

# ATARI Kolkata NEWS



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## From the Director's Desk

*"The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings." – Masanobu Fukuoka*

Agriculture has been the most important economic activity and continues to remain in the mainstay of livelihood options. This has been envisaged that with the implementation of recent government initiatives like PMKSY, PMRKY and PMFBY etc., the agricultural development would attain a still greater height with more and more thrust on technology application process in agriculture and allied sectors. In order to achieve this endeavour, the KVKs are carrying out various technology dissemination



techniques continuously for the benefit of farmers of their respective districts/ regions. Some of such programmes undertaken by KVKs of this zone during this period include ASCI, SHS, KKA, DFI, DFIA etc. through their constant and continuous efforts in the agricultural technology application front, the issues related to pulse production, rice productivity and climate resilience have been suitably addressed. Other prioritized area is skill development of rural youth in agriculture and allied sectors. To harness the potential of the India's demographic advantage, the skill building in rural youth (male and female) for agri-preneurial development is of utmost importance. This has been properly addressed by taking Skill Development Training programme by 36 KVKs of this zone along with 3 ICAR institutes and 4 SAUs. A Trainer's training programme has also been conducted by ATARI Kolkata in order to further strengthen this approach. The major entrepreneurial activities undertaken in different areas are Mushroom, Mango, Poultry, Coconut, Vermicompost, Carp hatchery and apiary etc. Besides, the agricultural production needs to be suitably blended with the marketing channel in order to enhance farm profitability and increase farm income. For increasing/ doubling farmers' income through application of improved agricultural technologies, the KVKs have designed/ developed various technological interventions/ modules in their respective districts. In consonance with the ICAR approach involving ARYA, Farmer's FIRST and Skill Development, ICAR-ATARI is also busy in coordinating various similar projects/ programmes/ interventions being taken up by KVKs of this region for harnessing the potential of large population of young Indians of this zone, in particular and the country, in general.

(S. S. Singh)



## Technologies applied successfully

### *Hi-tech shade net betel vine boroz enhances livelihood income*

South 24 Parganas is, indeed, a complex district, stretching from Kolkata to the remote riverine villages in the south up to the mouth of Bay of Bengal. The average temperature in the district varies from a maximum around 38 °C to a minimum of around 13.5 °C. The annual average rainfall is 1800 cm, more than 75 percent of which receives during the monsoon. Agriculture and pisciculture are the major economical supports of this district. About 68% of the total cultivable land is low lying, mostly mono-cropped and low yielding because of excessive rainfall resulting in water-logging situation. Impeded drainage system in monsoon makes the situation even worse.



In low lying land situation where water stagnation is relatively high (2-3 ft) during rainy season, only traditional (local) variety of paddy is grown. Second crop is not cultivated in rabi-summer season due to late release of land as well as for scarcity of irrigation water and salinity problem. In this backdrop, ARYA project was instrumental in offering remunerative options in farm enterprise to the rural youths. In this project,



'Hi-tech Shade Net Betel Vine Cultivation' was intervened and five youths of Pathar Pratima Block were selected. Smt. Anima Bag from village- Lakshmi Janardanpur, Block- Pathar Pratima, District- South 24 Parganas, West Bengal was one of them. She is from a very poor scheduled caste family with average income of Rs.7000.00

per month, mainly from her own backyard poultry farming (20 no. of birds) and her husband's wage, as he worked as daily labour in neighbour's boroz. Under ARYA project, a durable boroz structure using GI



pipes was conceptualized and made up of non-degradable items which reduced disease and pest infestation. The modern boroz was fitted with micro-sprinkler irrigation facility, which not only reduced irrigation cost, but also maintained proper temperature and humidity within the boroz during the hot summer and dry winter. Another advantage of this hi-tech boroz is the uniformity in shading resulting to uniform coloration of leaf. The yearly cost of cultivation per boroz structure is only Rs. Rs.48000/- including all inputs (manure, fertilizer, pesticides & micro-nutrients) and hired labourer. Presently, her net income is around Rs. 16800/- per month from this betel vine cultivation only. This hi-tech shade net betel vine boroz has not only created an interest among rural educated youths in farming,



but also changed the betel vine farming concept, as a whole. This climate smart and environment friendly betel vine farming system has been well accepted by most of the betel vine farmers of the block and they are trying to implement it either through institutional support or at their own cost.

*-Contributed by: KVK Nimpith, West Bengal*

### *Adopting seed treatment technology in lentil variety Moitree (WBL 77) increased farmers' income*

Sh. Subrata Basu Mallick, of Village- Jhingra, P.O.- Jagatballavpur, Dist- Howrah,

West Bengal used to cultivate mainly paddy, potato, sesame and mustard. Till date, he was cultivating very old variety of



lentil (Asha) without any proper package of practices. With the intervention/advice of KVK Howrah personnel, he conducted lentil demonstration in rabi season. As a



critical inputs, lentil variety Moitree (WBL 77) seeds were provided with bio- fertilizers, micronutrient, liquid fertilizer and plant protection chemicals by KVK Howrah. He was advised to apply recommended dose of fertilizer i.e. 20:40:20 kg N2 : P2O5 : K2O based on soil testing. By adopting technologies like seed treatment with *T. viridae* (@ 5g/ kg seed) followed by *Rhizobium* inoculation (400g/acre) before sowing, foliar application of boron (20%) @ 2g/ lt of water before flowering and application of liquid sulphur (33%) @ 3ml/ lt of water during flowering stage enhanced the yield from 6.0 q/ ha to 10.2 q/ ha which counted about 70% increase in yield. The cost of production was Rs. 16500/- from which he earned a net return of Rs. 37560/-. His return per rupee spent was calculated to be 3.27 whereas in check plot, it was recorded as 2.20. Sh. Mallick was very satisfied with the quality training provided for seed treatment and use of bio fertilizer by the scientists of KVK Howrah. By application of need based plant protection chemicals, both the quality and quantity of seed was improved as compared





to old local variety. He sold the seed to retail market @ Rs. 3700/- per quintal. The successful use of these technologies motivated large number of neighbouring farmers who also adapted this technology in their fields during next season.

*-Contributed by: KVK Howrah, West Bengal*

### **Chital (*Notopterus chitala*) farming with Tilapia: A profitable venture for fish farmers**

Feather back, Chital (*Notopterus chitala*) is a hemophilic important freshwater fish found widely in lentic waters. This species is widely distributed in deep and clear waters in the rivers, beels, reservoirs, haors, baors and ponds in North 24 Parganas district. Chital is one of the most important notopteroid in India, commands high market demand and has been prioritized as a new candidate species for aquaculture. In recent years, the catch of this species has been declining fast due to environmental degradation. The species is highly priced and due to its high demand and popularity, it has been declared as "State Fish" of Uttar Pradesh, India. Now- a-days, farmers want to diverse

their fish farming from IMC culture for fetching more profit. Considering the fact, the KVK conducted FLD programme on Chital fish farming with Tilapia during past few years in the district. The stocking density of Chital should be 200 nos./ 0.13ha pond. Before stocking of Chital, fry Tilapia brooder should be stocked @ 15kg/ 0.13ha pond. Tilapia is a prolific breeder and after 21 days, they are capable of releasing their fries. These fries will be used as live food source of Chital fry. Chital fish is a highly carnivorous fish and their fry should be stocked after 21 days when fries of Tilapia are available in the pond. Due to predator-prey relationship of Chital and Tilapia fry,



feed cost is reduced. If proper water quality of pond is maintained, after one year, Chital fish attains the body weight of 1kg/

fish and additionally, Tilapia production reached up to 0.3 t/ 0.13ha. It is better to wait for another year for proper growth of Chital fish. In the second year, Chital fish attains the body weight of 4kg/ fish, and the production of Tilapia reaches up to 0.6t/ 0.13ha. The market value of Chital fish is Rs 400/ kg. So, from Chital fish, farmers can earn grossly Rs.240000/- from 0.13 ha and from Tilapia, Rs.60000/- per 0.13 ha of pond in two years. For these two years the total



gross cost is around Rs. 60000/-. Therefore, the net return is Rs. 240000/-. More than 100 fish farmers have adopted this culture in the district. Considering the interest of the farmers, Line Departments like Fishery department, Agriculture Department etc. of West Bengal State also started taking up different programmes under ATMA and others in the district.

*-Contributed by: KVK North 24 Parganas, Ashokenagar, WB*

## **Important activities of KVKs (July-Dec., 2018)**

Sl. No.	Activities	Achievements
1.	On- farm trials conducted (Number)	1429
2.	Frontline demonstrations conducted (Number)	5085
3.	Farmers trained (in lakh)	0.90757
4.	Extension personnel trained (in lakh)	0.07944
5.	Participants in extension activities (in lakh)	9.00636
6.	Production of seed (in quintals)	11516.55
7.	Planting material produced (in lakh)	16.12
8.	Livestock strains and fingerlings produced (in lakh)	5.84
9.	Soil, water, plant, manures samples tested (in lakh)	0.17175
10.	Mobile agro-advisory provided to farmers (in lakh )	13.23

## **News from KVKs**

### **Visit of Hon'ble Vice President to KVKs**

Shri M. Venkaiah Naidu, Hon'ble Vice-President of India visited Port Blair and interacted with the Island farmers and KVK Scientists under ICAR-CIARI, Port Blair on 5th July, 2018. The Vice President stressed on the needs to streamline the procurement process, public distribution system network, doubling farmers' income, crop diversification, livestock (dairy and poultry) enterprise, and horticulture (green house cultivation, hi-tech horticulture) which could create more income and employment. He urged that a good synergy between the research institutes, farmers and KVKs along with the local administration was crucial for development of farmers. He highlighted the Government schemes- soil

health card (SHC), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), Pradhan Mantri Fasal Bima Yojana (PMFBY) and the electronic National Agriculture Market (eNAM) which should go a long way to increase the farm income, if properly implemented. Secondary agriculture e.g. processing and value addition, creation of farmer producer organisations (FPOs) and village producer organisations (VPOs) had



great potential in improving the farmer's economy. Earlier, Dr. A. Kundu, Director, ICAR-CIARI, welcomed the Vice President and other dignitaries. The Lt. Governor of A & N Islands, Admiral D.K. Joshi, MP, Sh. B. P. Ray, Chief Secretary, A & N Administration, Sh. V. D. Dutt and other dignitaries from scientific and farming community were also present in the occasion.





### Visit of Central Minister to KVKs

Shri Jual Oram, Union Minister of Tribal Affairs, Govt of India visited KVK Sundargarh-I, Kirei under OUAT, Bhubaneswar on 7th July, 2018 for reviewing the ongoing activities and scope for further strengthening of KVKs. He was welcomed by Prof. P. K. Roul, Dean, Extension Education, OUAT in presence of other dignitaries viz. district heads of state government line departments, other organizational Heads, progressive farmers and farm women from the operational



villages of KVK. On the occasion, The Hon'ble Minister planted a black pepper sapling in the medicinal garden of KVK Sundargarh-I instructional farm symbolising the Vanamahotsav week. He visited demonstration units, crop cafeteria and appreciated the efforts of KVK in maintaining the units. The Head, KVK Sundargarh-I briefed the activities of KVK since its inception along with interventions



and impact of the technologies disseminated for the development of agriculture in the district. The Union Minister directly interacted with the farmers, farmwomen and others at the KVK about their activities, and the support received from KVK. Then, he visited KVK adopted tribal village Birjaberna, Sundargarh block and interacted with farmers and farmwomen. He also distributed vegetable seed mini kit and papaya seedlings to the tribal farmers and farmwomen for establishing nutritional garden under Tribal Sub Plan (TSP). He



expressed his satisfaction with the activities undertaken by KVK Sundargarh-I in the TSP adopted villages for improvement of tribal people of the district.

Sh. J. Oram also visited Jharsuguda KVK on 31.08.2018 and reviewed the on-going activities of KVK. He chaired a stake holders meet along with KVK scientists, district line department Heads, NGOs,



progressive farmers, women producer groups, bankers and others. The meet was also attended by Smt. Radharani Panda, Hon'ble MLA, Brajarajnagar; Dr. M.P Nayak, JD, Extension Education, OUAT and Dr. A. Halder, Principal Scientist, ICAR-ATARI, Kolkata. Dr. J. Udgata, Head, KVK Jharsuguda presented the impact of KVK activities before the august



gathering of around 100 participants. The Hon'ble Minister visited the exhibition stall, demonstration units and planted tree in the KVK campus. Farmers expressed their happiness before Minister regarding realisation of enhanced income by adopting improved technologies received from the



KVK. After that, he also visited NICRA adopted village- Bhoimunda with a warm welcome by the farmers followed by distribution of agro inputs to the farmers. He visited different demonstration fields of maize, cowpea and other crops in the village.

### Krishi Kalyan Abhiyan Phase II (KKA-II) programme conducted

The Phase-II of Krishi Kalyan Abhiyaan (KKA-II) programme was launched by the Ministry of Ag. & FW, GOI w.e.f. 02.10.2018 to 25.12.2018 to aid, assist and



advise farmers on how to improve their farming techniques and raise their incomes which was implemented in 25 new villages of each Aspiration District in this country. An action plan was framed in consultation



with all line departments of those districts. Ten districts in Odisha and five districts from West Bengal state were covered under Aspirational District for carrying out different activities under KKA-II. The salient achievements of the programme in this Zone have been presented as under-



- Total 12381 soil health cards were distributed among around 12000 farmers.
- Total 1830 q mini kit seeds of oilseeds & pulses and more than 59477 horticultural/ agroforestry plants were distributed among more than 14000 farmers.
- More than 931 training programmes were organized and more than 23000 farmers took active part.
- Total 32147, 8586 and 5333 animals have been vaccinated, dewormed and inseminated, respectively which benefitted more than 9500 farmers.





## Events

### Foundation Day of ICAR-ATARI Kolkata celebrated

The Foundation Day of ICAR-ATARI Kolkata was celebrated for the first time on 04.08.2018. Dr. S. S. Singh, Director, ATARI Kolkata Chaired the function. In



welcome address, Dr. Singh briefed about the salient achievements and future role of this institute in catering the needs of the farmers in this country. Dr. D. J. Roy, Former Zonal Coordinator of Zonal Coordinating Unit, Zone II graced the occasion as Chief Guest. He described in details about the establishment of the then Zonal Coordinating Unit, then to Zonal Project Directorate and its gradual development into the Institute of present form. Dr. D. C. Nayak, Head, ICAR-National Bureau



of Soil Survey and Land Use Planning (ICAR-NBSS & LUP) Kolkata Centre highlighted the importance of Foundation Day celebration and the role of scientists in achieving the objectives/ mandates of the institutes. Retired staff members, scientific, technical, administrative and other staff



along with their family members attended the programme. In the occasion, indoor and outdoor games were organized and everybody participated with keen interest in various games. In the evening, one cultural programme was also organized by the staff members of the institute. After prize distribution ceremony, in the concluding remarks, Dr. S. S. Singh urged all the staff to do their duties sincerely and also to maintain the trend of this kind of celebration every year. The celebration came to an end with a great sense of joy and fervour among all.

### "Swachhta Hi Seva" programme 2018 at KVKs and ATARI Kolkata

Swachhta Hi Seva 2018 was inaugurated for a fortnight long celebration (15.09.2018

to 02.10.2018) at ICAR-Agricultural Technology Application Research Institute, Kolkata on 15th September, 2018. All staff



members including Director of the institute assembled at front yard of the institute to attend the programme which started with administering of Swachhta Shapath by the Director of the institute. Later the employees of all categories took part actively in cleaning activities of the surrounding. The event was organized with the basic theme of 'Cleanliness is next to Godliness'. At the end of the cleaning session, it was ensured to continue such activities throughout the Pakhwada.



### Report of Swachhta Hi Seva 2018 (from 15.09.2018 to 02.10.2018) organized by KVKs under ICAR-ATARI Kolkata

Sl. No.	List of activities (suggested by M/o Drinking water & Sanitation)	Site of activity undertaken	No. of employees participated*
1	Toilet pit-digging exercise and other toilet construction activities	25	49
2	Organize cleaning of streets, drains and back alleys through awareness drives	519	1917
3	Organize Waste collection drives in households and common or shared spaces	206	232
4	Conduct Door-to-door meetings to drive behavior change with respect to sanitation behaviours	94	251
5	Organize awareness campaigns around better sanitation practices like using a toilet, hand washing, health and hygiene awareness etc.	351	1117
6	Perform Swachhata related Nukkad Nataks/street plays, folk song and dance performances	23	93
7	Conduct Village or School-level rallies for generating awareness about sanitation	146	586
8	Make wall paintings in the premises of Industrial estate on the theme of swachhata	27	236
9	Volunteer for segregation of solid waste into non-biodegradable and biodegradable waste	71	74
10	Building compost pits during the SHS fortnight	94	128
11	Conduct Debates, discussions, awareness programmes, poster competitions etc.	148	369
<b>Total</b>		<b>1704</b>	<b>5052</b>

\* Includes the participation of farmers too.

### "हिन्दी पखवाड़ा 2018" समापन समारोह का आयोजन

भा.कृ.अनु.प.-कृषि तकनीकी अनुप्रयोग संस्थान कोलकाता में दिनांक 14.09.2018 से दिनांक 28.09.2018 तक "हिन्दी पखवाड़ा-2018" का आयोजन किया गया। इनमें संस्थान के सभी अधिकारी एवं कर्मचारी भाग लिया। संस्थान में दिनांक 28.09.2018 को "हिन्दी पखवाड़ा-2018" का समापन समारोह आयोजित की गयी। इस समापन समारोह की अध्यक्षता संस्थान के निदेशक महोदय डॉ. एस.एस. सिंह ने की।



पखवाड़ा का समापन समारोह का शुभारंभ डॉ. एस. के. मंडल, प्रधान वैज्ञानिक के स्वागत भाषण एवं मुख्य अतिथि

के परिचय से हुआ। तत्पश्चात डॉ. मंडल ने संस्थान में राजभाषा कार्यान्वयन की प्रगति प्रतिवेदन प्रस्तुत की। इस





प्रतिवेदन में संस्थान से प्रकाशित हो रहे वार्षिक वैज्ञानिक पत्रिका “कृषि- पूर्वी किरण”, हिन्दी में पत्राचार एवं सभी हिन्दी पत्रों में हिन्दी टिप्पणी देना इत्यादि के उल्लेख किए गए।

हिन्दी पखवाड़े के दौरान आयोजित हिन्दी काव्य पाठ प्रतियोगिता एवं हिन्दी अनुवाद प्रतियोगिता (तत्कालिक) के विजेताओं को संस्थान के निदेशक महोदय डॉ. एस.एस. सिंह एवं मुख्य अतिथि डॉ. एस. के. झा, प्रधान वैज्ञानिक, क्राईजाफ, वाराकपुर द्वारा पुरस्कार दिए गए।



### Celebration of “World Soil Day”

The “World Soil Day” programme was celebrated on Dec 5, 2018 at various KVKs under ICAR-ATARI Kolkata. The State-wise Summary of this programme has been given below.

State/UT	Number of KVKs Organised the programme	No. of farmer participated	Total No. of Participants	No. of Soil Health Cards distributed
A & N Islands	3	161	242	50
Odisha	33	6234	6882	3558
West Bengal	23	3058	3623	2681
<b>Total</b>	<b>59</b>	<b>9453</b>	<b>10747</b>	<b>6289</b>

### Field visit for monitoring Tribal Sub Plan (TSP) activities

Dr. K. S. Das, Nodal Scientist of TSP from ICAR-ATARI Kolkata; Dr. B. K. Mahapatra, JD (Ext.), OUAT, Bhubaneswar; Dr. (Mrs.) S. Pattanaik, Head, KVK Mayurbhanj-I and Mrs. J. Bhuyan, SMS, KVK Mayurbhanj-I



jointly visited Kanchanapal village of Hatikota Gram Panchayet (GP), Block-Baripada, Odisha and Kochilapada village of Madhavpur GP, Block-Badasahi, Odisha on 30.08.2018 to monitor different activities under TSP of Mayurbhanj-I KVK. In the former village, Dr. Das interacted with many tribal beneficiaries who were rearing Rainbow Roaster poultry under backyard farming system, whereas, in the later, with the farmers who were rearing Large White Yorkshire pigs. He shared his experience with the tribal farmers for achieving maximum production from birds and pigs through improving existing management



पखवाड़े के समापन समारोह के मुख्य अतिथि डॉ. एस. के. झा, प्रधान वैज्ञानिक, क्राईजाफ, वाराकपुर ने अपने संबोधन में संस्थान के सभी अधिकारी एवं कर्मचारी के प्रशंसा करते हुए हिन्दी को और तेजी से बढ़ावा देने पर जोर दिए एवं हिन्दी में प्रकाशित हो रहे वार्षिक वैज्ञानिक पत्रिका “कृषि- पूर्वी किरण” का प्रशंसा किए। डॉ. झा ने सूचना प्रौद्योगिकी के सफल प्रयोग के साथ हिन्दी के प्रगति पर अपने विचार रखे। अंत में डॉ. एस. दास, प्रधान वैज्ञानिक के धन्यवाद ज्ञापन के उपरांत समारोह समाप्त हुआ।

### Celebration of “Vigilance Awareness Week”

The Vigilance Awareness Week on the theme “Public participation in promoting integrity and eradicating corruption” was observed by ICAR- ATARI Kolkata and all KVKs under this zone spread in Anadaman & Nicobar Islands, Odisha and West

Bengal for a week from 31<sup>st</sup> October to 5<sup>th</sup> November, 2018. The entire programme was commenced with an oath taking occasion by reading a pledge to fight against corruption. The Director of ICAR- ATARI, Kolkata (Zone V) and Senior Scientist and Heads of various KVKs highlighted the importance of Vigilance Awareness Week at their respective institutions. Thereafter, an in-house discussion was made among the staff on the theme.



systems and also suggested for hygienic rearing of livestock and birds.

### Field visit for monitoring Farmer FIRST Programme (FFP) activities

On 12.12.2018, Dr. K. S. Das, Member Secretary of FFP, ATARI Kolkata; Dr. S. Das, SRF, FFP of ATARI Kolkata; Dr. B. Behera, PI of FFP, OUAT, Bhubaneswar; Dr. H. K. De, PI of FFP, CIFA, Bhubaneswar; Dr. M. Mahapatra, JD (Ext.), OUAT, Bhubaneswar; Dr. R. Nayak, Co-PI, FFP, Bhubaneswar jointly visited cucumber, bitter gourd, bean, pumpkin, banana fields of farmers at Gobindapur and



Gopalpur village, Odisha. The team visited many backyard poultry farms at Gobindpur village and attended one Interface Meeting of Scientists of CIFA, OUAT and ATARI Kolkata and Farmers organised by OUAT at Parichhala block, Odisha. In the meeting, a large number of farmers (Sh. S. Muduli, Sh. L. Setty, Sh.H. Sahoo, Sh. S. Sahoo, Smt.



Pushpalata, Sh. D. K. Jena, Sh. P. Majhi, Sh. R. B. Singh and others) interacted with the scientists for improving their farming business. On the same day, Dr. Das also visited Dorbanga village, Khurda, Odisha to meet fish grower (Mr. H. Swain) and cauliflower producer (Mr. N. Swain) and many others. He attended another Farmer-Scientist Interface Meeting at Dorbanga village organised by CIFA, Bhubaneswar to discuss various issues on pulse cultivation, paddy cultivation, vegetable production, fish production etc.

In the next day, Dr. K. S. Das; Dr. S. Das; Dr. H. K. De; Dr. S. K. Mishra, PI of FFP, NRRI, Cuttack; Dr. B. Mondal, Co-PI, FFP, NRRI, Cuttack along with Dr. M. Mahapatra, JD (Ext.), OUAT, Bhubaneswar



visited vegetable fields (ladies finger, bean, bitter gourd etc.), paddy fields (Mouramani, Pooja variety etc.) and betelvine fields at Viswanathpur and Laxminarayanpur village, Cuttack. After that, the team moved to Satyavampur village, Cuttack to visit the fields/ farms of many farmers e.g. rice grower (Sh. S. Barik), poultry farmer (Mrs. N. Pradhan) and duck farmer (Sh. A. Samal). Another Interface Meeting of Scientists and Farmers of three above villages under



FFP was conducted which was organized by NRRI, Cuttack.



#### *Field visit for monitoring ARYA project activities*

Miss S. Halder, SRF, ARYA project, ATARI Kolkata along with Dr. M. Chakraborty, Sh. P. Chatterjee and Dr. C. Mondal, SMSs



of Nimpith KVK, South 24 Paraganas, West Bengal visited farmers' field of ARYA village under Nimpith KVK during 16-17<sup>th</sup> November, 2018. She interacted with many youth farmers of Lakshmi



Janardanpur, Heramba Gopalpur and Purba Chintamonipur village, South 24 Parganas who were engaged with betel vine cultivation, poultry farming and fish hatching etc. It was observed that the



enterprises were running successfully, and the youths were earning a substantial profit from their enterprises. More interestingly, youths of adjoining villages were frequently visiting the established enterprises and showed their interest to adopt the identified enterprises.

#### *Field visit for monitoring CFLD on Pulses and Oilseeds activities*

Mrs. J. Basak, SRF, CFLD on pulses and Miss R. Bhattacharya, SRF, NICRA-TDC of ATARI Kolkata and Nodal Officer of CFLD on pulses of Ganjam I, Jajpur and

Kendrapara KVK, Odisha jointly visited the farmers' fields of above districts during 13-17<sup>th</sup> November, 2018 to monitor the preparedness of CFLD on pulses (2018-19) of rabi and summer season. In the selected



villages, soil sample collection along with GPS data, selection of farmers, distribution of inputs etc. were already completed. One Scientist-Farmer Interaction Meet was conducted at Kendrapara on 17.11.18 on harvesting of kharif pulses. For green gram cultivation, Nayagarh, Nachipur and Guaripalli village of Nayagarh district were selected along with list of farmers.



To know the progress of CFLD on pigeon pea, fields at Daspalli and Gauripalli block of Nayagarh district were also visited. The crop was at flowering stage and in good health. Farmers were happy in receiving various latest pulse production technologies demonstrated under the programme.

#### *Field visit for monitoring CSISA activities*

Sh. S. Nandi, DEO, CSISA project of ATARI Kolkata along with Sri T. R. Sahoo, SMS of KVK Cuttack; Dr. (Mrs.) S. Pattnaik, Head and Mr. D. Nayak, Farm Manager



of KVK Mayurbhanj-I visited Cuttack and Mayurbhanj-I KVK and the adjacent villages implementing CSISA project. During their visit (29<sup>th</sup> October to 03<sup>rd</sup> November, 2018), they interacted with the farmers of Sankilo,



Abhayapur, Haridapal village of Cuttack, and Bholagadia and Badputka village of Mayurbhanj-I to find out the best crop establishment method in low land ecologies of Odisha, to compare the different methods of rice transplanting in double rice ecologies of Odisha and to find out suitable integrated weed management option in direct seeded rice.

#### *Field visit for monitoring seed hub programme*

Mrs. J. Basak, SRF of ATARI Kolkata visited Bhadrak KVK, Odisha on 18.11.2018 to monitor the progress of seed



hub programme. The Nodal scientist of Bhadrak KVK accompanied the visit. The seed godown was completed with storage of 2.76 q black gram (PU 31) and 0.88 q green



gram (IPM 02-14). The packing of seed along with tagging were under progress. The processing unit was also installed and was expected to start processing by March 2019.

#### *Field visit for monitoring NICRA-TDC activities*

Ms. R. Bhattacharya, SRF, NICRA-TDC and Mrs. J. Basak, SRF, CFLD-Pulses, ICAR-ATARI Kolkata visited NICRA project sites of Chopara village, Ganjam I and



Dasmarkul village, Kendrapara, Odisha during 14<sup>th</sup> -18<sup>th</sup> Nov., 2018. The Head and other staff of KVKs accompanied the visit. The demonstrated fields of farmers particularly on ridge and furrow cultivation of cowpeas (var. Utkalmanika); rain water harvesting structures; azolla cultivation pits; check dams; flood tolerant rice varieties (Swarna sub 1 and Bina 11), drought tolerant rice variety (Sahabgadhyan),



brown manuring, mushroom cultivation, hydroponic fodder cultivation, low cost poultry and goatery house, bee keeping,



vermicompost pits, custom hiring centres etc. were visited. There was in-depth discussions with the farmers and VCRMC members at the respective sites of both the KVKs.

### *Visit of Zonal Monitoring Committee of NICRA-TDC conducted*

The Zonal Monitoring Committee of NICRA-TDC for Zone V consisted of Dr. H. K. Senapati, Former Dean, OUAT, Bhubaneswar as Chairman; Dr. S. S. Singh, Director, ICAR-ATARI Kolkata



as Vice-Chairman, Dr. J. V. N. S. Prasad, Coordinator, NICRA-TDC as Nominee of Director, CRIDA, Hyderabad; Dr. P. Pal, DEE, UBKV as Member and Dr. F. H. Rahman, Pr Scientist/Nodal Officer,

NICRA-TDC, ICAR-ATARI, Kolkata as Member Secretary visited two KVKs (Malda and Coochbehar) of West Bengal state during 28th-29th Aug., 2018. At Narayanpur village, Malda the committee monitored



various interventions implemented under NRM, crop production, livestock and institutional modules and interacted with farmers, farm women and VCRMC members and stressed on scaling up of climate resilient technologies for the benefit



of farming community. At Khagribari village, Coochbehar the team gave valuable suggestions for further improvement and refinement of technologies as per the local needs in relation to climatic vulnerabilities. The Committee appreciated the efforts of KVKs and active involvement of the partner farmers and suggested to scale-up the useable

interventions in the adjoining villages. One publication i.e. NICRA-TDC Newsletter, July 2018 of ICAR-ATARI Kolkata was released during the visit.

### *Training programme on DAESI conducted*

The KVKs of this Zone conducted 'Diploma in Agricultural Extension Service for Input-Dealers (DAESI)' programme to educate



Agri-Input Dealers in their concerned districts on agriculture, to facilitate them to serve farmers better and to act as para-extension professionals. The program was implemented by MANAGE through State Agricultural Management and Extension Training Institutes (SAMETIs) in West Bengal state. During the period, Bankura, Burdwan, Darjeeling, Narendrapur and Purulia KVK of West Bengal conducted one training for 40 participants in each whereas Coochbehar, Hooghly, Jalpaiguri, Nadia and Uttar Dinajpur KVK conducted two training programmes for 40 participants in each.



## **Meetings/ workshops/ training programmes organized/ conducted**

### *Conducted training of trainers programme under ASCI*

An orientation-cum-capacity development programme of three days duration on skill development in agriculture was organized by ICAR-ATARI Kolkata in collaboration with Agriculture Skill Council of India (ASCI)



and Bidhan Chandra Krishi Viswavidyalaya (BCKV) during September 18-20, 2018. In this programme, the Trainers from KVKs, ICAR Institutes and SAUs were oriented for conducting the training, each of 200 hours or more duration and for 20 farmers/ rural youth in each batch, after getting certified by ASCI for both domain and platform skills.

In his inaugural address, Dr. S.S. Singh, Director ICAR-ATARI Kolkata highlighted the role of skill development in establishing entrepreneurial ventures among progressive farmers and rural youths in the country which would be the backbone for future economic development. He also indicated the necessity of identifying right persons for training and certification of the trainers for quality service delivery.



Prof. P. Bandyopadhyay, Director of Extension Education, BCKV, Nadia explained the timeliness as well as appropriateness of such programmes for bringing and retaining the school and college dropouts/ other rural youth into

the mainstream economic growth through agriculture.

Dr. S. K. Mondal, Principal Scientist, ICAR-ATARI Kolkata and Nodal Scientist



for the programme informed that 85 skill development trainings in agriculture on





different job roles of 200 hours or more duration were sanctioned to KVKs, SAUs, ICAR Institutes of West Bengal, Odisha and Andaman and Nicobar Islands during current year.

About 86 scientists/ faculty members from KVKs, SAUs, ICAR Institutes of West Bengal, Odisha and Andaman & Nicobar Islands of this Zone as well as from Assam, Nagaland, Meghalaya and Arunachal Pradesh participated in the programme.

#### *Review Meeting of NICRA-TDC, Seed Hub and CSISA conducted*

The review meeting of NICRA-TDC, seed hub and CSISA of Zone V was held at CISH-KVK Malda on 21st-22nd Dec., 2018. The programme was Co-Chaired by Dr. S. S. Singh, Director, ICAR-ATARI Kolkata and Dr. S. Rajan, Director, ICAR-CISH, Lucknow. The Programme was attended by Dr. S. K. Roy and Dr. F. H. Rahman Principal



Scientists, ICAR-ATARI Kolkata; Prof. P. Pal, DEE, UBKV and Dr. S. Mukherjee, Deputy DEE, UBKV and 19 KVKs from Odisha and West Bengal involved in the



projects. Dr. S. S. Singh mentioned the purpose of those programmes and briefed different components and interventions. He urged the replication of successful and scalable technologies of NICRA project in nearby areas. Dr. S. Rajan threw light on the progress of seed hub programme and committed the completion of seed godown and installation of seed processing unit by end of the financial year. Dr. S. K. Roy, Nodal Officer of seed hub and CSISA briefly presented the progress of the projects as a whole. Dr. F. H. Rahman, NICRA Nodal



Officer highlighted the salient achievements carried out by the NICRA- KVKs of the zone V with fund utilisation status. In the technical session, all PIs of concerned KVKs presented their salient achievements of out scaled technologies during the current year and also placed the next plan of work. One field visit to NICRA village Narayanpur, Malda was conducted and participants interacted with the VCRMC members regarding outscaling of various climate resilient technologies.

#### *Organized training of Master Trainers on "KVK Sandesh Mobile Apps"*

A training programme for Master Trainers on "KVK Sandesh" mobile app under digital farming initiative in agriculture (DFIA) was organized at ICAR-ATARI Kolkata in collaboration with Tata Consultancy Services (TCS) on 25.07.2018 under the Chairmanship of Dr. S. S. Singh, Director,



ATARI Kolkata. The meeting was attended by Sh. N. S. Rajput, Agriculture Expert from TCS; scientists from ATARI Kolkata; Programme Assistants (computer) from Odisha and West Bengal state; Young



Professional- II and Data Entry Operators (computer) from ATARI Kolkata. Dr. K. S. Das, Pr. Scientist-cum-Nodal Officer briefed the present status of DFIA in the Zone since its inception. In his inaugural address, Dr. S. S. Singh emphasized the importance of the prestigious project where it was targeted that at least 10 farmers from each village under each KVK for two way communication through using "KVK Sandesh" App. He expressed his views on the "KVK Sandesh" App as- 'it has the capability to reach beyond the reach'. Dr. S. K. Mondal, Pr. Scientist, ATARI Kolkata stressed upon the proper training of Master Trainers and the successful implementation of the project in this Zone. Sh. Rajput, the expert from TCS gave hands on training to all the Master Trainers of ATARI Kolkata on downloading the "KVK Sandesh" application on mobile, console operation of the programme, query related issues of the application, report generation etc. After training, Master Trainers were awarded with certificate.

#### *Organized Orientation programme on "Agromet Advisories"*

One orientation programme on 'Preparation and Dissemination of Agromet Advisories at Block Level' under Gramin Krishi Mausam Seva scheme for Nodal Officers of KVKs of Zone V held at ICAR-ATARI Kolkata on August 9-10, 2018. The programme was chaired by Dr. S. S. Singh, Director, ICAR-ATARI Kolkata and



was attended by Dr. K. K. Singh, Head, Agromet Advisory Science Division, IMD, Pune; Dr. S. Bandopadhyay, DDG, RMC, Kolkata; Dr. G. Debnath, Former DDG, RMC, Kolkata; Dr. S. Banerjee, Prof. and Head, Department of Meteorology, BCKV, Nadia; Dr. K. Ghosh, IMD, Pune; Dr. A. B. Singh, OUAT, Bhubneswar; Prof. P. K. Roul, Dean, OUAT, Bhubneswar; scientists of ICAR-ATARI Kolkata and Heads of 16 KVKs from Odisha and West Bengal. In his inaugural speech, Dr. K. K. Singh spoke about the purpose of upgradation of existing agromet advisory system in different agro climatic zones. He requested for early recruitment of SMSs and Observers in the KVKs for providing agromet advisory services to the farming community with immediate effect using the platform of m-Kisan, Dordharshan and KVK portal. Feedback was important and compulsory for its proper implementation. Dr. S. S. Singh, emphasized that short and medium forecasts were important for farmers which affect the crops, fish culture and animal husbandry. Dr. G. Debnath mentioned that forecasting



and preparation of advisory at block level were very challenging and time taking. A special model had to be introduced with a regular feedback. He suggested to include one progressive farmer in the advisory group. Dr. S. Bandopadhyay presented a detailed information on conventional observatories, AWS, automatic rain gauge, satellite information, doppler radar etc. and the accessibility of observations by the KVKs. Prof. P. K. Roul suggested that the advisory should be in local language too.



### *Organized a meeting on Action Plan for 'Doubling Farmers Income (DFI) by 2022'*

A meeting on Action Plan for 'Doubling Farmers Income (DFI) by 2022' was held under the Chairmanship of Dr. S. S. Singh, Director, ICAR- ATARI, Kolkata on 10th September 2018 at ICAR- ATARI, Salt Lake, Kolkata. The DEE of BCKV, Mohanpur; representatives from UBKV, Pundibari and WBUAFS, Belgachhia and scientists of ICAR- ATARI Kolkata attended the meeting. At the outset, Dr. A. Haldar, PS, ICAR- ATARI, Kolkata presented a brief on strategic document, action plan and budget provision of DFI. Dr. S.S. Singh elaborated on DFI concept and emphasized on to start activities for DFI in West Bengal.

### *Review meeting of CFLD Pulses and Oilseeds for WB KVKs organized*

One review meeting for KVKs of West Bengal was organised at ATARI Kolkata on 3<sup>rd</sup> Nov., 2018 under the Chairmanship of Dr. S. K. Roy, Pr. Scientist, ATARI, Kolkata to review the performance of KVKs during 2018-19 and to collect AUCs of 2017-18 from the respective KVKs. Dr. P. P. Pal, Pr. Scientist; Sh. J. Prabu Kumar, AAO, ATARI, Kolkata; CFLD Nodal Officers from 23 KVKs of West Bengal; SRFs and DEOs of CFLD on Pulses/ Oilseeds, ATARI Kolkata were present in that meeting. Dr. P. P. Pal, Pr. Scientist, ATARI Kolkata discussed about the allotment of rabi oilseeds and committed liabilities of 2017-18 with all nodal officers of CFLD of KVKs of West Bengal. The other agendas were vetting of acreage, crop and season for CFLD Pulses 2018-19 were also discussed. In this connection, Dr. S.K. Roy discussed about the release of fund for 3 seed hub centres of West Bengal.

### *Meeting of Institute Management Committee*

The 12<sup>th</sup> Institute Management Committee (IMC) Meeting was held on 26.10.2018 at ICAR-ATARI Kolkata.



### *Organized Orientation Course on Integrated Pest Management (IPM) for KVK personnel*

One orientation course on IPM for important agricultural and horticultural crops was jointly organized by ICAR-NCIPM, New Delhi and ICAR-ATARI Kolkata on Dec 13-15, 2018 for SMSs of Plant Protection of KVKs under Zone V at ATARI Kolkata. The programme was Co-Chaired by Dr. S. S. Singh, Director, ICAR-ATARI Kolkata and



Dr. H.R. Sardana, Director, ICAR-NCIPM, New Delhi. The programme was attended by Dr. M. Sehgal, Pr. Scientist, Dr. Md. Idris, Dr. M. Choudhary and Dr. N. Singh of ICAR-NCIPM, New Delhi, scientists of ATARI Kolkata and SMSs of 38 KVKs of this zone along with progressive farmers. Dr. F. H. Rahman, Pr. Scientist of ATARI

Kolkata coordinated the meeting. Dr. H.R. Sardana, while addressing the inaugural speech, spoke about the interface between the



research activities and extension activities of the farmers' field. He briefed the different IPM technologies developed by NCIPM viz. real time advisory of the horticultural crops, epidemic warning etc. to be outscaled in the farmers' field through KVKs. He also suggested for production of different bio-agents at farmers level. Dr. S. S. Singh advised to incorporate IPM technology in different trials and demonstration, DAESI programme of KVKs in the coming days. Dr. Singh highlighted that optimize use of pesticides is important for preventing soil health hazards and urged the scientists to work in a scientific way for the society. A publication of 'Orientation course of IPM in important field and horticultural crops of West Bengal, Odisha and A&N Islands' was released during the programme.



## **Meetings/workshops/ symposia attended by scientists/ staff**

Sl. No.	Name of the programme	No. of scientist(s)/ staff attended
1	Orientation training programme for Sr. Scientist & Head of KVKs, Odisha at OUAT, Bhubaneswar	1
2	Meeting with DDG (AE), ATARI Directors, DAMU scientists regarding DAMU operation and other projects at AE Division, ICAR, New Delhi	1
3	Meeting on revision of cadre strength of various institutes at NASC, Pusa, N. Delhi	1
4	Workshop on conservation agriculture at Lake Hall, BCKV, Kalyani	1
5	National farmers' science congress at BAU, Bhagalpur, Bihar	2
6	Annual review workshop of NICRA at NASC, New Delhi	3
7	Meeting with Hon'ble DG, ICAR & Secretary, DARE on doubling farmers' income in Odisha by 2022, Krishi Kalyan Abhiyan in aspirational districts, KSHAMTA, VATI-CA, NARI and other flagship programmes at NRRI, Cuttack	1
8	Meeting with Director, ICAR-IIHR, Bengaluru on strengthening of VATICA, NARI and ARYA project through horticultural crop interventions and value addition at Bengaluru	1
9	Review workshop for ARYA project at NASC, New Delhi	3
10	NICRA-Zonal Monitoring Committee visit to KVK Malda, Coochbehar and Jalpaiguri	2
11	Meeting and visit with site selection committee for shifting of KVK Ganjam-II existing site, KVK Ganjam-II, Odisha	4
12	Meeting on Revised Estimate of KVKs under OUAT, Bhubaneswar	5
13	Meeting with Director, CRIJAF, Barrackpore on KVK Burdwan and Barrackpore	1
14	Review meeting of CFLD on Oilseeds and Pulses at ATARI Kolkata	7
15	Review meeting of CFLD on Oilseeds and Pulses at CPRS Campus, Patna	1
16	Brainstorming session-cum-workshop on good agricultural practices at New Delhi	1
17	Stakeholders meet in the eve of visit of S. J. Oram, Hon'ble Union Minister of Tribal Affair, GoI at KVK, Jharsuguda, Odisha	1
18	Meeting on action plan for 'Doubling Farmers Income (DFI) by 2022' at ICAR- ATARI, Salt Lake, Kolkata	7
19	National seminar of Indian Society of Extension Education at West Bengal University of Animal and Fishery Sciences, Belgachhia, Kolkata	3
20	Meeting and visit with site selection committee for opening of IIPR, Regional Station at Bhubaneswar and Bikaner	1



Sl. No.	Name of the programme	No. of scientist(s)/ staff attended
21	International Conference on "Rural livelihood... enterprises" at Patna	1
22	'IPNI Research Cooperators Meet 2018' and 'International symposium on advancements in plant nutrition research' at Nagpur	1
23	Viva-voce meeting/ Seminar of post graduate students	7
24	Scientific Advisory Committee Meeting at KVKs	7
25	Training of Trainers (ToT) of ASCI at BAU, Ranchi, Jharkhand	1
26	Training of Trainers (ToT) of ASCI at Lake Hall, Kalyani, West Bengal	3
27	Review meeting and monitor KKA-II programme in Dumka District	1
28	Silver Jubilee ceremony of UBKV at Kalimpong	1
29	Farmers' day celebration at ICAR-CSSRI RRS, Canning, West Bengal	1
30	Inauguration function of administrative building of KVK Cuttack at Cuttack	1
31	Inauguration of DAESI programmes	6
32	Annual review workshop of CSISA project for 2018 at ICAR-IISR, Lucknow	2
33	Review meeting of WB and Odisha KVKs for Seed Hub, NICRA and CSISA projects	5
34	Farmers' fair at KVK Sargachi, Murshidabad	1
35	Meeting with KPMG India personnel from IASRI for ICT Roadmap Study at ATARI Kolkata	1
36	Assessment committee meeting for scientist at ICAR-RCER Patna as DG's Nominee	1
37	Interaction meeting with DG on DFI in West Bengal	2
38	Various administrative and financial assignments of ATARI Patna	6
39	Meeting for tribute to Late Atal Behari Vajpayeeji	7
40	Interaction meeting with Hon'ble Agriculture Minister at NBSS&LUP Kolkata Centre	2
41	Training of Trainers Programme on Writing and Documentation Skills at MANAGE Hyderabad	1

## Distinguished visitors

- ◇ Dr. A. K. Singh, DDG (AE), ICAR, New Delhi
- ◇ Dr. V. P. Chahal, ADG (AE), ICAR, New Delhi
- ◇ Dr. K. K. Singh, Head, Agromet Advisory Science Division, IMD, Pune
- ◇ Dr. N. Chottopadhyay, IMD, Pune
- ◇ Dr. S. Bandopadhyay, DDG, RMC, Kolkata
- ◇ Dr. G. Debnath, Former DDG, RMC, Kolkata
- ◇ Dr. Kripan Ghosh, IMD, Pune
- ◇ Dr. S. Banerjee, Prof. and Head, Department of Meteorology, BCKV, Nadia;
- ◇ Dr. A. B. Singh, OUAT, Bhubaneswar

## Publications

### Research articles

- Debbarma N, Samanta AK, Dhara KC, Debnath T, Singh V, Haldar A. 2018. Performance of Growing Black Bengal Goats under Different Management Systems of Rearing. *Journal of Animal Research*, **8**(4): 633-641.
- Ghosh S, Baidya A, Sahu N C, Rahaman F H and Das K S. 2018. Comparative socio-economic study between traditional fish farmers and trained aquaculturists in Indian Sunderban. *Journal of Coastal Research* (Accepted).
- Ghosh S, Sahu N C, Rahaman F H and Das K S. 2018. Periphyton based climate smart aquaculture for the farmers of Indian Rural Sunderban areas. *Indian Research Journal of Extension Education* (Accepted).
- Hazra K K, Singh S S, Nath C P, Borase D N, Kumar N, Parihar A K and Swain D K. 2018. Adaptation mechanisms of winter pulses through rhizospheric modification in mild-alkaline soil. Published online in *National Academy Science Letters* on July, 2018 [doi: org/10.1007/s40009-018-0648-8].
- Kaswan S, Patel B H M, Mondal S K and Kumar Sanjay. 2018. Behavioural response of crossbred (Landrace × Desi) pigs under different floor space allowances. *Indian Journal of Animal Sciences*, **88** (11): 1310-1315.
- Nandan R, Singh V, Singh S S, Hazra K K and Nath C P. 2018. Performance of crop residue management with different tillage and crop establishment practices on weed flora and crop productivity in rice-wheat cropping system of eastern Indo-Gangetic plains. *Journal of Crop and Weed*, **14**(2): 65-71.

- Praharaj C S, Singh U, Singh S S and Kumar N. 2018. Tactical water management in field crops: The key to resource conservation. *Current Science*, Vol. 115 (7): 1262-1269 [doi: 10.18520/cs/v115/i7/1262-1269].

### Technical articles

- Das S, Ghosh D K, Bandopadhyay A, Das K S and Mondal S K. COCOSAP "NEERA" and its value addition-Prospect and possibilities in Eastern region. Abstract in 106th Indian Science Congress to be held at Lovely Professional University, Pharwara, Jalandhar (Accepted).
- Dutta N, Das K S and Mondal S K. 2018. Use of wireless sensor network in provisioning precision agriculture. In: *Compendium of International Conference of AFITA/ WCCA 2018 on the theme "Research Frontiers in Precision Agriculture"* held at Bombay on, pp: 174-176.
- Dutta D, Das K S and Mondal S K. 2018. Role of information and communication technology (ICT) in transfer of agricultural knowledge. In: *Compendium of International Conference of AFITA/ WCCA 2018 on the theme "Research Frontiers in Precision Agriculture"* held at Bombay on, pp: 177-187.
- Dutta N, Das K S and Mondal S K. Use of remote sensing technology in agriculture. Abstract in 106th Indian Science Congress to be held at Lovely Professional University, Pharwara, Jalandhar (Accepted).
- Ghosh S, Baidya A, Karmakar K, Sahu N C, Rahaman F H and Das K S. 2018. Socio economic studies on pond based freshwater

- integrated farming system (ifs) in the Indian Sunderban. In: *Souvenir and Abstracts of National Seminar of Indian Society of Extension Education (ISEE) on 'Integrated Farming System for Enhancing Farmers' Income and Nutritional Security'* held on December 5th to 7th, 2018 at WBUAFS, Kolkata, pp: 221.

- Ghosh S, Sahu N C, Rahaman F H and Das K S. 2018. Periphyton based climate smart aquaculture for the farmers of Indian Rural Sunderban areas. In: *Souvenir and Abstracts in 9th National Extension Education Congress on "Climate Smart Agricultural Technologies: Innovations and Interventions"* held on 15-17th November, 2018.
- Ghosh S, Baidya A, Sahu N C, Rahaman F H and Das K S. 2018. Comparative socio-economic study between traditional fish farmers and trained aquaculturists in Indian Sunderban. Abstract in 1st International Conference on Brackish Water Fish Culture to be held at Chennai (Accepted).
- Singh S S and Haldar A. 2018. 'Integrated Farming System- A Way Forward for Doubling Farmers' Income with Special Reference to Eastern India'. In: *Compendium of International Symposium of Indian Meat Science Association on 'Technological Innovation in Muscle Food Processing for Nutritional Security, Quality and Safety'*, held on November 22- 24, 2018 at WBUAFS, Belgachia, Kolkata, West Bengal. Editors: Biswas S, Joardar S N, Das and Patra A K. Department of LPT, WBUAFS, Kolkata, pp: 285- 289.



**Technical bulletins/reports**

- Das K S, Mondal S K, Rahman F H, Pal P P, Roy S K, Singh S S and Haldar A. 2018. ATARI Kolkata News. Published by ICAR-ATARI Kolkata, Vol. 2, No. 1, pp: 1- 12.
- Mondal S K and Singh S S. 2018. Doubling farmers' income by 2022: implementable work plan: doubling farmers' income in Odisha. Published by ICAR-ATARI Kolkata, pp: 1-224.
- Pal P P, Halder S and Basak J. 2018. Farmers' Innovation. Published by ICAR- Agricultural Technology Application Research Institute, Kolkata. pp: 1-64.
- Rahman F H, Bhattacharya R and Singh S S. 2018. NICRA Newsletter: Towards climate smart agriculture. Published by ICAR-ATARI Kolkata, Vol. IV, No. 2, pp: 1- 8.

**Paper presented/published in symposia/conferences/ other fora**

- Ali S, Sherpa F and Rahman F H. 2018. Indigenous methods of agricultural pests management in Darjeeling Himalayas. Abstract published in 9th National Extension Education Congress of Society of Extension Education at CAPHET, Gangtok on Nov. 15-18, 2018.
- Dutta N, Das K S and Mondal S K. Use of remote sensing technology in agriculture. Abstract in 106th Indian Science Congress to be held at Lovely Professional University, Pharwara, Jalandhar (Accepted).
- Garain P K, Maitra N J and Rahman F H. 2018. Bongheri- A climate resilient village and its adaptation strategies. Abstract published in 9th National Extension Education Congress of the Society of Extension Education at CAPHET, Gangtok held on Nov. 15-18, 2018.
- Ghosh S, Sahu N C, Rahman F H and Das K S. 2018. Periphyton based climate smart aquaculture for the farmers of Indian rural Sunderban areas. Abstract published in 9th National Extension Education Congress of the Society of Extension Education at CAPHET, Gangtok on Nov. 15-18, 2018.
- Haldar A, Natarajan A, Shobha Rani, Ekka A B, Ghorai D, Anjani Kumar and Singh S S. 2018. Pond Based Integrated Farming System

for Doubling Farmers' Income: Case Studies in Eastern India. In: Souvenir and Abstracts of National Seminar of Indian Society of Extension Education (ISEE) on 'Integrated Farming System for Enhancing Farmers' Income and Nutritional Security' held on 5th to 7th December, 2018 at WBUAFS, Belgachia, Kolkata, West Bengal, pp: 204.

Mondal S K, Das K S and Singh S S. 2018. A meta-analysis of field trials conducted on livestock technologies by KVKs of Eastern India. Abstracts accepted in 14th Indian Agricultural Congress to be held at New Delhi on 20-23 Feb., 2019.

Mukherjee S, Mukhopadhyay K, Bera R, Seal A and Rahman F H. 2018. Introduction of a new climate smart agricultural technology towards development of sustainable organic and green farming models based on resource availability and socio-economic framework – a case study from Howrah KVK, ICAR. Abstract published in 9th National Extension Education Congress of Society of Extension Education at CAPHET, Gangtok on Nov. 15-18, 2018.

Rahman F H, Bhattacharya R and Singh S S. 2018. Introducing stress tolerant crop varieties enhanced climate resilience in agriculture and adaptive capacity of the farmers in Eastern Indian. Abstract published in 9th National Extension Education Congress of the Society of Extension Education at CAPHET, Gangtok on Nov. 15-18, 2018.

Rahman F H, Bhattacharya R and Singh S S. 2018. Enhancing climate resilience in agriculture through demonstration of stress tolerant crop varieties in Eastern Indian. Abstract published in 83rd Annual Convention and National Seminar of the Indian Society of Soil Science at Gujarat Agricultural University, Anand on Nov. 27-30, 2018.

**Invited lectures**

Das K S and Mondal S K. 2018. Pre-slaughter animal welfare measures for safe and secured food production. Submitted in the 19th Indian Veterinary Congress to be held at WBUAFS, Belgachia (Accepted).

Haldar A. 2018. Transferable technologies for augmenting reproductive efficiency and production in livestock. Delivered a lecture before the veterinarians of ARD, South 24 Parganas at KVK, Nimpith on September 29, 2018.

Haldar A. 2018. Different tools of doubling farmers' income through animal husbandry sector to be adopted in KVKs. Delivered a lecture for Senior Scientists and Head, SMSs of KVKs of West Bengal at WBUAFS, Kolkata on October 10, 2018.

Haldar A. 2018. 'Endocrine Factors Associated with Fertility in Livestock'. In: Singh M and Roy A K. 2018. Augmentation of Animal Productivity under Changing Socio-Economic Scenario. Book of Invited Papers of XXVII Annual Conference of Society of Animal Physiologists of India held on November 27-28, 2018, Karnal, India, pp: 8-13.

Haldar A. 2018. 'Livestock in Integrated Farming System: Achievement, Challenges and Opportunities'. In: Souvenir and Abstracts of National Seminar of Indian Society of Extension Education (ISEE) on 'Integrated Farming System for Enhancing Farmers' Income and Nutritional Security' held on December 5th to 7th, 2018 at WBUAFS, Kolkata, pp: 171- 177.

Mondal S K. 2018. Farm level animal management practices: Steps towards safe food animal production. Submitted in the 19th Indian Veterinary Congress to be held at WBUAFS, Belgachia (Accepted).

**Others**

News item on 'Hon'ble Vice President, Shri M. Venkaiah Naidu interacted with KVK scientists and farmers at Port Blair'

News item on 'Shri Jual Oram, Union Minister for Tribal Affairs, Govt of India visits KVK Sundargarh-I, Kirei, Odisha'

News item on "Training for Master Trainers on 'KVK Sandesh'mobile app at ICAR-ATARI Kolkata"

News item on 'Darjeeling Krishi Vigyan Kendra, West Bengal celebrates Silver Jubilee'

**Awards/Recognition**

Dr. F. H. Rahman, Principal Scientist of this Institute was conferred with "SEE FELLOW AWARD-2018" during 9th National Extension Education Congress held at CAPHET, Gangtok on Nov 15, 2018.

**Personalia****Joining**

Dr. Suddhasuchi Das has joined this office as Senior Research Fellow of Farmer FIRST Project on 29.08.2018.

A PDF version of the Newsletter is also available at: <http://www.atarikolkata.org/publications>

**ICAR-ATARI Kolkata News**

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