KRISHI RUPANTAR
ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT (APART) E-NEWSLETTER Issue 9

ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT (APART)

E-newsletter

9th issue
(November 2019')

ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT (APART)

HON'BLE CHIEF MINISTER VISITS APART STALL IN KRISHOK SAMAROH

Hon'ble Chief Minister of Assam Shri Sarbananda Sonowal was the Chief Guest in the state-level farmers' convention-cum-exhibition, 'Krishok Samaroh', organised on 29 October 2019 by the Department of Agriculture, at Khanapara, Guwahati. Over 10,000 farmers, state and district agriculture department officials visited the convention cum exhibition, which included exhibits, machinery, live models etc from the Department of Agriculture, Agricultural Technology Management Agency (ATMA), agri-entrepreneurs, private-sector organisations, and Farmer-Producer Organizations etc.

The World Bank-financed 'Assam Agribusiness and Rural Transformation Project' (APART), under the aegis of Assam Rural Infrastructure and Agriculture Services (ARIAS) Society, had put up a stall exhibiting various interventions including machinery etc taken up under the Project particularly with the support of international agencies like International Rice Research Institute (IRRI), International Potato Centre (CIP), World Vegetable Centre, which was visited by the Chief Minister and his entourage, comprising of Assam Agriculture Production Commissioner Shri Rajesh Kumar & State Project Director, and Director Agriculture, Shri Manoj Kumar.

Shri Sonowal expressed keen interest in the machinery displayed, which featured a drum seeder, mechanical transplanter, solar bubble dryer, portable rice mill, power weeder-cum-harvester, super bag, and axial flow thresher. He was explained that "these modern farm machines can help reduce costs for the farmer, increase crop resilience to climate change, and improve the cropping intensity. This will, in turn, alleviate losses across the rice value chain." Exhibits on potato planter, potato harvester and zero tillage in potato introduced with the technical support of CIP were also displayed in the stall.

Hon'ble Chief Minister visiting the APART stall and observing the displayed machineries

Shri Sonowal emphasized the need to ensure the availability of modern farm machinery for farmers in Assam, facilitated by manufacturers setting up base in the state. Speaking to farmers, he assured them that modern machinery would be made available at subsidized rates by the Government of Assam, and a robust value chain for agricultural products will be established to ensure higher benefits to farmers.

The Chief Minister said, "We realize the dignity in the farmer's hard work which is needed to grow food for the society. For this, the state government has initiated schemes like Chief Minister's Samagra Gramya Unnyan Yojna, Mukhyamantrir Krishi Sa-Sajuli Achoni, Ghare Ghare Pukhuri Ghare Ghare Mach and others, so farmers can avail benefits, and boost their income; in keeping with the ambition of fulfilling Prime Minister Shri Narendra Modi's vision of doubling farmers' income by 2022." Supportive government strategies and institutional set-ups can boost sustainable mechanization. When applied to farmlands, such initiatives can include mechanization, timely seeding and planting; weed control, integrated pest management, precise fertilizer application, harvesting, proper storage, and value addition along the food supply chain for on-farm processing, transport and marketing.

A key mandate of APART is to empower farmers with scale -and -gender-appropriate sustainable mechanization for improving agricultural outputs. Farmers with access to improved agricultural tools and powered technologies can shift from subsistence farming to more market-oriented farming, making the agriculture sector more attractive to rural youth. In 2019, under the APART project, over 8700 male farmers, 2600 women farmers, and extension functionaries have been trained on modern farm machinery use and on effective and sustainable farming practices.

Hon'ble CM and Agriculture Minister observingthe rice machinery at APART stall

NATIONAL LIVESTOCK AND POULTRY SHOW 2019

Assam Agribusiness and Rural Transformation Project (APART) participated in the National Livestock and Poultry Show (NLPS) 2019 held at College of Veterinary Science playground, Khanapara from 8-10 November 2019. During the event, APART set up a stall to disseminate the objectives and concept of the Project amongst the different stakeholders. The International agencies of APART, namely, International Rice Research Institute (IRRI), International Potato Centre (CIP) also displayed their innovative machinery and technologies.

The three-day event was inaugurated by the Hon'ble Chief Minister Sarbananda Sonowal in presence of Union Minister of Animal Husbandry, Dairying and Fisheries Shri Giriraj Singh. The National Livestock & Poultry Show 2019 was organized by the Animal Husbandry & Veterinary Department, Govt of Assam.

APART stall during the National Livestock and Poultry Show 2019

TRAINING ON GENDER SCOPING

ARIAS Society in coordination with Directorate of Fisheries and World Fish had conducted 3 days training on Gender Scoping in Fish Value Chain. The participants for the training are the District Social Sector Coordinators of ARIAS Society, Technical Expert Fisheries of Directorate of Fisheries, officials from World Fish and Nodal Officers from Directorate of Fisheries had participated in the training. The objective of the training was to build the capacity of the field staff to conduct the gender scoping under the fish value chain. Participants were oriented on the tools for Gender Scoping developed by World Fish. Orientation on the tool was provided with both at the classroom and on-field through Focus Group Discussion (FGD) with Farmer Producer Groups. As a part of the training, fieldwork was conducted at Uranus Meen Palon FPG, Rupohi, Nagaon district. Participants were also oriented on data transcription of the FGDs. Based on the findings of the Gender Scoping, World Fish will be providing technical support for Gender Integration in Fish Value Chain under APART.

Gender Scoping training

Field work of gender scoping

LIVESTOCK VALUE CHAIN

The Honourable Chief Minister of Assam, Shri Sarbananda Sonowal has formally released 7 documents developed by ILRI as part of the APART requirements in VET-CON 2019 held in the GMC auditorium, Bhangagarh on 27th September 2019. These documents include training manuals for smallholder dairy producers, milk traders, smallholder pig farmers & Pig Bandhus; Laboratory bio-safety manual for milk and meat testing laboratories; standard operating procedure for managing pig breeding farms; and training design and protocol for imparting training to pork value chain actors. The Hon'ble Chief Minister of Assam released these documents in presence of the Hon'able Minister of Agriculture, Govt. of Assam, Shri Atul Bora and several other dignitaries of the state. The South-Asia Regional Head of ILRI, Dr Habibar Rahman also attended the manual releasing event, while the scientist and resident consultant of ILRI-APART, Dr Ram Pratim Deka gave an insightful presentation on food quality and safety and laboratory capacity to address those.

Hon'ble Chief Minister delivering his speech during the VET CON 2019

WORKSHOP AND FIELD VISIT FOR FEEDS AND FODDER TECHNOLOGY

Feeds and fodder play an important role in raising productivity and sustenance of the dairy animal stock of the state. In the wake of climate change, adequate emphasis should be given on fodder crop and rice variety selection for better digestibility, preservation and treatment of fodder, possible marketability options in an entrepreneurial setup and improving the nutrient content of the locally available feeds. To understand the prevailing status of the feeds and fodder in Assam, two of ILRI's feeds and fodder experts Dr Michael Blummel and Dr V. Padmakumar visited Assam. On 29th October 2019, the duo visited a WAMUL cluster in Hajo and interacted with the dairy farmers practising fodder cultivation. Following their visit, on 30th October a day-long workshop was organized in the conference hall of SIPC, 5th Floor, Nayantara Building which was attended by the representatives of AHVD, DDA, WAMUL, College of Veterinary Science-Khanapara, ARIAS Society, Agriculture Department, ICAR-NRCP and ILRI. The workshop highlighted that crop residues contribute more than 70% of overall feed resources in the Indian context; the emphasis should be on production and fortification of crop residues to minimize the production cost of the resource-poor farmers. Furthermore, the quality of feeds is highly responsive to milk yield. Metabolizable energy and crude protein in feeds bring the highest significant variations in milk productivity. So, this calls for the meticulous testing of feeds available in Assam and pricing option has to be chosen from there. Based on this, farmers are to be advised to select out of the available options and make rational decisions about feed business.

ILRI has already taken initiative with support from IRRI and Assam Agriculture University, Jorhat to test the straw quality of the available 50 paddy varieties of Assam. For this ILRI has made the necessary arrangement to send the straw sample to Hyderabad and based on the test results ILRI will help the Agriculture Department in promoting those varieties which have better rice yield as well as better straw quality.

Participants during the workshop on feeds and fodder technology

Filed visit of the participants of the workshop on feeds and fodder technology

FISH VALUE CHAIN

INTRODUCTION MOLA AND SIS IN CARP POLYCULTURE UNDER APART PROJECT

Assam is a biological hotspot with abundant resources of mola and small indigenous fish species (SIS) in floodplain wetlands including a vast network of beels in the state which need to be conserved and propagated. Mola and SIS are very rich in micronutrients such as Vitamin-A, Vitamin-D, Calcium, Iron, Zinc etc. These micronutrients are very important for cognitive and brain development which are highly essential for minor children, pregnant and lactating women. These mola and SIS varieties can be cultured along with carps in polyculture system. The mola and SIS production technology will provide additional production for daily consumption of mola and SIS to eradicate malnutrition and provide nutritional security for the local communities. Further, Assam has a tradition for the consumption of local small indigenous fishes including mola and the market demand is huge and also fetches a good price. Mola is a highly compatible species for production along with carps in all types of ponds, tanks, low lying flood-prone areas, paddy field and beels. It is a highly fecund fish and naturally breeds in ponds and other natural water-bodies, so no need to stock repeatedly. WorldFish has prepared a BMP on Mola and SIS farming with carp polyculture and mola stocking is promoted in all target districts under APART. WorldFish also conducted 3 days training program on mola farming and Dr Benoy Kumar Barman, Sr. Scientist, WorldFish, Bangladesh served as Resource Person for the training program. Awareness meetings with the beneficiaries were also conducted in Nalbari and Kamrup districts.




Activities on Mola and SIS Carp Polyculture under APART Project

TECHNOLOGY ENHANCED FIELD DATA COLLECTION USING OPEN DATA KIT (ODK) - KOBOTOOLBOX UNDER APART FISHERY SUB COMPONENT

Data collection is one of the most important and vital aspects of any research study. Collecting data allows storing and analyzing important information on the present scenario for future policy decisions. Under the Fishery sub-component of Assam Agribusiness and Rural Transformation Project (APART) WorldFish, the technical partners based on their experience in projects implemented in various countries as well as in India, have taken efforts to collect the baseline information as well as the end of demonstration information of all beneficiaries of various interventions in Pond fisheries, Paddy cum fish integrated farming and Beel fisheries by using the Open Data Kit (ODK) platform- KoBoToolBox.

KoBoToolbox is a free and open-source tool that helps collect and organize field data collection. This software helps overcome various problems faced during conventional data collection and make field data collection quicker, more reliable and easy to analyze and report. Instead of operating via an app, it runs as a Webform that can be accessed through a browser on any device that can run a browser.

Under the APART Project, all the district level Technical Experts are provided with Tablets having a data connection. WorldFish experts design the various survey forms for data collection and upload them in KoBo Toolbox for use by the APART Project staff for data collection. The collected data can be downloaded, analyse and generate the reports for Policy decisions under APART by WorldFish, DOF and ARIAS. Thus, by using the technology-enhanced data collection method, now it is possible to quickly and efficiently document the fish culture activities under the APART in various districts taken up by the identified beneficiaries during the entire APART project period under the Fishery sub-component of the project.

Field data collection using the Kobotoolbox

TRAINING PROGRAMME ON CARP HATCHERY MANAGEMENT OF FISHERIES DEPARTMENT OFFICIALS

In order to build the capacity building and creating awareness on recent developments in carp hatchery management and improved technologies for quality fish seed production as well as advances in carp hatchery design & construction for the Fisheries Departmental officials and APART Project functionaries a training programme on carp hatchery management at Central Institute of Freshwater Aquaculture (CIFA), Bhubaneswar was proposed by the Department of Fisheries, Assam under World Bank-financed - Assam Project on Agribusiness and Rural Transformation (APART). The trainee were comprised of 18 participants including two Fishery Development Officers (FDO), seven Technical Expert Fisheries (TEF), seven Engineering Consultant Fisheries (ECF), one Engineering Supervisor and one Marketing Expert Fisheries (MEF). The training programme was scheduled for 3 days from 28th – 30th November, 2019 at Central Institute of Freshwater Aquaculture (CIFA), Bhubaneswar, Odisha.

There were 12 technical lectures delivered in the training course to provide the theoretical as well as practical aspects on carp hatchery management. The participants were given exposure exclusively on advances in design, lay-out and construction of carp hatchery to reduce the injury of brooders, eggs & hatchlings as well as increase the survival of the newborn. The participants were got exposed to minor carp hatchery facility at CIFA to understand the each and every chamber of a hatchery, its design, layout, construction and other civil work from the fish biology point of view for successful breeding operation. The participants experienced the importance of water quality, health management and feeding strategy in nursery rearing as well as in brood husbandry management of carps. Participants experienced the importance of nutritious food with higher oil content for proper gonadal development as well as early maturation of brooders for quality eggs as well as healthy spawn. The participants also got the hands-on experience to diagnose some common disease like ulcer, red disease, *septisemia* and gill disease caused by bacteria belonging to *Aeromonas, Edwardsiella, Vibrio, Pseudomonus* and *Flavobacterium* through **"Spot agglutination kit"** developed by CIFA at disease diagnosis laboratory facility. Field trips were also organized for participants to visit private carp hatcheries at Banamalipur, Purapadhan & Saho fish farm to have on field experience on carp breeding and to get field oriented practical based firsthand information from the farmers itself.

Training programme on carp hatchery management

RICE VALUE CHAIN

BINA DHAN 11: POST-FLOOD RELIEVER FOR ASSAM FARMERS

"I plan to increase the area under BINA Dhan 11 cultivation in the coming season. The variety can help us to intensify our agricultural activity as we can spare more time in other activities after its early harvest. The quality of grain is also acceptable with the local people. I think it is going to be a widely accepted variety for our area".

During the Boro season 2018, the rice variety, BINA Dhan 11 was cultivated by Sri Pratul Chandra Rabha, a farmer from Balijana block of Dariduri village, Goalpara district under the aegis of APART.

Being sceptical of growing a new variety provided by the Department of Agriculture, Govt. of Assam, the farmer cultivated only in 0.5 bighas of cultivable land. However, the results were beyond expectation, as the estimated harvest of the crop turned out to be 8q/bigha. Mr Rabha and his family were content, especially with grain quality. Due to its favourable quality and productivity, Rabha preserved some seeds for Sali season 2019 to cultivate from his own stock without having a dependence on the Department of Agriculture or any other agency for providing seeds.

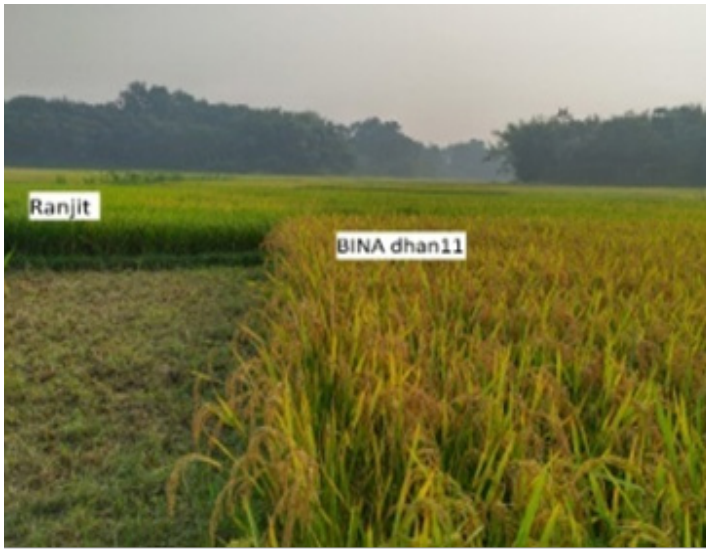
However, during the sowing time of Sali paddy, the region was affected by devastating floods, consequently, there was considerable delay in sowing and transplanting of paddy. After the flood-water receded, farmers began transplanting by mid weeks of August. Other farmers in the region opted to cultivate varieties like Ranjit and other local varieties.

Mr Rabha decided to grow BINA dhan11 from his previous stock of seeds in an area of 0.5 bighas, as he was aware that BINA Dhan 11 is a medium duration variety which can be harvested early.

Accordingly, he grew nursery and transplanted in the mid-August. BINA dhan11 cultivated by Sri Pratul Chandra Rabha was ready for harvesting by 2nd week of November, whereas the other varieties such as Ranjit grown in adjacent plots were still immature and not ready for harvesting. This affirmed the belief of neighbouring farmers of the locality that the BINA Dhan 11, being an early maturing variety was the right choice for the post-flood situation.

Mr Rabha was happy with the variety as it matured earlier during Sali season, providing him with an opportunity to cultivate the Boro paddy on time in the same piece of land. It also helped Mr Rabha to devote more time for other agricultural activities such as mushroom cultivation and rubber plantations.

Given the rate of success with the sowing and harvest of BINA dhan11, Rabha has already sown seeds in the nursery for the upcoming Boro season to be cultivated in his field.



Bina Dhan 11 fields of Shri Rabha

POTATO VALUE CHAIN

STATE LEVEL STAKEHOLDER VALIDATION OF VALUE CHAIN SCHOOL (VCS)

A state-level stakeholder validation workshop was organized on 14-15 November in Guwahati to validate the Value Chain School (VCS) business ideas being generated by the groups.

VCS is one of the components of the CIP-APART Potato Value Chain Program. VCS is an action learning approach that strives to instil entrepreneurial skills among small and marginal farmers. As part of capacity strengthening, VCS comprises a series of group-based experimental learning activities over a production-marketing cycle while interacting with other chain actors and stakeholders. The workshop witnessed the participation of people from NABARD, NERAMAC, SIMFED, local NGOs, project partners along with VCS representatives. The two-day workshop deliberated on the project ideas being presented by the VCS groups and guided the groups towards developing enterprises that address local needs. Many of the groups came up with ideas of grading, sorting, packaging and direct marketing. Some conceived the idea of seed enterprise for quality potatoes and few of the groups interested in small scale processing of potatoes like chips, flex and potato product retail outlet etc. So far CIP has promoted 14 VCS in 7 districts under the APART project. The project aims to promote 56 such groups across Assam involving a large number of farmers.

State level stakeholder validation of value chain school (VCS)

WORLD VEGETABLE CENTRE

HEALTHY SEEDLING PRODUCTION IN WINTER VEGETABLE IN SEEDLING TRAYS

The production of good quality vegetable seedlings is essential for improving yields and getting quality produce. In most advanced countries vegetable seedling production is undertaken by specialized companies or as a specialized activity through specialized structures.

In India, the vegetable seedling production system is gradually changing from open field nurseries to production in protected raised beds or seedling trays, and specialized seedling production industries are taking off in some intensive vegetable growing areas like Maharashtra, Andhra Pradesh, Karnataka etc. However, in the North-Eastern states like Assam, the concept of growing seedlings in a protected environment is yet to reach the vegetable growers.

Keeping this in mind, under Assam Agribusiness and Rural Transformation (APART) Project, World Vegetable Centre (WorldVeg) introduced the technique of growing vegetable seedlings in a protected environment in seedling trays along with the climate-resilient crop production demonstrations in winter vegetables such as cabbage, cauliflower, pumpkin, tomato and brinjal. The seedlings raised in seedling trays have many advantages over conventional methods of raising seedlings in a raised bed.

Advantages of growing seedlings in seedling trays:

1. Vegetable seeds are expensive and the use of seedling trays can reduce the wastage of seeds significantly.
2. Seedlings can be grown in protected or semi-protected condition even when the outside environment is not conducive for growing seedlings. This gives the vegetable grower a few weeks" or months advantage over other farmers. Also, the yield comes earlier and fetches a good price for the produce.
3. Transplanting young seedlings into the field establishes the desired plant population in one operation with least mortality.
4. Grower can be sure of the soil and variety used and can have better control over the dates of seedling and transplanting.
5. Because of the small area, better control of pest and diseases in the seedling stage is possible and that ensure production of healthy seedlings.
6. Seedlings are grown in soilless medium and no need for the hazardous chemical for soil treatment during nursery bed preparation.
7. Better root development and less damage while transplanting.
8. Good field establishment and improved uniform crop stand.
9. Most of the nursery transmitted diseases which are soil born such as damping off and root-knot nematodes can be prevented.
10. The seedlings start to grow immediately in the field without any transplanting shock which helps in quick vegetative growth in the main field.

The disadvantages of raised bed techniques are:

1. This is the traditional method, exposes the plants to weather damage, early pest and disease infections.
2. Mechanical damage to the root system and shock when the seedlings are directly pulled from the soil.
3. When the nursery is located far from the main field, the time taken between uprooting and transplanting of the seedlings may result in a lower rate of survival.
4. The seed requirement is high as the wastage of costly seed is more due to poor germination environment and overcrowding of seed while sowing.
5. Seedlings cannot survive if planted in hot weather conditions for off-season production.
6. Prone to soil born diseases like damping off and root-knot nematodes.

The step by step procedure for the production of healthy seedlings is described below:

• Quality seed and seed treatment: Use healthy and improved seed from a reliable source. If the seeds are

not treated, treat seeds with captan/thiram @ 2-3g/kg of seeds, Metalaxil+ Mencozeb @2gm/L, Trichoderma formulation @ 4-5 g / kg of seeds prior to sowing Seed treatment should always be done sequentially at 30-60 minutes interval with the chemicals and bio-formulations, in the mentioned sequence.

• **Seedling trays:** Use correct cell/ hole size trays. For tomato, eggplant, cabbage and cauliflower, 4 cm deep and 4.5 cm diameter cell is ideal while cucurbits like pumpkin and bitter gourd require larger hole dimension. Inverted pyramid cavities are better than inverted cone-shaped cavities. Disinfect trays with 1% solution of chlorine bleach before use and wash the trays thoroughly with clean water after disinfection esp. when using the used trays.

• **Growing media:** Prepare the growing media/mixture by mixing cocopeat, perlite, and vermiculite in 3:1:1 ratio. A mixture of coco peat, vermicompost, and sterile or partially burnt rice hull/husk in a ratio of 3:1:1 can also be used in non-availability of perlite and vermiculite. Washing of coco peat 2-3 times with fresh water before use is essential to remove the salts that harm the new roots.

• **PH adjustment:** Adjust the pH of the media between 5.5-6.5 with lime to improve micro-nutrients availability. Avoid mixing soil into the media to minimize the occurrence of soil-borne disease and weeds in the seedling trays along with the seedlings.

• **Tray Filling:** Fill the plugs of trays with the premoistened growing mixture/ media. Avoid compaction of the media that prevents the drainage.

• **Seed sowing:** Sow one seed in the centre of each cell/ plug, about 0.5-1 cm deep, depending upon the seed size. Cover the seeds with the same growing mixture.

To promote initial germination, keep 8-10 trays stacked on top of each other in a zig-zag manner where the upper tray does not directly touch the media of the lower tray and cover the entire stack of a tray with a black polythene sheet and keep it in the shade. This ensures a fairly uniform temperature and moisture for facilitating good germination. No irrigation is required until seeds germinate. Care must be taken to separate the trays when the seedlings are just emerging, to prevent them from becoming thin and weak: 3 days for tomato and brassica and 4 days for brinjal and chilli.

• **Protection:** Seedling trays should be kept on one-meter high iron or bamboo benches covered with the 50-60 mesh size nylon net using two meters wide and 1 meter high inverted 'U'- shaped iron/aluminium bars. One yellow sticky trap and one blue sticky trap per 10 sqm can be used to protect the seedlings from an insect pest. If the insect pest population is seen more than the application of Neem oil @ 1ml / lit or followed by thiamethoxam @0.5 g/ lit of water is desirable.

• **Irrigation:** Water the tray with the sprinkler thoroughly to moisten the entire plugs in the morning or in the evening. This promotes root growth to the bottom of the plug. Avoid watering late in the afternoon to minimize the occurrence of foliar diseases.

• **Starter solution:** Apply water-soluble NPK fertilizer twice (two weeks after sowing and 3 to 4 days before transplanting). One gram of water-soluble NPK mixture (19:19:19 or 20:20:20) per litres of water can be applied as drenching near the root zone at the rate of 5 ml per seedling. Do not apply an overdose of fertilizer because excessive fertilizer application makes seedlings leggy.

• **Seedling hardening:** Hardening of the seedlings can be achieved by withholding irrigation 4-5 days before transplanting. If the seedlings are being raised in protected conditions, they should be moved outside for 4-5days to acclimatize before transplanting. Seedlings that are adequately hardened will recover fast and establish well when transplanted in a well irrigated field, even on a hot day.

• **Transplanting:** 4 to 6 week-old seedlings or seedlings with 3-6 open true leaves are ready for transplanting. Once the seedlings are ready for transplanting, properly drench the seedling trays with water one day before transplanting. Cloudy, cool weather and moist but not wet soil are ideal for transplanting. During sunny days, transplanting is done in the late afternoon or in the evening to give time for the seedling to recover at night. Set the transplants slightly deeper than they are in the container for better establishment.

Training extension functionary on use of seedling Tray

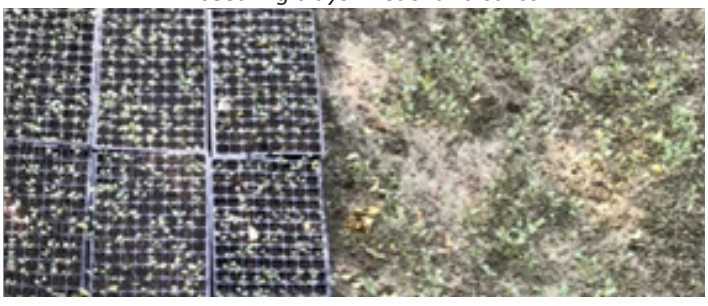
Training of beneficiary farmers on use of seedling tray to produce healthy vegetable seedlings

Stacking of seedling trays after sowing of seeds

11 days old cabbage seedling in seedling trays

Farmers are happy with the healthy seedlings raised in seedling trays in Cachar district

Beneficiary farmer with 10 days old healthy seedlings of pumpkin in seedling tray



Comparison of seedling growth raised in seedling tray (left) Vs.raised bed method (right)

Healthy cabbage seedling developed in seedling tray

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EXPOSURE VISIT TO WEST BENGAL UNDER APART

A team of officials from the Department of Fisheries, Government of Assam led by the Director of Fisheries, Government of Assam visited West Bengal w.e.f 28th to 30th October 2019. This exposure visit was taken up under APART.

During their trip, the team visited the ICAR-CIFA, Kalyani centre, West Bengal to learn about the Pabda seed production, culture practice and breeding. The pabda variety, which is commonly known as butterfish has two varieties mainly Ompok pabda and Ompok bimaculatus, this freshwater fish species is tastes good with high nutritious value and also has great demand value in the market.

During their visit, the team interacted with the scientists of ICAR-CIFA and some progressive fish farmers in West Bengal. They visited Battala, Naihati 24 Parganas (N), Sundarbans and met successful farmers who have taken up the culture of commercially viable fishes like pabda, catfish, and others.

After their visit and interaction with the scientists and progressive fish farmers, the team observed that Pabda culture can also be taken up in Assam by the fish farmers, as the topography and climatic conditions of Assam is similar to that of West Bengal. The scientific process of pabda farming practice can be taken up in collaboration with ICAR-CIFA, Kalyani Centre. For that same, a state-level workshop is proposed, where the progressive fish farmers and entrepreneurs from Assam, Tripura and West Bengal can come together besides a scientist team from ICAR-CIFA, to discuss the possibilities of commercial pabda and catfish farming in Assam. The

initiative of the Department under APART will definitely help the educated farmers of the State in taking forward their future perspectives.

Team at ICAR-CIFA, Kalyani

Pabda fish variety

AWARENESS PROGRAM UNDER THE PROJECT

The implementing Departments under APART organised awareness programs under different value chains. Extensive awareness programs were conducted under the Fish and Silk value chains in recent months. Under the Fish value chain, a total of 92 nos. of awareness programs was conducted till 30th Nov.2019 in 46 clusters (2 awareness programs in each cluster), across the 15 undivided Project districts. These awareness programs on fish value chain had reached 10,546 nos. of participants, of which approximately 32 % were women.

Under the Silk value chain, the Department of Handloom and Textiles conducted extensive awareness programs in 23 blocks across 5 undivided project districts during this period. A total of 5442 nos. of beneficiaries had participated in the programs. In these awareness programs, approximately 99 % of the participants were women.

Participants during the Awareness programmes

MARKET SURVEY FOR MODERNIZATION AND IMPROVEMENT OF MARKETS UNDER THE PROJECT

APART has tentatively identified 100 nos. of Agricultural markets for modernization and improvement under the Market Modernization & Improvement Program (MMIP) of APART.

Therefore, to finalize the list of markets to be taken up under the project, a survey was conducted for assessing the existing condition of the identified markets. As recommended by the World Bank, the survey was undertaken covering the following key areas - Market Infrastructure, Market Governance & Operations, Market Economics and Market Linkages. The district-level staff of ARIAS Society i.e Assistant Civil Engineers (ACEs) of Asam State Agriculture Marketing Board (ASAMB), District Horticulture Coordinator (DHC), District Environment Coordinator (DEC), District Social Sector Coordinator (DSSC) and District Agriculture Marketing Coordinator (DAMC) were engaged for the purpose of the survey.

In this regard, orientation was held on 8th November'2019 at Guwahati. As a part of the orientation, a field visit was conducted at the Fruits and Vegetables wholesale market, Pamohi, Garchuk. Around 65 markets have been surveyed by the team till 30th November 2019 across 13 Project districts.

Fruits & Vegetable wholesale market

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