



# KRISHI RUPANTAR

40th edition

October 2024

## Workshop on Farmer Producer Organizations (FPOs) and Farmer Producer Companies (FPCs) for Upper Assam and North Bank Districts of Assam

-Compiled by IEC Team- APART

The FPOs/FPCs Conclave 2024 was held on September 13th and 14th, 2024 at the Dr. M C Das Memorial Auditorium, Assam Agricultural University, Jorhat. The event was organized by ARIAS Society under the aegis of Assam Agribusiness and Rural Transformation Project (APART). A total of 500 participants, including approximately 300 representatives from Farmer Producer Organizations (FPOs) and Farmer Producer Companies (FPCs) from the Upper Assam and North Bank districts participated in the two day Conclave. This conclave served as a significant platform for sharing knowledge, fostering collaboration, and discussing strategies to enhance agricultural practices and rural transformation in the region.



### Main objectives of the Conclave:

- **Share knowledge and skills on successful cultivation practices and opportunities by successful FPOs/FPCs, Agripreneurs, Resource Persons, and Resource Institutes from Assam and other parts of India.**
- **Make the agricultural and allied sectors more profitable and sustainable by bringing together all stakeholders and departments on one platform for proper convergence.**
- **Discuss prospects and constraints for enhancing the agriculture scenario in Upper Assam districts and North Bank districts through FPOs/FPCs.**
- **Explore various market/business potentials for FPOs/FPCs.**
- **Explore various financing opportunities and schemes available for FPOs/FPCs**

The two-day FPO/FPC Conclave 2024 kicked off with registration and a warm welcome for all participants. The inaugural program was graced by the presence of dignitaries including Shri Atul Bora, Hon'ble Minister of Agriculture, Horticulture, etc, Assam, Shri Kamakhya Prasad Tasa, Hon'ble MP, Kaziranga Lok Sabha Constituency, Dr. Bidyut Chandan Deka, Vice Chancellor, Assam Agricultural University (AAU), Jorhat, Smt. Aruna Rajoria, IAS, Commissioner & Secretary, Agriculture, Agriculture Production Commissioner (APC) and Chairman, ARIAS Society, and Shri Virendra Mittal, IAS, State Project Director (SPD), ARIAS Society, along with officials from the district administration, various departments of the Govt of Assam, AAU, and participants from numerous FPCs/FPOs from Upper Assam and North Bank Districts of Assam.

Shri Virendra Mittal, IAS, SPD, ARIAS Society, extended a warm welcome to the chief guest, dignitaries, and all participants. He emphasized that the Conclave is designed to provide FPOs/FPCs with the opportunity to learn about new agricultural technologies/methods, integrated cropping, market & credit linkage, as well as different schemes of the Government of India and Government of Assam.



The keynote speaker, Smt. Aruna Rajoria, IAS, Commissioner & Secretary, Agriculture, Agriculture Production Commissioner (APC) and Chairperson-ARIAS Society, praised farmers for establishing FPOs and FPCs with a clear vision for the future of farming. She emphasized the importance of latest knowledge about farming technologies and government schemes, encouraged farmers to stay focused and plan for long-term benefits, and highlighted the FPO/FPC conclave's aim to share valuable knowledge and provide a platform for mutual learning and sharing among farmers.



Dr. Bidyut Ch. Deka, Vice Chancellor, AAU, discussed AAU's recent technologies for the benefit of farmers. He encouraged double cropping and highlighted stress-tolerant rice varieties. Dr. Deka emphasized the importance of in house seed production and urged farmers to utilize AAU's support for advanced knowledge and technology.





During his speech, Shri Kamakhya Prasad Tasa, the Hon'ble MP of Kaziranga Lok Sabha Constituency, encouraged farmers to embrace integrated farming, adopt mechanization, and engage in advanced agriculture. He also stressed the importance of dedicatedly working towards sustainable farming, rather than solely aiming for self-sufficiency, and advised farmers to consider growing crops that can yield higher returns. Additionally, he acknowledged the efforts of APART in uniting the Farmer Producer Companies (FPCs) on a single platform to facilitate sharing and learning among them.

Honorable Minister of Agriculture, Shri Atul Bora, expressed his gratitude to APART for bringing together the FPCs and FPOs of upper Assam and North Bank Districts. He encouraged farmers and young entrepreneurs to actively participate in advancing the agricultural and allied sectors. The Minister also urged them to take advantage of various government schemes and initiatives. He highlighted the ongoing FPC/FPO revolution in the country, emphasizing the potential for farmers to collaborate & conduct profitable business, and make agriculture a lucrative profession. The Minister advised the participants to fully engage in the technical sessions of the Conclave to gather information and knowledge that would support their progress.



A field visit to the Experimental Farm & Horticulture Orchard and the Instructional cum Research (ICR) Farm at AAU Jorhat was conducted during the Conclave. The participants explored a range of agriculture and horticulture technologies, including integrated farming systems, forage crop research, and horticulture experiments. Technical experts provided briefings at each location.



The field visit offered the participants valuable insights into agricultural practices and innovations, bridging the gap between research and practice. The participants were able to witness firsthand application of theoretical knowledge. The field visit could significantly enhance the understanding and effectiveness of the FPOs/FPCs in the agri-horti sector.

A motivational session by two successful agripreneurs namely- Shri Manoj Kr. Basumatary, CEO & Co-founder, Symbiotic Foods Pvt. Ltd., Sonitpur, Assam and Shri Akash Jyoti Gogoi, Founder "Bahuboli Eggs", "North East Agro Products and Services", Jorhat. Both speakers shared their inspiring journeys from humble beginnings to successful agripreneurship. They highlighted the need of maintaining quality of production to complete with international standards and have watchon the domestic market as well and added that challenges needs to be faced with perseverance.



**Technical sessions** on different topics were held during the two day conclave, besides a panel discussion with the Progressive FPCs supported under APART was also held. The topics covered were:

- Discussion on the Business Development – planning, implementation, management and marketing etc.
- Present Agriculture/Horticulture scenario in upper and North bank districts of Assam and future scopes for commercialization of the sector through cluster based & cropping system approach including multiple cropping
- Increasing double cropped area as well production/ productivity of the crop by availing various Irrigation schemes/facilities available under Irrigation deptt & GIS: Crop suitability maps, input output, Mapping of irrigated and non-irrigated areas etc.
- Quality fish seed production & concept of fish seed bank development through cluster based approach.
- Augmentation of Piggery/Goatery sector through cluster based approach.
- Paradigm shift of traditional Sericulture sector to commercial sector through cluster based approach- its scopes & advantages
- Forward Market Linkage: The Planning & Execution Process – A focused discussion concerning FPCs and their Value Chain Operations & Market Intelligence
- Various scopes & opportunities for enhancing net profit/ realization by adopting Farm Mechanization & Post-Harvest Management & Schematic support available for Agricultural Farm Machinery and equipment
- Financing opportunities/ Credit linkage to FPOs/FPCs and schemes available for FPOs/FPCs



Experts from the respective sectors took up the sessions, which were interactive and beneficial for the participants. Several progressive farmers shared their successful journeys, including the challenges they faced.

The two eventful days finally came to an end enlightening the thoughts of many and paving ways of exploring ways to bring out an agricultural revolution in the State. This initiative of bringing together the FPCs of Upper Assam and North bank Districts on one common platform significantly bonded the participants and organizers enabling prospects of working in unison. The technical session and experience sharing by fellow FPC members were the highlights of the event because the issues and challenges faced were not only relatable but also the recommendations were replicable to many to a great extent.

## Cross-Border Trade Market Linkage under Project APART

- Apurba Majumder, DAMC-Barpeta and CBT Team-APART

The diverse agroclimatic conditions of Assam favor the cultivation of a wide range of chili varieties. In Assam, farmers grow all kinds of high-yielding varieties (HYV) of chilies, along with some indigenous (native) varieties like Tapa, Balijuri, and Bhut Jolokia. However, these indigenous varieties only occupy a small portion, about 10-20%, of the total cultivation area in Assam. Each variety is grown in traditional clusters, such as Bhut Jolokia, which is grown in the hilly areas of upper Assam and Barak Valley, Balijuri in the char areas of Kamrup and Barpeta districts, and Tapa chili in the char areas of Barpeta, Kamrup, Goalpara, and Dhubri districts. These varieties have distinct characteristics such as high pungency, rich color, and good flavor. Unfortunately, due to the lack of market information and networking amongst the traditional clusters, except for Bhut Jolokia, rest of the traditional varieties are not very popular outside the state.



Tapa Chilli is mainly grown in the char areas of Barpeta (Moinbori, Baghbar, Alopatti), Dhubri (Bilasipara, Chapar), Goalpara (Chunari, Joypur), and Kamrup (Nagarbera, Suntoli) districts, covering an area of 2000 hectares (approx) with an approximate production of 20000 metric tons. The crop is sown in the months of September and October and harvested from January to March. Out of the total production, farmers sell 60% of their Tapa Chilli as green chili to recover their invested capital immediately, while the remaining 40% is dried to realize a higher price. But due to the traditional process of market networking, producers sell their dried Tapa chili to local merchants & traders at very low prices.

Under the World Bank financed Project APART (Assam Agribusiness & Rural Transformation Project) a Cross Border Trade (CBT) initiative has been launched to improve market access, market information networking and farm advisory services for high value spices in select locations of Assam. The initiative involves extensive engagement with farmers and aggregators in the region to gather input on enhancing market returns and reducing intermediary margins. To establish an alternative marketing channel, collaboration was initiated with 'mJunction Services Limited,' (Tata & SAIL j.v).

This collaboration connected a selected group of progressive farmers and aggregators with mJunction, followed by field visits. Product samples were sent to quality analysis labs, and the results were shared with stakeholders. In July 2024, AVT McCormick Ingredients Pvt. Ltd, Kochi, Kerala placed an initial purchase order for 100 MT of Dry Tepa Chilli whole pods with stem, meeting EU & US standards, in favor of mJunction Services Pvt. Ltd. The CBT Team supported mJunction in aggregating the required material and connecting to the production clusters to fulfill the deliveries to AVT McCormick Ingredients Pvt. Ltd, Kochi, Kerala.



**The 100 MT orders were delivered in several lots as shown below:**

Date	Details
July 26, 2024	10 MT dispatched from Barpeta district
September 7, 2024	12 MT dispatched from Barpeta district
September 12, 2024	24 MT dispatched from Barpeta district
September 23, 2024	24 MT dispatched from Barpeta district
September 25, 2024	12 MT dispatched from Barpeta district

Till date, a total of 82 MT material has been delivered to AVT McCormick Ingredients Pvt Ltd, Kochi, Kerala from Barpeta, and the remaining material will be dispatched on receipt of the SGS test reports, which is under progress.

Tepa Chilli CBT Facts	Rs/Kg
Average Cultivation Cost	80
Post Harvest Operations (Packaging, Storage, Transportation, and Labour etc)	20
Gross Production Cost	100
Market Price facilitated through Cross Border Trade (CBT) under Project APART	140
Net Profit	40
Cross Benefit Ratio	0.4
Local Market Spot Price	120
Markup Margin facilitated through CBT	14%

### Future Opportunities:

**Similar supply chain operations for Balijuri Chilli also have significant potential across the country. Companies like AVT, ITC, and other spices giants are now procuring IPM-grade dry chilli, which is more available in Assam compared to other chilli-growing states in India. There is a massive opportunity for Assam's Indigenous chillies in the dry chilli market of the country.**

## Dairy Development Department: Impact stories of APART intervention

- APART OPIU- Dairy Development Department

The dairy industry in the state of Assam is characterized by small-scale rural and subsistence production, as well as specialized dairy production in urban and peri-urban areas with improved cattle. However, dairy development in Assam has not kept pace with national trends or realized its full potential. To increase farm-level production and productivity, there is a need for more improved animals, better fodder/feed technologies, and improved livestock services. Additionally, smallholders need access to reliable markets that offer fair prices for their milk. Currently, organized (formal) marketing of milk in Assam is relatively insignificant, with the traditional (informal) market accounting for about 97% of market opportunities for farmers.







It is clear that the development of the traditional market will be significant for the Assam dairy sub-sector as it transits to a more formal way of operating. Therefore, interventions are needed to facilitate the improvement of the market. Improving milk quality in the traditional market will increase demand and value of the products, leading to higher income and employment opportunities. This will also help the traditional market evolve into a more regulated and organized system.

If the entire informal/traditional sector adopts improved practices in production, handling, trading, processing, and marketing, it can bring significant change to the entire milk market sector and make a substantial contribution to the economy. Ultimately, this neglected sector can be brought under the formal sector in a phased manner by addressing the above concerns with effective mechanisms.

The following are some of the major initiatives taken up under the Assam Agribusiness and Rural Transformation Project (APART) under the Dairy Development Department:

### **1. Training, Monitoring and Certification (TMC) of Milk value chain actors**

The Dairy Development Department under APART, with technical guidance from the International Livestock Research Institute (ILRI), conducted several training programs for milk producers and traders. The aim of the training was to improve the quality and safety of milk in the existing informal milk value chain, and to promote the production of clean and hygienic milk. Trained master trainers from the A.H. & Vety Deptt and Dairy Development Deptt delivered the training sessions.

Additionally, training programs were conducted for milk traders in 19 districts under APART to educate them about trading of clean and hygienic milk. In total, 132 training sessions for milk producers and traders were completed, benefiting 4124 participants, 41% of whom were female. These trained market actors are monitored by the Hygienic Milk Monitoring Committee (HMMC) and the Joint Coordination and Monitoring Committee (JCMC).



## Lessons learned

The main constraint for dairy farmers is the higher cost of milk production. To address this issue, the Dairy Development Department introduced a seed money scheme. Additionally, trained milk value chain actors receive guidance to improve their farming practices, along with need-based support.

## Overcoming challenges

The main challenges faced while organizing the training were locating the clusters with informal dairy farmers, motivating them to attend the 5-day training, and conducting the training in a field where proper training infrastructure was scarce. Additionally, the milk traders did not see the need for training and preferred to stick to traditional methods, and they also faced time constraints due to their involvement in milk collection and marketing. However, with the constant support of District Dairy Officers and Assistant District Coordinators of APART, the team could overcome the challenges. They selected beneficiaries for the training from the remote areas of identified milk clusters in 19 districts of Assam with support from the Animal Husbandry & Veterinary Department. Through awareness programs, we were able to influence the farmers to adopt scientific technologies in their traditional dairy farming practices.



## Future opportunities

Capacity building and additional support will be provided to the stakeholders in the milk value chain through departmental schemes.

## 2. Reproductive health and mastitis management camps

On a pilot basis, 11 Reproductive Health & Mastitis Management camps were conducted in the Maloibari and Nortap areas of Kamrup (M) district by the Dairy Development Department under APART. This initiative was carried out in collaboration with the Animal Husbandry and Veterinary Department (AHVD) and with the technical support of the International Livestock Research Institute (ILRI).

Dairy animals from 50 households were examined and treated with necessary medicines by experienced veterinarians. ILRI conducted a baseline survey, with the help of local Veterinary Officers, selected the beneficiaries. The camps were conducted regularly over a period of 18 months at monthly intervals. Various reproductive disorders, including mastitis, were addressed in these camps, and follow-up treatments were provided.



The concluding ceremony at Maloibari gathered feedback from the farmers of the treated animals, who expressed satisfaction with the initiative. Most reproductive problems were cured, and the conception rate was above 90%. Free veterinary medicines and mineral mixtures were distributed to the beneficiaries. At the end of the program, it was observed that the health condition of the treated animals had significantly improved compared to their health at the start of the program.

### **Overcoming challenges**

Convincing the beneficiaries to participate in the Reproductive Health Camps was quite challenging, especially because they were scattered throughout the selected villages. The resource person had to visit each cow shed of the selected beneficiary to properly assess their health and provide treatment. The road conditions were poor, and during the flood and rainy season, it was difficult to access the households. Despite these challenges, the selected beneficiaries were eventually persuaded to join the camps and incorporate scientific techniques into their traditional dairy farming practices through an awareness program.

### **Lessons learned**

Lack of knowledge among dairy farmers about scientific farming is the main reason for their economic losses. Raising awareness and building the capacity of dairy farmers is key to the success of the program.

### **Future opportunities**

Similar reproductive health camps can be replicated in different milk pockets of the state to boost milk production and uplift farmers economically.

### 3. Strengthening of milk testing laboratories

In order to raise awareness among dairy farmers and consumers about the quality of milk and milk products and to prevent milk adulteration, 5 milk testing laboratories operated by the Dairy Development Department were enhanced under the APART project for surveillance purposes. One state milk testing laboratory in Khanapara and four district milk testing laboratories in Manja, Bokakhat, Nagaon, and Silchar were refurbished. Regular milk testing for basic tests as per FSSAI standards is being conducted. A total of 19271 tests have been conducted till date.

#### Overcoming challenges

It was a challenging task to conduct milk tests at the field level, as the farmers initially showed unwillingness to cooperate. This may have been due to a fear of potential punishment if the milk sample failed to meet quality standards. However, through raising awareness about the importance of quality testing and preventing milk adulteration, we were able to overcome this challenge successfully. As part of the efforts, five Laboratory Managers were assigned to the renovated Milk testing laboratories under APART. They visited various milk collection points and conducted regular testing. The results were then reported to the relevant Veterinary officers and the farmers themselves for further necessary action. As a result of these efforts, the mindset of the dairy farmers shifted towards recognizing the importance of testing milk for improved quality.



#### Lessons learned

The dairy farmers have been made aware of the importance of quality testing for the milk they produce. The testing reports reveal the true situation of milk production at the smallholder farmer level. In some cases, there are reports of water being added and some instances of milk adulteration. A major concern is the presence of antibiotic residue in a few samples of milk, which can be addressed by educating the farmers not to sell or consume milk within the withdrawal period of that particular antibiotic. Consequently, further necessary actions can be taken, such as raising awareness among farmers about milk adulteration, antibiotic residues, or the treatment of diseased cows.

#### Future Opportunities

Currently, work is underway to upgrade the State milk testing laboratory to be NABL accredited with support from the Commissionerate of Food Safety, Assam. This upgraded laboratory will be utilized as a satellite laboratory by the Office of the State Food Analyst for the Government of Assam.

## 4. Standardised Training manuals for training of the Milk value Chain actors and developing a brigade of trained Master trainers

A standardized training program was developed by ILRI for the Dairy Development Department under APART, aimed at improving the quality and safety of milk in the informal milk value chain in the State. Four training manuals (for Milk Producers, Milk Traders, Sweet Makers, and Cottage Processors) and a booklet on reproductive diseases of cows were created in both English and Assamese languages. These manuals have been approved by the Government of Assam for training milk value chain actors. The content of the manuals is designed to enhance the knowledge and practices of those involved in the dairy business and bring about positive changes in the dairy production process. ILRI conducted a training needs assessment before developing the manuals, ensuring that they cover all relevant topics for dairy production and marketing, and are designed for effective adult learning.

ILRI also developed a group of 86 Master Trainers from the Animal Husbandry & Veterinary Department and Dairy Development Department. These trainers were equipped with a specific curriculum by ILRI to provide further field-level training using the manuals. They are also certified by the Agriculture Skill Council of India (ASCI).



### Overcoming challenges

There was a need for standardized training content to train the field functionaries. The training manuals were prepared after conducting several Training Need Assessments (TNA) in various milk-producing areas of the state, including the remote ones, to ensure that they are relevant to the field-level market actors and farmers.

### Lessons learned

There has been an excellent response from both the trainers of trainers (ToTs) and the farmers regarding the content of the training manuals. The manuals comprehensively cover nearly every aspect of dairy farming and marketing, which was crucial for improving the quality of milk production in the state.

### Future opportunities

These training manuals can be used for further training of milk value chain actors by AHVD and the Dairy Development Department. There is potential for collaboration with the P&RD Department to organize the training for Self-Help Groups (SHGs) and other farmer groups.

# INTRODUCTION OF PROCESSING POTATO VARIETIES AND LOW COST NET HOUSE SEED PRODUCTION

- APART OPIU- Dept of Horticulture

## Overview

In Assam, potatoes are the third most widely grown crop after rice and rapeseed/mustard, covering 100,000 hectares and yielding one million tons annually. Despite its significance in the rural agricultural economy, the state's potato productivity is low, averaging less than 10 tons per hectare compared to the national average of 22 tons per hectare. Challenges include limited access to high-quality seeds, high seed costs, low productivity, significant post-harvest losses, and poor market connections. The state has a low Seed Replacement Rate (SRR), relying on seeds from a few local producers and other states such as West Bengal, Punjab, Haryana and Uttar Pradesh.

To address these issues, OPIU- Horticulture under APART had initiated the introduction of improved potato varieties, both table and processing varieties. They have also introduced climate-resilient and market-led production technologies such as zero tillage technology with paddy straw mulching and Best Management Practices (BMPs). Additionally, they have started a quality seed production system within Assam through low-cost net house seed production for both table and processing varieties. The International Potato Centre (CIP) was involved as a knowledge partner during the implementation of the project.

## Successful Implementation

Since 2018, the APART project has strengthened the potato value chain. The Cluster approach demonstrations involving FPOs/FPCs have been widely adopted by farmers and have significantly contributed to the increase in potato productivity to about 16 MT/ha in almost all the APART Districts. This achievement is attributed to various measures undertaken by OPIU- Horticulture with technical support from the International Potato Centre (CIP). Additionally, high-yielding and disease-resistant potato varieties such as Kufri Himalini, Kufri Surya, Kufri Jyoti, Kufri Mohan, Yusi Maap, as well as processing varieties like Kufri Chipsona and Lady Rosetta, have been introduced and are now the preferred choices among farmers. In 2019-20, for the first time, processing varieties were introduced, and the area under these varieties is increasing annually, reaching about 2000 ha.

Climate-resilient technologies such as zero tillage with rice straw and Best Management Practices (BMPs) have helped farmers increase productivity and reduce cultivation costs. Zero tillage is gaining popularity and is widely adopted among small and marginal farmers as it advances the crop by 10 days and reduces cultivation costs by about 30%.

The state has introduced seed production for both table and process varieties under the APART project using low-cost Net-House technology. To ensure disease-free quality potato tubers for the farmers, 37 low-cost Net Houses have been developed. The harvested tubers from different years are currently stored in cold storage for further multiplication.



## Impact

The replacement of traditional potato varieties with processing varieties has been a great success in the state, resulting in better returns on investment for the farmers. Approximately 1500 hectares of land is now being used to cultivate potatoes with improved varieties and technologies. During the Potato Area Expansion Programme (PAEP) in 2023–24, around 3910 metric tons of G3 Potato tubers were provided, covering an area of 1738 hectares (approximately 13032 bigha), involving 126 Farmer Producer Companies (FPCs) across 18 districts. This initiative was highly successful, achieving a productivity of around 16 metric tons per hectare with an average price of ₹14 per kilogram. Successful market linkages were established, with approximately 7975 metric tons of processed potato varieties being sold to companies such as Pepsico, Siddhi Vinayak, Haldiram's, and ITC Technico, as well as buyers from Nagaland, Arunachal Pradesh, Meghalaya, and Bhutan, at satisfactory prices.

In addition, as a part of the net house seed production, 126.60 metric tons of harvested potatoes from different years are currently stored in cold storage. These will be multiplied in the coming years to provide disease-free, high-quality potato tubers to the farmers.



### **Challenges Overcome**

Arranging and ensuring good quality tubers, mechanization, irrigation, and grading are some of the major challenges faced during the implementation. OPIU-Horticulture has successfully organized a Potato Conclave with the participation of a number of potato seed companies, and has been able to establish successful linkages for providing good quality potato tubers to the state's farmers.

### **Lessons Learned**

Proper advance planning can result in disease-free, quality tubers and a good harvest. Timely sharing of production cluster details with potential buyers helps to successfully connect with the market and achieve better prices.

### **Future Opportunities**

Potato seed production presents a lucrative opportunity for farmers, and the yield from the net houses (established under APART) can serve as a source for multiplication. With the new processing plant by PepsiCo, the prospects for processing potato varieties looks very promising.



Glimpses of FPO/FPC Conclave

