, Kusumi and a team member from PRADAN (NGO) participated in the event. More than 60 farmers from nearby villages participated in the programme. Dr. K. Murmu gave lecture on technique of seed rearing in *"Santali"* language. The subject matter experts Dr.S.K.Sahoo, Dr K.N.Mohanta and Dr. P.Swain explained at length about concept of quality seed and scientific fish culture, feed and feeding practices and fish health management. Fish feed, hapa and net were distributed to selected farmers in consultation with AFO of Rairangpur.

NEH Activities

Training-cum-awareness programme on portable FRP magur hatchery:

Training-cum-awareness programme on 'Use of Portable FRP Hatcheries for Fish Seed Production' for the farmers of Nalbari and research scholars of Gauhati University was organised on 12 December 2022 at Guwahati, Assam. Dr. P.K. Sahoo, Director, ICAR-CIFA inaugurated the programme as the Chief Guest and Head, Zoology Department, GU was the Guest of Honour. A team of scientists from ICAR-CIFA have also participated this programme. The training was attended by 40 farmers and research scholars, who were explained about the use of FRP hatcheries for seed production, use of feeders during fish culture and captive breeding.

ICAR-CIFA organised Review Workshop cum Training programme on "Scientific Aquaculture" at Ziro, Arunachal Pradesh

ICAR-CIFA organised a review workshop on "Amur Carp Farming" at Ziro, Arunachal Pradesh under NEH programme on 14 December 2022. The review workshop was chaired by Hon'ble Minister, Shri Er. Tage Taki, Department of Agriculture, Animal Husbandry, Dairying and Fisheries, Government of Arunachal Pradesh. Hon'ble minister appreciated the activities of ICAR-CIFA such as promotion of Amur carp farming in paddy-cum-fish culture at Ziro, Arunachal Pradesh. Sixty participants attended the workshop and the farmers informed that after the ICAR-CIFA's intervention they got higher growth and survival of Amur carp in paddy cum fish culture compared to normal common carp. Farmers also informed that they are interested to undertake hands-on-training on breeding of Amur carp and culture of Pangasius. ICAR-CIFA organised training programme on "Scientific Aquaculture" and "Farmers-Scientists Interaction" at Ziro, Arunachal Pradesh on 15 December 2022. Officers from Directorate of Fisheries, Itanagar and District Fisheries Development Officer, Lower Subansiri District, Ziro and Farm Manager, RHAFSF Tarin also participated in the training programme.

ICAR-CIFA organised an interaction meet with farmers and Aquaculture Filed School officials at Sonajuli, Papumpare, Arunachal Pradesh on 16 December 2022. The farmers and AFS staffs requested for improved rout (Jayanti) and catla seeds from ICAR-CIFA and also the technical support to produce advanced fingerlings and broodstock raising of improved carp seeds at AFS, Papumpare to cater the seed demand of Arunachal Pradesh state. They have produced carp seeds this year with the technical support of ICAR-CIFA and supplied to nearby farms. The team of scientists, Dr K.D. Mahapatra, Dr. S.K. Swain, Dr. P.P. Chakraborty and Dr S. Ferosekhan, suggested for broodstock quality management of improved carps, koi carp and pabda to produce quality seeds at AFS, Papumpare, and briefed about the pangas breeding and seed production techniques. The scientists have visited the broodstock and nursery rearing pond facilities and hatchery complex.

SCSP

Odisha

The institute organized a Scientist-Extension-Farmers interface meeting on "Ornamental Fish Breeding and Culture" under SCSP scheme on 20 October 2022 at Palei, Dagarapada, Derabish Block, Kendrapara in association with Department of Fisheries, Kendrapara and Jay Bharati Sathi Samaja (NGO). More than 60 participants including scientists from ICAR-CIFA; Extension Officials from Fisheries Department, Kendrapara; Mission Shakti, Members from Jay Bharti Sathi Samaj, Members of few Women SHGs attended the event. The objective of the event was to take a stock of the present practices and to formulate future strategies to empower the women through the adoption of improved practices of ornamental fish breeding and culture.

"Training-cum-Workshop on Scientific Aquaculture Practices" for SC farmers of Puri and Kandhamal District was organised during 31 October -2 November 2022 at HQ of the institute. Around 25 SC farmers from both Puri and Kandhamal district attended this training-cum-workshop programme.

Andhra Pradesh

The essential aquaculture inputs were supplied to 150 beneficiaries in Kuchipudi village, Guntur district of Andhra Pradesh and Madupalli village, Khammam district in Telangana during 07-11 October 2022. The team of Scientists from RRC, ICAR-CIFA, Vijayawada and State Department Officials were present in the inputs distribution programme.

RRC of ICAR-CIFA, Vijayawada organized an Awareness Programme on "Recent Practices and Approaches in Freshwater Fish Farming" at Madupalli, Khammam district, Telangana on 26 October 2022. A total of 107 participants attended the programme. Dr. B. Seshagiri, SIC, RRC, Vijayawada enlightened about the importance of workshop for benefits of fishermen and fish farmers. Dr. Ramesh Rathod, Scientist, RRC, Vijayawada explained about the socio-economic benefits and livelihood opportunities by adoption of scientific aquaculture practices and also told about recent advances in carp culture. He also informed that the integrated fish farming will be highly beneficial to the farmers for doubling the production in a sustainable manner. P. Subbarao, President, Madhira Fishermen Co-operative Society encouraged the farmers for entrepreneurship development in freshwater aquaculture. The necessary inputs like feed, crates and weighing scales were distributed to the beneficiaries on this occasion.

Karnataka

RRC of ICAR-CIFA, Bengaluru organized one day "Awareness/Training Programme on Inland Aquaculture" under SCSP Programme on 18 October 2022 at Training Centre, Office of DD Fisheries, Mysore. Around 23 SC farmers from Mysore district have attended the programme.

A one-day "Awareness/Training programme on Inland Fish Culture for the benefit of SC Fish Farmers" was organized by RRC, Bengaluru at Mysore on 17 November 2022. The programme was inaugurated by the Deputy Director of Fisheries, Government of Karnataka, Mysore Zone, Sri. D. Siddaiah, who also addressed the gathering. Sri. Mahadeva, Asst. Director of Fisheries welcomed the participants and Dr. Gangadhar Barlaya, Principal Scientist, RRC, Bengaluru gave an overview of the programme. A total of 23 SC fish farmers participated in the programme.

Bathinda

RRC of ICAR-CIFA, Bathinda has organized a one-day "Training-cum-Awareness Programme on Fish Farming in Salt Affected Regions" on 25 November 2022. In this programme, 50 farmers from nearby villages of Bathinda, Punjab participated.

Swachh Bharat Activities

Swachhta Campaign 2.0

ICAR-CIFA, Bhubaneswar observed Swachh Bharat activities during 02-31 October 2022 under Swachhta Campaign 2.0. The Swachhta campaign started with taking of swachhata pledge on 2 October followed by swachhta activities throughout the month of October 2022. Listing of the obsolete item, scrap removal, waste collection and segregation, cleaning drive and swachhta awareness campaign were the activities performed under the campaign. Cleaning drives were done in labs, library, residential colony, farm, dispensary and playground inside the institute premises. Swachhta awareness campaign to general public were done through cleaning drives in the market place of Uttara chowk near CIFA. To generate mass awareness among students, essay, debate and drawing competitions under Swachh Bharat theme were conducted in the nearby school. The end of swachhta campaign was marked by the visit of a special guest, Dr Lala Ashwini Singh, a renowned Wildlife Scientist to the Institute. Dr. Singh delivered a special lecture on "Wildlife and Swachhta" during his visit to ICAR-CIFA.

Swachhta Pakhwada during 16-31 December, 2022

ICAR-CIFA, Bhubaneswar observed Swachh Bharat activities during 16-31 December 2022 under Swachhta Pakhwada. It was started with taking of swachhta pledge on 16 December followed by tree plantation within institute premises and series of swachhta activities such as campaign on sanitation and cleanliness in different villages (Luna, Kaijanga, and other villages of Balianta block), campaign on cleaning of sewerage and waterlines, awareness on recycling of waste water, water harvesting for agriculture/horticulture application/kitchen gardens in residential colonies/1-2 nearby villages. Swachhta awareness campaign to general public were done through cleaning drives in the marketplace of Uttara chawk. To generate mass awareness among students/research scholars, essay and drawing competitions on Swachh Bharat theme were conducted in the institute. The end of swachhta pakhwada was marked by the visit of a special guest, Mrs. Sulochana Das, Mayor, BMC, Bhubaneswar. Mrs. Sulochana Das delivered a special lecture on importance of swachhta at home, office, generation of wealth from wastes, etc. during her visit to ICAR-CIFA.

AWARDS AND RECOGNITIONS

- Dr. F. Hoque, Scientist and Mr. Avinash Rasal, Scientist, ICAR-CIFA received 'Prof. P. Kameswara Rao Award' (2021-22) for best oral presentation at XVIII AZRA International Conference on "Advances in Applied Zoological Researches towards Food, Feed and Nutritional Security and Safer Environment" held at Bhubaneswar, Odisha during 10-12 November 2022.
- Dr. F. Hoque, Scientist conferred with the prestigious 'Prof. S. P. Raychaudhuri Memorial Award' from The Zoological Society, Kolkata on 23 September 2022.
- Mr Bayasis M Sharma bagged 2nd prize in debate competition in the "World Antimicrobial Awareness Week" program on the topic "Fighting Antimicrobial Resistance Together", held from 18-24 November 2022, organized by FHMD, ICAR-CIFA.
- Dr Sujata Mohapatra, SRF, FGBD awarded with 'Young Fishery Scientist Award 2022' in the 4th National Conference on "Recent Advances in Agriculture and Allied Science and Pharmaceutical and Environmental Science" for her research on *Anabas testudineus* held at Chennai on 1 October 2022 organised by Dr B. Vasantharaj David Foundation, Chennai.
- Dr J. K. Sundaray, Principal Scientist awarded with Outstanding Fishery Scientist Award 2022 for his significant contribution to fish genetics and biotechnology from Dr B Vasantharaj David Foundation in the 4th National Conference on "Recent advances in Agriculture and allied Science and Pharmaceutical and Environmental Science" held at Chennai on 1 October 2022.

PROMOTION

- Dr. Prajnanu Ranjan Sahoo, ACTO (T-7-8) promoted to Chief Technical Officer (T-9) w.e.f. 18 June 2022.
- Smt. Sukanti Behera, ACTO (T-7-8) promoted to Chief Technical Officer (T-9) w.e.f. 01 January 2015.
- Dr. (Smt.) Utkal Laxmi Mohanty, ACTO (7-8) promoted to Chief Technical Officer (T-9) w.e.f. 27 May 2022.
- Dr. D. K. Verma, ACTO (7-8) promoted to Chief Technical Officer (T-9) w.e.f. 02 June 2022.

- Shri Phani Bhusan Bhakat, STO promoted to Asst. Chief Technical Officer (7-8) w.e.f. 08 December 2017.
- Shri Sisir Kumar Mohanty, STO promoted to Asst. Chief Technical Officer (7-8) w.e.f. 09 July 2017.

TRANSFER/JOINING

- Shri B. K. Sinha, Chief Administrative Officer, ICAR-CIFA relieved on promotion as Director/Chief Administrative Officer (Sr. grade) on 30 December 2022 to join at ICAR-IIAB, Ranchi, Jharkhand.

RETIREMENTS

- Dr Prabhati Kumari Sahoo, Principal Scientist, APED, ICAR-CIFA superannuated on 31 December 2022

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