

Horticulture Bytes

Oct/ 2023

Sixth Edition



APART: Adding Value to Increase Resilience, Production And Value Addition of Horticulture Value Chain

DoH & FP is the Operational Project Implementation Unit (OPIU) under APART supported by two international agencies



Major Project Interventions

- Development of 167 clusters in APART district
- Demonstration of Climate Resilient Technology and Market-Led Activities
- Demonstration of Post-Harvest Management (PHM) Techniques
- Application of IPM systems to reduce the use of pesticides and promote vermicomposting units
- Market linkage through
 - Value Chain Schools
 - Cold Chain Storage Facilities
 - Provision for specially designed 4 - wheeler transport vehicles
- Formation of FFS (Farmer Field Schools) and FPCs (Farmer Producer Companies)
- Intensification of Vegetable Nursery for Seed Production
- Awareness and Capacity Building



Assam Rural Infrastructure and Agricultural Services Society (ARIASS), Agriculture Complex, Khanapara, GS Road, Guwahati-781022

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ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT (APART)

Message From The Director's Table

The sixth issue of Quarterly Online e-newsletter "*Horticulture Bytes*" initiated by OPIU-Horticulture and Food Processing to disseminate information and impact of APART activities in field level covered the activities performed during the quarter of July-September 2023. During the period we have focussed on MAPs (Medicinal and Aromatic Plants) in expansion mode in the selected districts in addition to planning process for upcoming Rabi Season 2023-24. The OPIU-Horticulture has continued their support to activities under Assam Seed Mission, Assam Floriculture Mission.

The integration of all the activities, persons, and business through which a product is transferred from one place to another is known as supply chain . The primary focus of supply chain is on cost and efficiencies in supply to focus on reducing costs and marginal inefficiencies in supply v/s focusing on interventions that could lead to bigger additions of value. Supply Chain Management is a tool of business transformation, which minimises costs and maximizes customer satisfaction by providing the right product at the right time at the right place and the right price. In Supply Chain Management, the flow is down -from the source to the consumer. In Agri Horti sector , supply chain management is done in an informal manner run by private entrepreneurs in Assam. In order to strengthen the supply chain management and marketing of Agri Horti commodities , 20 (twenty) nos of Agri Horticulture Transport vehicles were provided to FPCs under APART.

We are pleased to state that we have been able to contribute to strengthen the supply chain and the FPCs through our effort. I hope this issue will be useful for all.

**Shri Triranga Bharatiya Borah , Director
Horticulture and Food Processing, Assam**

In the quarter of July- September 2023 we have continued to provide handholding support for FPC-CSC (Farmer Producer Companies/ Common Service Centre) programme through training programmes held at regular intervals. We have completed 4 batches training during the quarter for BoDs/ CEOs of 14 FPCs (first batch : 10-11 July 2023 , second batch: 12-13 July 2023, third batch: 14-15 July 2023, fourth batch : 28th -29th August 2023) for APART promoted 14 FPCs (Farmer Producer Company) from Nagaon, Dhubri, Morigaon and Golaghat districts at Extension Education Institute, AAU, Khanapara. The training programme covered Legal Compliances, FPC Operational Management, Business Planning and management etc .

Further, a team of **28 CEOs of FPCs** from APART districts were sent for an exposure visit to Sahyadri Farms , Nasik, Maharashtra (**14th Sep to 19th Sep 2023**). These CEOs are responsible to take forward the FPCs in a path of growth and prosperity making way for the farmers to earn better returns from their produces. The CEOs have to establish backward and forward linkages to manage the functioning of the FPCs meeting all compliances in time. The success of the FPCs greatly depends on the efficiency, sincerity and enterprising skills. During the exposure visit they have learnt about Organizational Management, Governance, Book keeping and Financial Management and other related aspects. They got first hand experiential learning to strengthen backward and forward linkages to integrate the input suppliers, producers and markets in order to make the Vegetables and Fruits value chains more efficient. They got first hand exposure to the approaches of business operation, business planning, exploring new business avenues, expansion of business. They visited the integrated farm mechanisation facilities, aggregation points, post-harvest management facilities in the Sahyadri Farms. The CEOs learnt about funding mechanisms and access to financial products and services.

We are hopeful that the exposure visits to such successful FPCs like Sahyadri farms shall help the CEOs in building their own FPCs and replicate the best practices.

We are presenting a brief glimpse of the progress in this sixth issue and we hope it will be helpful for all.

Shri Bipul Das

ADA (R/FT) cum

Nodal Officer, APART-OPIU (Horti.)

Medicinal and Aromatic plant Activities in different Districts of Assam 2023-24.

– Ravi Kant Verma (CSIR-CIMAP)

Kokrajhar District

Crop	Target Area (Bigha)	Achieved Area (Bigha)
Tulsi	198	95
Lemongrass	96	96

- Tulsi demonstration is going on under Swmkhwr Agro producer company limited.
- Lemongrass demonstration is going on under Bodoland Agro organic producer company Ltd.

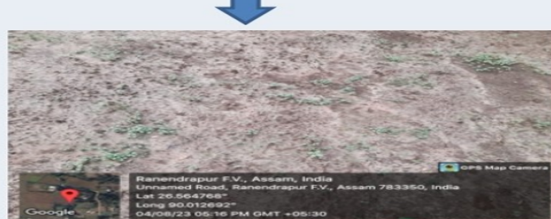
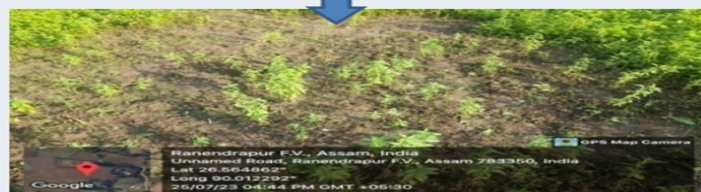
Photographs of Tulsi demonstration under AWP 2023-24



Line sowing of Tulsi seeds by farmers



Tulsi seed sowing by making nursery bed



Glimpses of field visit by visitors



Medicinal and Aromatic plant Activities in different Districts of Assam 2023-24.

Biswanath District

Crop	Target area (Acre)	Achieved Area (Acre)
Lemongrass	32	32
Patchouli	40	Ongoing

- Lemongrass demonstration is going on under Gupta Kashi FPC.
- Plants are good condition and 90% plants are survived.
- Patchouli planting in October or November

Land preparation



Slips preparation

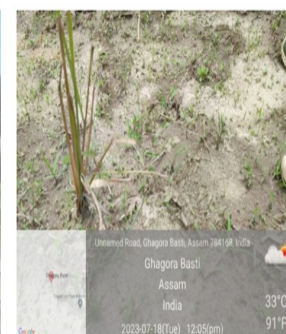


Production of Oil

Sl no	Date	Quantity of oil (Ltr)	Quantity of leaf (Kg)	Buyers	Rate
1	18/03/2023	0.45	60	Self consumption	
2	2/04/2023	0.65	70	TB citranella	850.00
3	29/04/2023	4.3	300	TB citranella	850.00
4	7/06/2023	5.1	450	Local market (AP)	1100.00
5	08/06/2023	3.2	300	Local market (AP)	1300.00
6	27/06/2023	5.1	430	Local market (AP)	1000.00
7	5/07/2023	5.6	510	Local market (AP)	1000.00
8	15/07/2023	3.8	335	TB citranella	900.00
9	30/07/2023	4.3	392	Self consumption	

Oil content in per cent – 1.09 %

Visitors from CMAP observed our field



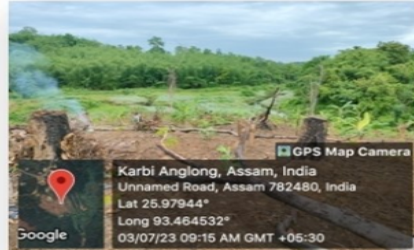
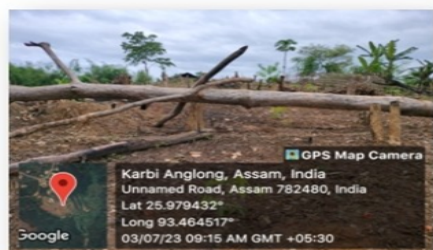
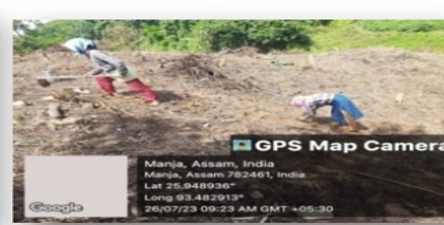
Medicinal and Aromatic plant Activities in different Districts of Assam 2023-24.

Karbi Anglong District

Plant	Target area (acre)	Achieved Area (acre)
Lemongrass	32	32

- Lemongrass demonstration is going on under Karbi Anglong Agri-horti FPC.
- Plants are good and survival rate is 85%

FIELD VISIT, LOCATION – MANJA, LUMBAJONG CIRCLE (Area selection and monitoring land preparation for AWP 2023-24)



CSIR –CIMAP TEAM VISIT LOCATION – MANJA, LUMBAJONG CIRCLE



Medicinal and Aromatic plant Activities in different Districts of Assam 2023-24.

Dhemaji District

Plant - Vetiver: Target Area - 40 acre

- Farmers are actively involved in land preparation for the 2023-2024 Vetiver plantation. Till now 20 acre (approx.) of land are selected for Vetiver plantation.
- As the roots of Vetiver planted in 2022-2023 are deep rooted; hence according to CIMAP expert farmers cannot separate the slips from existing plot for area expansion. Because main crop may be damaged or disturbed.

Goalpara District

Plant - Tulsi: Target Area - 33 acre

Plant - Vetiver: Target Area - 40 acre

Waiting for Planting time (Dec-Jan)



Dhubri District

Plant	Target Area (acre)	Achieved Area (acre)
Tulsi	40	40
Vetiver	40	-

Plant - Vetiver: Target Area - 40 acre, Waiting for Planting time (Dec-Jan)

Plant - Tulsi: Target Area - 40 acre

- Germination rate is average 50 to 60% due to heavy rainfall
- Cultural practices is going on



A brief on Agri- Horti Transport Units to FPCs for strengthening Supply Chain Management

The integration of all the activities, persons, and business through which a product is transferred from one place to another is known as supply chain. The primary focus of supply chain is on cost and efficiencies in supply to focus on reducing costs and marginal inefficiencies in supply v/s focusing on interventions that could lead to bigger additions of value.



Supply Chain Management is a tool of business transformation, which minimises costs and maximizes customer satisfaction by providing the right product at the right time at the right place and the right price. In Supply Chain Management, the flow is down – from the source to the consumer. In order to strengthen the supply chain management and marketing of Agri Horti commodities 20 (twenty) nos of Agri Horticulture Transport vehicles were provided to FPCs under APART. The vehicles were formally distributed to the FPCs by Hon Agriculture Minister, Shri Atul Borah in presence of Director –Horticulture, Director of Agriculture, and Senior Officials from Deptt of Agriculture and other Senior Officials on 11th August 2023 at Directorate of Horticulture and Food Processing, Khanapara, Guwahati.



Hon Agriculture Minister in his speech encouraged the FPCs to use the transport unit judiciously and build business activities by transporting the Agri Horti commodities on time to the market. He hoped that FPCs would be self sustainable by business development and market their products and bringing more income to the farmers of their area. He appreciated the Directorate of Horticulture for the initiative taken to strengthen the FPCs.

The FPCs were drawn from different districts of Assam. They are (1) Biswanath Jaibik PCL, Biswanath, (2) Fhehujali FPC Ltd, Biswanath, (3) Mandia Milonjyoti FPC, Barpeta, (4) Barpeta Luitporia Krishi Vikash FPC, Barpeta, (5) Palonghat Agro Project FPC Ltd, Cachar, (6) Kuchdhuwa Akota FPCL, Goalpara, (7) Brhamaputra Valley FPC, Golaghat, (8) Athkhelia Agro FPCL, Golaghat, (9) Jhanjipariya Agri Horti FPC Ltd, Jorhat, (10) Jengraimukh Agri FPC Ltd, Majuli, (11) Mapakai Agro Producer Co Ltd, Kamrup, (12) Sonali FPCL, Kamrup, (13) Najar Agro Producer Co Ltd, Kokrajhar, (14) Nomami FPC, Morigaon, (15) Noipam Agro Producer Co Ltd, Nagaon, (16) Laokhuwa Agro Producer Co Ltd, Nagaon, (17) Jaymoti FPC, Sonitpur, (18) Majiya FPC, Sonitpur, (19) Na Suruj Agro Producer Co Ltd, Darrang, (20) Mousumi Agro Producer Co Ltd, Darrang.



Natural Farming Conclave , 19th May, 2023

A Conclave on Natural Farming was conducted at Venue: Srimanta Sankardeva Kalakshetra, Panjabari, Guwahati-37 on Date: 19th May, 2023. Governor of Gujarat Acharya Devvrat while addressing the Natural Farming Conclave 2023 said that a movement on 'Natural Farming' in the state of Assam can be heralded. The Honourable Governor of Gujarat highlighting the natural farming model, said that India has been an agriculture-based country by nature and culture and Assam has huge potential in natural farming that can play a pivotal role in spreading this form of farming that was practiced by our ancestors.

Acharya Devvrat further spoke on the benefits of natural farming and the way it is practised. He said that the mass movement to adopt natural farming will be widely successful in the coming years and the sooner farmers join this change, the more they will reap its benefits. Hon Chief Minister Dr Himanta Biswa Sarma distributed the PMFBY cheques to the beneficiaries during the Conclave. A total of around Rs 236 Cr of crop insurance will be benefited to 3,24,065 farmers for the year 2021-22.

The main highlights of the Natural Farming Conclave was participation of 3500 farmers from all across the state. Gujarat First lady Smti Darshana Devi, Agriculture Minister of Uttarakhand Shri Ganesh Joshi, Power Minister of Assam, Smti Nandita Garlosa, Minister of Disaster Management Shri Jogen Mohan, Add. Chief Secretary and APC Dr Ashish Kumar Bhutani, Assam Agriculture University VC Shri Bidyut C. Deka, SPD Arias Society Shri Akashdeep, Director of Agriculture Shri Bhaskar Pegu and other Officials of Deptt of Agriculture were present during the Conclave.

A technical session was conducted on the theme: Revisiting Natural Farming and way forward for income generation by conserving ecosystem during the conclave.

In Session 1, Dr Rajeshwar Singh , VC , YS Parmar University, Horticulture and Forestry , Solan, Himachal Pradesh took a session on Cropping System Approach for sustainable farming system He explained why NF is required now. It is required to combat global warming 1.5 C, Climate Change action 2021, to tackle UN verdicts that we have only 60 harvests left if we dont take action, to tackle violence of the green revolution , to reduce poisons in our food due to use of heavy dose of Pesticides and Chemical fertilizers and to tackle Agrarian Distress and Farmer's suicides.

He touched upon on Nine ((9) Principles of Natural Farming as (1) Soil to be covered (2) Minimal disturbance to soil (3) Bio stimulants as necessary catalysts (4) Use of indigenous seed (5) Diverse crops/trees of 15-20 crops (6) Integrate animals into farming (7) Increase organic residues on the soil (8) Pests and diseases management through botanical extracts and (9) No synthetic fertilizers , pesticides and herbicides

Additional principles of NF are : Cow dung , Urine of one cow can rejuvenate 30 acre of land. Plant protection through locally available pest repelling plants , Crop mixing with one short duration crops and one medium duration crops, build a self dependent economy within the village by exchange of inputs.

He said that the main issues in taking up Natural Farming are (i) Lack of awareness (ii) Marketing and Prices of products of NF (iii) Lack of biomass in soil (iv) High cost of Agro inputs (v) Problem in certification of NF products

He explained on benefits of Natural Farming as (i) Farmer centric Agricultural system (ii) Agro ecology based (iii) Increase of soil fertility after crop rotation in NF (iv) Availability of foundation of NF in the local environment (v) Preparation of all inputs used in NF are locally available.

NF is also addressing the 10 principles of Agro ecology. FAO (2018) first described the 10 elements of Agroecology which are-Diversity, Co-creation of knowledge, Synergies, Efficiency, Recycling, Resilience, Human and social values, Culture and food traditions, Responsible governance and Circular and solidarity economy . He explained on ZBNF (Zero Budget Natural Farming) is Crop production without use of any Chemical inputs from outside. ZBNF helps the farmers to be aware about sustainable Agriculture and shows them the path for conservation of Natural Resources. It helps the famers to reduce cost of production due to no use of Chemicals and improve productivity of soil and increase income. Zero Budget Natural Farming is a cultivating method for the natural development of crops without use of chemicals. It is a unique chemical-free method that involves agro-ecology. For the zero-net expenditure it is known as the term zero budget. ZBNF reduces farming expenses and promotes the use of natural fertilizers and local seeds. It uses biological pesticides for crop protection. Farmers can use cow dung, urine, human excreta, plants, natural fertilizers and earthworms. It protects the soil from degradation and decreases the farmer's investment. Zero budget farming is the best method of chemical-free farming drawing from conventional Indian methods.



Natural Farming Conclave , 19th May, 2023

He explained that the four pillars of NF such as **Jivamrit**, **Beejamrit**, **Mulching**, **Whapasa**:

Jivamrit :The process enhances the fertility of soil using cow urine, dung, flour of pulses and jiggery concoction. Jivamrit is sprayed in Nurseries as well as in field by mixing with water. During Natural Farming practices no Chemical fertilizers, Insecticides or Pesticides.

Beejamrit : The process includes treatment of seed using cow dung , urine and lime based formulations. Seed treatment is very important for seed germination as many diseases may infect the seeds during germination. The seeds treated with Beejamrit naturally retains disease resistance properties which increases the seed germination percentage.

Mulching: The process involves creating microclimate using different mulches with trees, crop bio-mass to conserve soil moisture. When we use mulching in soil it automatically creates a favourable enabling environment.

Whapasa:The process involves activating earthworms in the soil in order to create water vapour condensation. Application of Jivamrit and mulching helps in soil air movement, increase organic matters in soil , water retention, increase water in soil and improves soil structure which aids in crop growth and development during drought period.

NF also takes care of many SDGs , SDG1, SDG2, SDG6, SDG 8, SDG9 and SDG 12, SDG 15.

He highlighted the Innovations PKVY (Parampara Krishi Vikash Yojana) (i) Certification of NF products (ii) Sustainable Food System Platform for Natural Farming (iii) Seed Production system strengthening

Session 2: Dr. Prabhakar Rao, Chairman, , Sri Sri Institute of Agricultural Sciences and Technology Trust, Bengaluru, Karnataka took the session 2 on topic Pest Control through Natural Farming system.

He explained that Natural Farming is a chemical-free alias traditional Indian farming practice. It is considered as agro ecology based diversified farming system which integrates crops, trees and livestock with functional biodiversity that largely depends on use of on-farm biomass recycling with major stress on biomass mulching, on-farm production of cow dung urine based formulations for maintaining soil fertility as well as crop protection etc. In natural farming management use of synthetic chemicals are prohibited, the pest management is done by cultural or agronomic, mechanical, biological or by naturally accepted botanical extract. In natural farming neem, cow urine, fermented curd water, dashparni extract, neem-cow urine extract, mixed leaves extract and chilli-garlic extract etc are mainly used in the management of pests. Some of the methods are –

1. NEEMAstra: Neemastra is used to prevent or cure diseases, and kill insects or larvae that eat plant foliage and suck plant sap. This also helps in controlling the reproduction of harmful insects. Neemastra is very easy to prepare and is an effective pest repellent and bio-insecticide for Natural Farming.

Input needed: 200 litre water, 2 kg cow dung, 10 litre cow urine, 10 kg fine paste of neem leaves along with short branches.

Preparation of Neemastra:

- Take 200 litre of water into a drum and add 10 litre of cow urine and 2 kg of Cow dung
- Next, add 10 kg of crushed Neem leaves along with its short stems or branches
- Stir all the above contents in clockwise direction with a thick wooden stick
- Cover the drum with a gunny bag
- Prepare and keep Neemastra in shade to prevent sunlight and rainfall exposure
- Stir the above solution every morning and evening in clockwise direction for one minute
- After 48 hours, filter the solution and store it for use

Method of Application: Use the above prepared and filtered Neemastra without dilution with water. Neemastra so prepared may be stored for use up to 6 months. Controls: All the sucking pests, jassids, aphids, white fly and small caterpillars are controlled by Neemastra.

2. BRAHMAstra: This is a natural insecticide prepared from leaves which have specific alkaloids to repel pests. It controls all sucking pests and hidden caterpillars that are present in pods and fruits.

Input needed: 20 litre Cow Urine, 2 kg Neem leaves along with short stems or branches, 2 kg Karanj leaves, 2 kg Custard Apple leaves, 2 kg Datura leaves, 2 kg Castor leaves, 2 kg Mango leaves and 2 kg Lantana leaves.



Preparation of Brahmastra:

- Take 20 litre of cow urine in a suitable vessel
- Add into it paste of any five leaves as described above in the ingredients
- Boil the above contents on slow flame
- Allow the above contents to cool for 48 hours in shade
- Stir the contents in clockwise direction twice a day for one minute
- After 48 hours, filter the solution and store it in earthen pot for future use
- Brahmastra can be stored for six months

Method of Application: Use 6 litre of Brahmastra diluted with 200 litre of water as foliar spray on the standing crop in one acre field.

Natural Farming Conclave , 19th May, 2023

3. AGNIASTRA: It is used to control all sucking pests and caterpillars.

Input needed: 20 litre cow urine, 2 kg neem leaves paste, 500 gm tobacco powder, 500 gm green chilli paste, 250 gm garlic paste

Preparation of Agniastra:

- Take 20 litre cow urine in a suitable vessel
- Add into it paste of 2 kg neem leaves, 500 gram tobacco powder, 500 gram green chilli paste, 250 gram garlic paste
- Boil the above contents on slow flame
- Allow the above contents to cool for 48 hours in shade
- Stir the contents in clockwise direction twice a day for one minute
- Filter the solution and store it in earthen pot for future use
- Agniastra can be stored for three months

Method of Application: Use 6 litre of Agniastra diluted with 200 litre of water on standing crop in one acre field.

Session 3: Professor (Dr.) Jayanta Deka, Dean, Faculty of Agriculture, AAU, Jorhat during the session 3 on topic “Natural Farming Practices, Perspective & Strategies for promotion” praised the success story of Andhra Pradesh. He expressed his view that Assam has more possibilities of adopting Natural Farming comparing to other states.

He emphasised on practical demonstration of Natural Farming to farmers in order to prove its benefits to farmers. He also stressed on using local varieties for crop production. He focused on ‘Unlearning’ of existing practices first and then proceeding towards ‘Learning’ of Natural Farming practices. He emphasised more on establishing cropping system suitable for Riverine tracts, Char areas, Homesteads and flood affected areas suiting Natural Farming



Dr. J. Deka mentioned extension strategies of promoting Natural Farming through Farmers Producers Company and imparting training on preparation of Agniastra, Brahmastra, Neemastra

Session 4: Interaction with the Farmers

The session was conducted by panellists Dr. Prasanna Pathak, Director of Extension Education, AAU, Jorhat; Shri Samir Bordoloi, Spread NE and Dr. Rajeswar Singh Chandel, Vice Chancellor, Dr. Y.S.Parmar University, Horticulture & Forestry, Solang, Himachal Pradesh.

Participating farmers from different Districts of Assam placed various queries.

Some of the important questions raised during the interactive sessions are as follows:

Farmer Gautam Deka wanted to do sunflower cultivation in 6 bighas of land through natural farming and he asked about the approaches which should be followed during sunflower cultivation. Dr. Rajeshwar Singh advised him to intercrop sunflower crop with one of the pulse crop for better nitrogen availability and to use beejamrit and jeevamrutha. Also he provided his telephone no. for further consultation.

Shri Bishnu Deka farmer engaged in Potato and Pumpkin cultivation, from Farmer Producer Company, Morigaon stated that they were interested and wanted to follow Natural Farming practices and they required a training on Natural Farming for FPC in Assam. Dr. Rajeshwar Singh assured them that the resource person from Himachal Pradesh would come to Assam and impart trainings on the same.

Shri Pulin Gogoi from Sivasagar asked about the management of Leaf Curling diseases of King Chillies. Dr. Rajeshwar Singh have discussed about the disease and advised him to spray Neem insecticides and asked to do seed treatment with beejamrit in next cultivation.

An extensive training programme is required in June with 100 cluster area which was identified for Natural Farming. Director of Extension Education, Dr. Prassana Pathak has assured that they could arrange for the training and demonstration through Krishi Vigyan Kendras under various districts of Assam.

Shri Samir Bordoloi, Spread North East, have briefly described about strength and opportunities of Natural Farming in Assam. He discussed about the diversity of Natural resources, importance of conservation of indigenous kitchen garden “bari” system & forest areas in Assam. He mentioned that they were prepared for imparting any training to interested farmers about Natural Farming.

Natural Farming Conclave , 19th May, 2023

One of the farmers from Kolongporia FPC, Morigaon asked the experts about cracking of Litchi in early stage and rotting of stalks in Mango. Shri. Samir Bordoloi suggested the farmer to treat the infected Litchi plant with 1kg Neem leaf and 1kg raw Cowdung. He further suggested to treat the soil with micronutrient for the management of infected Mango plant.

The session ended with Vote of Thanks given by the Co-Chairman Dr. Atul C. Sarma, JDA, NO, Agriculture Commission, GoA.

Prepared by:

APART Cell , OPIU-Horticulture



Progress on Training and Capacity Building of Farmers Collectives viz Farmer Producer Companies promoted under APART as on 30-09-2023

OPIU-Horticulture has been entrusted with Training and Capacity building for strengthening the FPCs on Organizational Management for strengthening FPC Governance, Financial Management, Legal Compliances and Business plan preparation and CSC establishment.

As on date, OPIU-Horticulture has completed the Training programme as below:

Total batches : **30 Nos**

Total Trainees : **682**

CEOs: **97**

BOD/Promoters : **541**

Accountant : **15**

Members : **23**

Community Organizers of Service Providers: **6**

During the quarter July-September 2023 OPIU-Horticulture

completed 4 batches training for BoDs/ CEOs of 14 FPCs (first batch : 10-11 July 2023 , second batch: 12-13 July 2023, third batch: 14-15 July 2023, fourth batch : 28th -29th August 2023) for APART promoted 14 FPCs (Farmer Producer Company) from Nagaon, Dhubri, Morigaon and Golaghat districts at Extension Education Institute, AAU, Khanapara. The training programme covered Legal Compliances, FPC Operational Management, Business Planning and management etc.

A team of **28 CEOs of FPCs** from APART districts were sent for an exposure visit to Sahyadri Farms , Nasik, Maharashtra (**14th Sep to 19th Sep 2023**). The purpose of the exposure visit is to expose the CEOs to have a hands-on experience on the functioning of high performing FPC of the country in order to visualize the same for their FPC.



Transforming Agriculture: Key Learnings from the Exposure Visit to Sahyadri Farms Nasik, Maharashtra (14th -19th Sept. 2023)

Reported by : Shri Dhanji Jadhav, DAMC, Nagaon

A team of 28 CEOs and 5 officials under APART were sent to Sahyadri Farms, Nasik, Maharashtra and Krushak Mitra Agro Services Pvt Ltd, Sinnar, Maharashtra for exposure cum training programme on growth of FPCs in Agri and allied sector.



Visit Report: Krushak Mitra Agro Services Pvt Ltd, Sinnar, Maharashtra

Date: September 15, 2023

Objectives of the firm (i) **Focus on Farmer-Centric Diversified Business Activities:** To explore the firm's farmer-centric approach across the Agricultural value chain (ii) **Providing Quality Inputs at a Reasonable Price:** To understand how the firm ensures the availability of quality Agricultural inputs at affordable rates (iii) **Crop Diversification and Incremental Income:** To learn about the efforts in crop diversification and increasing farmers' income (iv) **Building Cold Chain Infrastructure:** To explore the firm's initiatives in strengthening cold chain infrastructure for handling multiple commodities. (v) **Sourcing Partner for Modern Trade:** To understand the firm's role as a reliable sourcing partner for modern trade, e-commerce, and exporters.

Key Takeaways :

The visit highlighted several key activities and initiatives of the firm:

1. **Input Aggregation:** Krushak Mitra collaborates with manufacturers of high-quality seeds, biological solutions,

and cattle feed. They distribute these inputs to farmers through Farmer Producer Companies (FPCs) at prices lower than prevailing market rates.

2. **Contract Farming:** The firm introduces high-value crops such as Baby Corn, Paprika, and Jalapenos to farmers ensuring consistent returns and supporting inputs and timely payments to farmers.

3. **Focused Activities:** They have initiatives like women-led FPCs for developing a goat milk project, B2C sales in 50 premium housing societies, input business, contract farming in specialty crops, and sales of cereals and pulses.

4. **Incremental Income:** Over the last four years, farmers have received an incremental income of approximately Rs 1.75 Crores (10%) for select commodities compared to APMC benchmark rates.

5. **Market Linkages :** Krushak Mitra Agro Services directly procures produce from over 50 FPCs, which collectively represent more than 20,000 farmer members. Key customers include Reliance Fresh, Udaan, Ninja Cart, NCDEX, Samunnati, Future Group, Big Basket, Zomato, Omni Active, INT Farms, and Star Bazaar.

6. **Knowledge Partners and Trade Collaborations:** The firm collaborates with esteemed partners such as the Ministry of Agriculture and Farmers Welfare, ICAR, NABARD, Cropin, ICRISAT, Startup India, Abhyudaya Biotech, CSC e-Governance Services Ltd., and Biofuel Circle



Transforming Agriculture: Key Learnings from the Exposure Visit to Sahyadri Farms Nasik, Maharashtra (14th -19th Sept. 2023)

1. Value Chain Opportunities for FPOs: People engaged in FPCs should know the importance of understanding value chain opportunities for Farmer Producer Organizations (FPOs) in input supply, farming, and post-harvest supply chain.

2. Product Spread of Krishak Mitra: Discussed the diverse product spread of Krishak Mitra, covering vegetables, fruits, cereals, pulses, dairy, and meat.

Challenges of Product Spread: Highlighted the challenges faced in various product categories, including perishability, price volatility, cold chain deficiencies, demand variability, quality issues, and farmers' preference for traditional mandi sales.

Strategies for Product Spread:

1. Fruits and Vegetables:

- Create farmer groups to ensure year-round production of multiple vegetables.
- Develop a portfolio of products based on seasonal growth patterns.
- FPOs should take responsibility for quality and quantity.
- Collaborate with e-commerce companies for sales.
- Establish collection centers and cold storage facilities.

• Cereals / Pulses:

- Focus on collection and trade rather than stocking.
- Invest in small warehouses and grain storage solutions.

- Utilize commodity financing from banks/NBFCs.

- Concentrate on select crops and inputs.

• Value Added Products:

- Utilize B and C-grade produce for value-added products.
- Recognize the capital-intensive nature and seasonality of these products.

Allocate substantial resources for branding and marketing.

Focus on the Service Sector:

- Recognized the increasing importance of the service sector in the country's GDP growth.

- Suggested that FPOs can leverage the service sector for their benefit.

- Identified opportunities in smart agri technologies, credit facilitation, logistics, farm mechanization, weather forecasting, energy services, insurance, and contract farming services.

Acknowledged that agriculture is an information-intensive industry.

Qualities of a Reliable Supplier:

Emphasized the importance of being a reliable supplier in terms of quality, consistency, and timely delivery.



Market Linkages and Challenges:

- Highlighted challenges such as varying demands from organized retail, the need for A-grade material, farmer willingness to supply quality material, price benchmarking, and handling B and C-grade materials.

- Mentioned quality risks and the importance of avoiding goods rejection during acceptance.

Noted the significance of working capital availability, as most retailers expect payment within 15 days.

Mr. Sanjay Joshi's guidance encompasses a broad spectrum of topics related to corporate farming, offering insights and strategies to address the challenges and opportunities faced by FPOs in the Agricultural sector.

Transforming Agriculture: Key Learnings from the Exposure Visit to Sahyadri Farms Nasik, Maharashtra (14th -19th Sept. 2023)

Learnings from Sahyadri Farms Nasik on Day 2 and Day 3 (16th Sept to 17th Sept 2023)

Key Takeaways and Learnings:

- Participants gained insights into effective Procurement Management, FPC Legal Compliance & Governance, and the role of Sensartics in data-driven farming.
- The emphasis on state-of-the-art post-harvest facilities, skilled professionals, and research and development in agriculture was highlighted.
- Strategies for sales and marketing, including global networking, direct-to-consumer approaches, and brand building, were discussed.



- The concept of value addition by FPCs, where farmers are both suppliers and shareholders with a commitment to farmers' needs, was emphasized.
- The focus on sustainability, value addition, and effective management is expected to drive positive change in the Agricultural landscape.

At the end of the day, the CEOs were tasked by Navanath Jadhav with identifying challenges, proposing solutions, and envisioning the future of FPCs/FPOs, highlighting the proactive approach required in the industry.

Key Takeaways from Field Visits and Challenges:

Om Gayatri Nursery Visit: The visit covered the following key areas:

1. Quality Seedling and Sapling Preparation:

Participants were provided with a close-up view of Om Gayatri Nursery's techniques for producing high-quality seedlings and saplings. This fundamental step in agriculture is essential for ensuring the cultivation of healthy and productive crops in the field.

2. Introduction of Sapling Technology: The visit included a specialized focus on grape sapling technology, a pivotal element in vineyard management to achieve optimal yields and quality in relation to Grape cultivation.

3. Importance of Technical Support for Farmers: Om Gayatri Nursery underscored the importance of providing technical support to farmers. This support encompasses guidance on crop management, pest control, and other Agricultural practices. Equipping farmers with technical know-how contribute significantly to improve crop yields and overall farm success.

4. Challenges, Solutions, and Vision Building:

The key takeaways from this session were:

1. Challenges in FPCs and Their Sustainable Solutions: CEOs discussed the myriad challenges faced by Farmer Producer Companies (FPCs) and highlighted the need for sustainable solutions. Challenges may include market fluctuations, logistical hurdles, and the overarching goal of ensuring the well-being of member farmers. This session encouraged brainstorming solutions to these pressing issues.

2. Empowering Farmers Through Equitable Agriculture:

Takeaways Sahyadri Processing Plant Visit:

1. Post-Harvest Facilities: Participants were given the opportunity to witness the operations of pack houses and cold storage facilities. Understanding these critical post-harvest facilities is vital for maintaining the quality and freshness of harvested crops, ensuring they reach consumers in optimal condition.

2. Freeze-Drying Technology for Food Preservation: The tour shed light on innovative freeze-drying technology employed for food preservation. Freeze-drying is an advanced method that extends the shelf life of Agricultural products while preserving their nutritional value, contributing to food security and reducing waste.

Transforming Agriculture: Key Learnings from the Exposure Visit to Sahyadri Farms Nasik, Maharashtra (14th -19th Sept. 2023)

Takeaways from Day 4 (Sep 18, 2023):

Takeaways:

- 1. Reducing Input Costs:** Reducing input costs, a significant factor that can significantly impact overall profitability.
- 2. Increasing Quality Production:** Emphasis was placed on the paramount importance of focusing on quality production to meet market demands and gain a competitive edge. Ensuring that crops meet the highest quality standards is vital for success.
- 3. Adopting Technology:** The role of technology in modernizing farming practices, enhancing efficiency, and improving yields was emphasised. The integration of technology into agriculture was presented as a key driver of productivity.

Improving the Supply Chain: Insights were provided into optimizing the supply chain, from farm to market, to reduce



losses and ensure freshness. Efficient supply chain management is critical for profitability.

Market Identification and Development:

Takeaways from the session:

- 1. Strategies for Market Development:** Participants engaged in a discussion on effective strategies to develop and expand markets for Agricultural products. Identifying and capitalizing on market opportunities were central themes.

Expanding Market Reach: The session emphasized the importance of identifying market opportunities and expanding the reach of Farmer Producer Companies (FPCs) to maximize sales and profitability. Connecting with a wider customer base was highlighted.

FPC's Intervention at Farm Level:

Takeaways from the session:

- 1. Improving Global Production:** Strategies were discussed for enhancing Agricultural production on a global scale.

These strategies encompassed considerations for cost-effective and quality production, which are vital for competitiveness.

- 2. Cost of Production:** Understanding and managing the cost of production emerged as a crucial aspect of maintaining profitability. Efficiency in resource utilization was highlighted.

- 3. Quality Production:** The session emphasized the significance of producing high-quality crops that meet market standards and align with consumer preferences. Quality assurance is fundamental for market success.

Marketing Efforts: Effective marketing strategies were discussed to promote FPC products and secure better market access. Building brand awareness and reaching target audiences were central themes.

Post-Harvest Management Facility Development:

Takeaways from the session:

- 1. Research on Soil and Market Production:** Participants were educated on the importance of conducting research on soil conditions and market demand to align production accordingly. Informed decisions are vital for successful post-harvest management.

Infrastructure Importance: Understanding the pivotal role of infrastructure and equipment in post-harvest management was emphasized. The preservation of product quality and longevity is reliant on proper infrastructure.

Financial Management of FPC:

Takeaways from the session :

- 1. Working Capital Circle:** The concept of working capital and its management in the context of agriculture were discussed. The working capital cycle, encompassing inventory, receivables, and advances, was explored in detail.

- 2. Role of Shareholders:** The role of shareholders in supporting the financial sustainability and growth of FPCs was elucidated. The engagement of stakeholders in financial management emerged as a critical factor.



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