

Horticulture Bytes

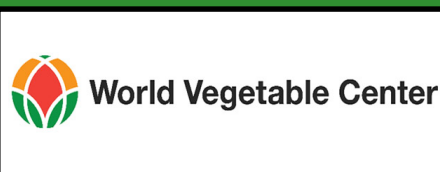
April/ 2023

Fourth 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



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ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT (APART)

Message From The Director's Table

The fourth 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 in the districts has focussed on Potatoes Cafeteria in Rabi Season 2022-23.

Followed by the success of the Potatoes Cafeteria in Rabi Season 2021-22, this current season has tried 6 varieties as *Kufri Surya*, *Kufri Mohan*, *Kufri Jyoti*, *Kufri Himalini*, *Lady Rosetta*, *Yusi Map* across 14 districts of Assam.

OPIU-Horticulture and Food Processing has entered into the crucial peak implementation period of APART for the AWP 2022-23 and has different activities lined up to be implemented in this period which includes rolling out Assam Flower Mission, National Mission for Natural Farming among others like Potatoes Value Chain Development and Vegetables Value Chain Development in collaboration with CIP (International Potatoes Centre, Peru) and World Vegetables Center, Taiwan. .

I hope this issue will be useful for all.

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

In the quarter of January –March 2023 emphasis has been on the area expansion under Potatoes in Rabi season 2022-23 with adoption of 250 ha in APART districts.

Natural Farming which was started as a pilot project under APART in five (5) districts viz Kamrup, Karbi Anglong, Golaghat, Sonitpur and Nagaon with 15 Master Trainers have yielded good results in conducting awareness and training programmes to bring 50 ha under Natural Farming practices in the pilot phase. In the pilot phase total 1390 nos of farmers were trained in 15 clusters in pilot districts on 5 principles of Natural Farming and for preparation of Jeevamrit, Beejamrit, Mulching techniques, biological control of Pest/Diseases Management activities etc.

This activity has been consolidated and streamlined with National Mission for Natural Farming (NMNF) to be implemented by PMU, Department of Agriculture covering 10 more districts of Assam totalling 15 districts viz Barpeta, Dhemaji, Dima Hasao, Kokrajhar, Baksa, Chirang, Odalguri, Goalpara, Dibrugarh and Majuli. An orientation programme was conducted in collaboration on 9th March 2023 at Mumai Tamuli Baruah Farmers Training Centre, Directorate of Horticulture and FP. Two (2) batches (40 participants) of DNOs (District Nodal Officers) from Department of Agriculture were sent for further exposure and training programmes to MANAGE (National Institute of Agricultural Extension Management, Hyderabad (1st batch during 2nd March -4th March 2023, 2nd batch 27th March – 29th March 2023).

The MAP (Medicinal and Aromatic Plants) project which is being implemented with the technical support from Central Institute of Medicinal and Aromatic Plants, popularly known as CIMAP, is a frontier plant research laboratory of Council of Scientific and Industrial Research (CSIR) has been going on for promotion of crops like Tulsi, Vettivar, Lemon Grass and Patchouli. Plantations have been completed in Kokrajhar, Majuli, Goalpara and Lakhimpur. The process of setting up MAP oil extraction unit has been completed in Biswanath Chariali which will be functional soon. A TOT for the Eighteen (18) District Officials and DHCs have been completed on 27th March -29th March 2023 at CIMAP, Lucknow, UP. We look forward for a successful outcome from this intervention which can bring additional income for our farmers to boost export opportunities through “*high value low volume*” product promotion.

OPIU-Horticulture and Food Processing also continued its handholding support to establishment of Farmer Producer Companies (Agri Horti Sector) and has coordinated with the implementing agencies like PwCL, ICCoA, GT Bharat LLP and SIMFED to install a sustained effort in preparation of business plans for setting up CSCs/CHCs (Common Service Centres/Custom Hiring Centres).

We have been entrusted to roll out Assam Flower Mission in this quarter. A batch of Twenty (20) officials from the Department of Agriculture were sent for an exposure visit to IIHR (Institute of Horticultural Research), Bangalore to take forward this mission. We also have to provide rolling out support to Centre of Excellence, Indo Israel Project, Khetri and Govt Nursery, Byrnihat, Assam.

We hope this issue shall be useful for all to continue and sustain the activities under this OPIU-Horticulture and Food Processing.

Shri Bipul Das

SDAO (Horti) cum

Nodal Officer, APART-OPIU (Horti.)



Cluster potato demonstration under Disoi Agro Farmer Producer Company Limited Dergaon Golaghat



Three days residential training cum exposure visit program on potato seed production under APART at CPRI, Jalandhar Punjab.



Healthy seed crop of Kufri Surya under net house for seed production programme



Cluster level training on Natural Farming, conducted by the Master Trainer ,Titu Kathar at Patgaon village of Palashbari under Chayani Borduar ADO Circle, Kamrup



Field visit and discussion by Asif Bin Qutub , ARIAS Society with the Pumpkin farmers including APART Beneficiary (2022-23) and CEO , Ampri Orange FPC , AEA regarding business development through market linkage at Malowbari, Khetri, Kamrup



Monitoring team from OPIU-Horticulture, visiting Kokrajhar District on 04/02/2023. Visited Potato Cafeteria and two VCS.



Hon'ble Agriculture Minister Sri Atul Bora accompanied by Director of Horticulture and Food processing, Sri Tiranga Bharatiya sir visited Jaymoti FPC, Sonitpur . They observed machineries provided from different scheme and also harvested contract Farming potato by potato harvester.



Tomato Minimum Tillage demo Athgaon, Podumoni (Golaghat)



Banana plantation in progress at Pokhila FPC Rani



Market linkage done by APART ,Bongaigaon of LR variety (9MT @ Rs 12.5 per Kg including transportation cost) with Siddhivinayak under Krishijyoti FPC and contract farming of FC11 variety with Pepsico
(Total 90 MT including today's 12MT @ Rs 11.5 per Kg) under Joha Rice FPC.



Field day conducted at Dakarghat village under Deodhar ADO Circle, Pakhimoria block on potato varietal cafeteria under APART 2022-23 in presence of State Nodal Officer, DoH & FP, DAO, Nagaon, DNO APART, Senior ADO Ghy, BTM- Pakhimoria, DHC1 & DHC 2, TO- WVC, Media Expert, officials from Dist. Agril. Statistics dept., Nagaon District



তেভেলীয়া এগ্ৰো অগেনিক ফাৰ্মাৰ প্ৰতিভাচাৰ কোম্পানীক প্ৰশংসা চকলেট খেতি পৰিদৰ্শন কৃষি মন্ত্ৰী অতুল বৰাৰ

প্ৰতিদিন বিশেষ সংবাদ, সোণাপুৰ, ২৩ মাৰ্চ : বৰ্তমান চৰকাৰৰ দিনত দিগন্ত জ্ঞানত বছৰৰ ভিতৰত কৃষি খণ্ডত ব্যাপক পৰিৱৰ্তন আহিছে আৰু কৃষকসকল যথেষ্ট উপকৃত হৈছে। কৃষি মন্ত্ৰী অতুল বৰাই আজি সোণাপুৰত এইদৰে মত প্ৰকাশ কৰে। আজি সোণাপুৰৰ বিভিন্ন অঞ্চলত কৃষকসকলে কৰা খেতি পৰিদৰ্শন কৰাৰ কাৰণত সংবাদ মাধ্যমেৰে হোৱা বাৰ্তালাপত ৰাজ্যৰ মুখ্যমন্ত্ৰীয়ে কৃষি খণ্ডত যথেষ্ট গুৰুত্ব আৰোপ কৰাৰ কথা উল্লেখ কৰাৰ লগতে এইবাৰ বাজেটেও দাৰিল্য সীমাবদ্ধতাৰ তলত ব্যক্তিগত দুই লাখ টকাকৈ আগবঢ়োৱাৰ ফলত কৃষকসকল উপকৃত হ'ব বুলি তেওঁ আশা প্ৰকাশ কৰে। উল্লেখ্য যে কৃষি মন্ত্ৰীগৰাকীয়ে সোণাপুৰৰ তেভেলীয়া এগ্ৰো অগেনিক ফাৰ্মাৰ প্ৰতিভাচাৰ কোম্পানীৰ অধীনৰ ধেমাই-মৌপুৰস্থিত কৃষি ফাৰ্ম পৰিদৰ্শন কৰি কোম্পানীটোৱে আৰম্ভ কৰা চকলেট, জালুক, মধুৰী, নেমু আদি খেতি পৰিদৰ্শন কৰি সন্তোষ প্ৰকাশ কৰে। তদুপৰি তেওঁ প্ৰতিষ্ঠানটোৰ কৃষি পদ্ধতিক উচ্চ প্ৰশংসা কৰে আৰু কৃষি বিভাগৰ পৰা সকলো ধৰণৰ সহায়-সহযোগ আগবঢ়োৱাৰ আশ্বাস প্ৰদান কৰে। ইপিনে সোণাপুৰৰ বৰখাটৰ বৰেন বৰুৱা নামৰ কৃষকজনে নিজ ঘৰৰ চৌহদতে কৰা নাৰ্ছৰীখনো পৰিদৰ্শন কৰি মন্ত্ৰী বৰাই কৃষকজনৰ কৰ্মৰ শ্লাগ লয়। উল্লেখ্য যে কৃষকজনে এপাৰ্টৰ জৰিয়তে এক লাখ টকাৰ কল আৰু প্ৰশিক্ষণ লৈ ঘৰৰ সমুখ ভাগৰ কল মাটিতে এখন নাৰ্ছৰী গঢ়ি স্বাবলক্ষনৰ দিশে আগবাঢ়ি আহুৱাইসকলক আৰ্থি দেখুৱাইছে।



Vetiver Plantation, Dhemaji District



Cross Border Market linkage- Meet with RAMCO, Gelephu, Bhutan, Kokrajhar District

A brief report on Potatoes Cafeteria Rabi Season FY 2022-23

Potato productivity in Assam is between 7-10 ton/ha, which is very low compared to national average of about 23.0 ton/ha. As a result, it has to import potato from neighbouring states like West Bengal, Meghalaya and even U.P and Punjab every year owing to huge gap between demand and supply. Potato productivity can be improved by adopting good quality seed, improved production technologies and advanced Management Practices according to geography.

The main objective of Potatoes Cafeteria was to showcase different varieties in one plot of land to find out the suitable varieties both for table purpose and processing purpose. Crop Cafeteria provided an opportunity to witness relative performances of various varieties of potato having different maturity period, diseases resistance, purposes (table/ processing), tuber shape, size colour, uniformity along with suitable agronomic production technologies. Generally, a demonstration plot involves one or two varieties, but the crop Cafeteria gives a broader choice and opportunity to evaluate relative performances of various varieties. The Cafeteria offered practical experiences based on the concept of '*seeing is believing*' and for disseminating technical know-how to the farmers and extension officials

One of the objective was dissemination of the improved varieties & agronomic practices among the farming community where diverse improved varieties along with best management practices for potato production has been demonstrated in 14 district of Assam. Crop cafeteria provides an opportunity to witness relative performances of various varieties of potato having different maturity period, diseases resistance, purposes (table/ processing), tuber shape, size colour, uniformity along with suitable agronomic production technologies. Generally, the demonstration involves one or two varieties, but the crop cafeteria gives a broader choice and opportunity to evaluate relative performances of various varieties. It offers practical experiences based on the concept of '*seeing is believing*' and for disseminating technical know-how to the farmers and extension officials

For disseminating the improved varieties & Agronomic practices among the farming community a concept of Crop Cafeteria is planned where diverse improved varieties along with best management practices for potato production, have been demonstrated at 14 APART districts of Assam

The Six numbers of Potato varieties selected for Technology Demonstration in Potatoes Cafeteria were **Kufri Surya , Lady Rossetta , Kufri Himalini , Kufri Mohan , Yusi map and Kufri Jyoti.**

Area selected for Cafeteria was 1 bigha (preferably 100 sq meter for each variety) Lengthwise, preferably 10 meter and width according to availability of seed (number of lines is flexible) for each varieties.

All the 14 Districts successfully completed the activity in respective districts with keen interest and Department of Agriculture and ATMA played a vital role in implementation of the activity which showcased a successful model of implementation of Cafeteria .

The Main Objectives of the Potatoes Cafeteria :

- To showcase different varieties in one plot of land to find out the suitable varieties both for table purpose and processing purpose.
- To accelerate the uptake and sustainable adoption of the varieties at key selected locations
- To engage farmers to understand and see the performance of the Potatoes varieties
- To strengthen learning and adoption behavior by systematic evaluation of multiple varieties in laid out crop cafeteria
- To create mass awareness and sensitization about suitable Potatoes varieties, their characteristics and performances
- To promote double cropping of Potatoes followed by Rice.

District-wise Report (Potato Cafeteria)

Barpeta : Based on the outcomes of the study, it was proposed for Barpeta district as Yusi Maap as table purpose variety. This variety is red skinned, resistant to late blight, which is a major plant protection issue in Assam and farmers preferred most due to its pest and disease resistance, higher yield and red skinned. From the crop cutting report highest total yield was recorded in Yusi Maap with marketable size in table variety, the weight of tubers found maximum was 430 gram. By dehaulming practice, post harvest quality like hardening of the tubers has been observed and which reduces injuries during post harvest handling. Haulm cutting can also prevent spreading of late blight.

For processing purpose Lady Rosetta is suitable for Barpeta district, due to high demand in potato chips making industries and are able to get better price and stable market over table variety. Lady Rosetta was preferred by the farmers due to its appropriate size, sphericity, red skin and for better marketing preferences.

Bongaigaon : It has been found from analysis that the variety Kufri Mohan (V3) performed very well in terms of yield which is followed by Kufri Himalini (V6) and Yusi Maap (V2). In terms of disease resistance, all six varieties including Kufri Surya and Kufri Himalini are quite resistant to blight disease. However the variety Lady Rosetta and Kufri Jyoti shows tolerance to blight disease as per our observations. It is observed that Processing Variety requires more fertilizer dose than table variety. Kufri Surya was found affected by leaf curling disease from the tuber itself due to which yield of Kufri Surya found lowest. Yusi Maap is seen resistant to bacterial wilt. Kufri Mohan have more no of tubers per plant. It was also observed that the practice of Dehaulming not only tighten the skin of potato but also increases the size of tuber. Application of sulphate of potash also found beneficial for increasing size of small tubers and uniformity in size. Considering the results, it can be concluded that the variety Kufri Mohan, Yusi Maap and Kufri Himalini will be suitable for our region as table purpose. If we look into the processing variety, Lady Rosetta, Kufri Jyoti found higher yielder as per our field observation, however Lady Rosetta is having good storage quality. So, it can be said that, in terms of processing and market demand point of view, Lady Rosetta variety is suitable for our region.

Cachar : From field observations it is seen that the variety Kufri Jyoti performed very well in terms of yield which is followed by Kufri Surya. It can be concluded that the variety Kufri Jyoti and Kufri Surya will be suitable for the district as table purpose. For processing variety, Lady Rosetta performed well as per our field observation. Hence Lady Rosetta can be recommended for processing purpose for the district.

Darrang : Considering the results, it can be concluded that the variety kufri Himalini, Kufri Mohan and Kufri Surya will be suitable for Darrang district as table purpose. Regarding processing variety, we have found yield of Yusi Maap is higher than Lady Rosetta. However, as per our field observation during last 3 years Lady Rosetta also preferred due to its appropriate size, red skin and for better marketing preferences. Both the two processing varieties i.e Yusi Maap and Lady Rosetta are suitable for Darrang district, both the varieties has demand in potato chips making industries and are able to get better price and stable market over table variety.

Golaghat : On the basis of the findings of the study, it is recommended that Kufri Surya and Kufri Mohan are the best table purpose potato variety for Golaghat district. Both the varieties are moderately resistant to late blight disease which is one of the major worrying factors for potato cultivation in the state of Assam. It is important to mention here is that the Department of Agriculture, Golaghat is conducting field demonstrations on various new variety and advanced production technology of potato under the banner of APART project in the district for the last four years. Based on the feedback received from the beneficiary farmers, it is found that Kufri Surya is the most successful as table variety because of uniform tuber sizes, better yield, good keeping quality, good storability, suitable for early planting, cream flesh colour, easy to cook and semi compact canopy.

From the crop cutting report, Yusi maap showed the highest total yield. The weight of tubers were found maximum 380 gram under Raised bed+ Straw mulching demo plot and Chipsona 3 in processing variety. Under both the advanced technologies, the production is found to be higher than traditional method.

The tuber weight per hill showed a remarkable increase with the age of the plant and after haulm cutting. Dehaulming practice helps in certain post harvesting qualities like hardening of the tubers which in turn reduces injuries during post harvest handling. Another important aspect of haulm cutting is observed that it prevents spreading of late blight disease.

In case of the processing varieties, Lady Rosetta looks promising as it has the demand for the Potato chips manufacturing industries. Farmers are getting better market price and it is selling higher than the table varieties. Lady Rosetta is more preferred by the farmers because of its suitable size, sphericity red skin, medium maturity, good storability, more dry matter (21%), resistance to multiple diseases like PVY, PLRV, PVS, ALCV, better marketing preference and light yellow flesh colour.

District-wise Report (Potato Cafeteria)

Hailakandi : According to the yield statistics of the Potato Cafeteria, it was observed that highest yield was found in Kufri Mohan followed by Kufri Jyoti and lowest yield was found in Kufri Surya. As compared to processing varieties, market price of table varieties was found to be less market remunerative.

From the observation, it was found that tuber size is small in comparison as the farmer could not provide the proper irrigation in the field. Also regarding blight infestation, it was found that Kufri Himalini is more susceptible to late Blight disease.

From the observation, the varieties can be graded as- K. Mohan as No1, K. Jyoti as No 2 , Yusi Map as No 3, K.Himalini as No 4, Lady Rossetta as No 5, K. Surya as No 6.

Jorhat : From analysis, we have found that, the variety Yusi Map performed very well in terms of yield which is followed by Kufri Jyoti and Kufri Himalini. In terms of disease resistance, the variety Kufri Himalini and Kufri Mohan is quite resistant to blight disease. However the variety Yusi Map shows tolerance to blight disease as per our observation. The variety Lady Rosetta shows very sensitiveness to blight disease.

Considering the results, it can be concluded that the variety Kufri Jyoti and Kufri Himalini will be suitable for our region as table purpose. If we look into the processing variety, Yusi Map is higher yielder than Lady Rosseta as per our field observation, however Lady Rosseta is having good storage quality as per last year experience.

Karbi Anglong : On the basis of the findings of the study, it is recommended that Kufri Surya ,Kufri Mohan and Kufri Jyoti are the best table purpose potato variety in West Karbi Anglong district . The varieties are moderately resistant to late blight disease.

Kamrup: From the results it can be concluded that for Table purpose , Yusimap followed by K. Mohan can be recommended. Yusimap has shown almost all the tuber sizes are uniform in size and resistant to Bacterial Blight and Pest and Production is good. For K. Mohan, production is satisfactory and less susceptible to Bacterial Blight. K. Surya has shown satisfactory production. K. Himalini has shown moderately susceptible results to Bacterial blight.

For Processing variety, Size of the tubers are good resistant to Bacterial Blight and Pest. This variety had shown its uniform maturity in 80 DAP.

Kokrajhar : We have found that. the variety Yusi Map performed very well in terms of yield which is followed by Kufri Jyoti and Kufri Himalini. In terms of disease resistance. the variety Kufri Himalini and Kufri Mohan is quite resistant to blight disease. However the variety Yusi Map shows tolerance to blight disease as per our observation.

The variety Lady Rosetta shows higher sensitiveness to blight disease. Considering the results it can be concluded that the variety Kufri Jyoti and Kufri Himalini will be suitable for our region as table purpose. If we look into the processing variety, Yusi Map gives higher yielder than Lady Rosseta as per our field observation, however Lady Rosseta is having good storage quality as per last year experience and till now we have not checked the storage quality of Yusi Map. Thereby, it can be said that, in terms of processing. both the two varieties are suitable for our region.

On the basis of findings of the study, it is recommended that Yusi map, Kufri mohan, Kufri himalini and Kufri surya are the best table purpose potato varieties for Kokrajhar district. These varieties are having good resistance to blight diseases and also performed good yield. The Yusi map & Kufri surya variety has a very good market and consumer demands in Kokrajhar district because of their attractive appearances, colour, shape and beautiful skin, good texture, taste, good storability.

The Processing variety, i.e. *Lady rosetta* is a promising variety with good yield and multiple diseases and pest resistance. The Lady Rosetta has good market price and consumers demand in the local markets also because of its colour and good storability. Therefore, both the *Lady rosetta* variety is recommendable to farmers for large scale commercial cultivations as this variety has guaranteed market demand by different processing industries.

Majuli: Considering the results, it can be concluded that the variety Kufri Jyoti, Kufri Suriya and Yusi map will be suitable for our region as table purpose. If we look into the processing variety, Lady Rosseta is having good storage quality as per last year experience thereby, it can be said that, in terms of processing, LR is suitable for our region.

District-wise Report (Potato Cafeteria)

Morigaon :

We have found that, the variety Yusi Map (V1) performed very well in terms of yield which is followed by Kufri Mohan (V2) and Lady Rosetta (V3). In terms of disease resistance, the variety Lady Rosetta and Kufri Surya is quite resistant to blight disease. However the variety Lady Rosetta and Yusi map shows tolerance to blight disease as per our observation. Considering the results, it can be concluded that the variety Yusi Map and Kufri Mohan will be suitable for our region as table purpose. If we look into the processing variety, Lady Rosetta has been found to be suitable in terms of yield.

Lakhimpur:

On the basis of the findings of the study, it is recommended that Kufri Surya ,Kufri Mohan followed by Kufri Himalini are the best table purpose potato variety for Lakhimpur district . The varieties are moderately resistant to late blight disease. In case of the processing varieties Lady Rosetta is suitable for Lakhimpur district.

Nagaon :

It has been found that the variety Yusi-map performed very well in terms of yield which is followed by Kufri Jyoti and Kufri Mohan. In terms of disease resistance the variety Yusi map and Kufri Mohan shows resistance to blight disease as per our observation. And Kufri Jyoti and Lady Rosetta show tolerant to blight disease.

Considering the results, it can be concluded that the variety Kufri Jyoti and Kufri Mohan will be suitable for our region as table purpose. If we look into the processing variety, Yusi map is higher yielder than Lady Rosetta as per our field observation. However both Yusi map and Lady Rosetta are having good storage quality. Hence both the processing varieties can be recommended for processing purpose for this region.

Nalbari :

It has been found that the variety Yusi-map performed very well in terms of yield which is followed by Kufri Jyoti and Lady Rosetta. In terms of disease resistance the variety Yusi map and Kufri Surya shows resistance to blight disease as per our observation.

Considering the results, it can be concluded that the variety Kufri Surya and Kufri Jyoti will be suitable for our region as table purpose. If we look into the processing variety, Yusi map is higher yielder than Lady Rosetta as per our field observation. However both Yusi map and Lady Rosetta are having good storage quality. Hence both the processing varieties can be recommended for processing purpose for this region.

Sonitpur (Biswanath) :

From the yield data of potato Crop Cafeteria it has been observed that highest yield was found in var. kufri Mohan followed by Yusi Map and lady Rosetta . For table purpose varieties K. Mohan and K. Jyoti shows desirable results. The market price of the processing varieties are higher compared to table purpose varieties. From the observation regarding blight infestation we have found that Lady rosetta and K. himalini are somewhat more susceptible to blight diseases.

From the observations the varieties can be graded as below: From the observation, the varieties can be graded as- K. Mohan as No1, Yusi Map as No 2 , Lady Rosetta as No 3, K. Jyoti as No 4, K. Surya as No 5, K. Himalini as No 6.

Sivasagar :

On the basis of the findings of the study, it is recommended that Kufri Surya ,Kufri Mohan and Kufri Jyoti are the best table purpose potato variety for Sivasagar district . The varieties are moderately resistant to late blight disease. In case of the processing varieties, Lady Rosetta is suitable for Sivasagar district.



Field day on cauliflower **Bongaigaon**

Variety: Megha. Yield: 30.10 Q per bigha .
Selling price :@ Rs. 25/Kg .
Beneficiary informed that the selling of cauliflower is very easy in the market due to superior quality of cauliflower of demo plot as compared to others .



Grafting: Brinjal & Tomato, Kamrup



Potato seeds are being harvested from first year intervention under low cost insect proof net house at Agdia Pathar under Sarukhetri block on 10/3/23, Variety: Kufri Surya, Yield in 5×5m² is 57.14 kg, Barpeta District



Installation cum demo of Chips making machine at Chiranjivee VCS
at Gabharu block, Sonitpur District

A note on progress of Assam Floriculture Mission

Floriculture is one of the most potential components of Horticulture industry, being important from aesthetic, social and economic point of views. It has the potential for generating employment opportunities round the year and earning foreign exchange. In many countries, different floricultural value-added products are the main export items from the agriculture sector. It has got huge domestic market in a country like India.

Floriculture is a high-income generating enterprise having potential to create employment for rural as well as urban youths. **Agro-climatic conditions of Assam offer an excellent opportunity for floriculture**, but it has not flourished in Assam owing to various constraints. With proper planning and execution floriculture can play a vital role in increasing farmers' income as well as fulfilling the vision of making Assam self sufficient in flower sector. **Status of Assam in Floriculture:**

Assam has a market for Flowers, Ornamental plants, Value added products & Services and the Value of flower, ornamental plants & value added products consumed by the state Approx. INR 135 Crore annually. The Value of local Production approx. INR 15 Crore annually. There is a deficit of approx. INR 120 Crore annually. To tap this deficit AFM is proposed which will help in increasing farmers income.

Objectives of the AFM:

The Assam Floriculture Mission is being taken up with key objectives of Enhancing net income of farmers with primary focus on floriculture, Intensification of floricultural activities through mass adoption of protected and open cultivation of high value flowers, Development of skill and capacity building of flower growers-create opportunity for self-employment for adoption of high-tech floriculture to enhance production and market competitiveness, Self-sufficiency in commercial floriculture by production of quality planting materials and Additional income generation by value addition flowers.

There are 5 (five) objectives in this mission. **Objective 1:** Enhancement of net income of farmers with primary focus on floriculture. **Objective 2:** Intensification of floricultural activities through mass adoption of protected and open cultivation of high value flowers. **Objective 3:** Development of skill and capacity building of flower growers- create opportunity for self employment for adoption of high-tech floriculture to enhance production and market competitiveness. **Objective 4:** Self-sufficiency in commercial floriculture by production of quality planting materials. **Objective 5:** Additional income generation by value addition of flowers

Floriculture covers 2200 Ha of area in Assam which is less than 1% of total area under cultivation. To increase the area under floriculture, technology demonstration on scientific package of practices will be taken up under the mission including development of nursery for production of quality planting materials and protected cultivation of high value flowers. Over a period of 5 years, area under floriculture will be increased from existing 2200 Ha to 3715.39 Ha.

The mission proposes area expansion from 2,200 hectare to 3,288 hectare over a period of 3 years. The AFM is being implemented in 15 districts of Assam where Floriculture activities are going on at a small scale viz (1) Kamrup (2) Kamrup (M) (3) Nalbari (4) Kokrajhar (5) Chirang (6) Morigaon (7) Nagaon (8) Golaghat (9) Jorhat (10) Dibrugarh (11) Sivasagar (12) Tinsukia (13) Dima Hasao (14) Karbi Anglong (15) Sonitpur covering 19075 flower growers of the state.

Stakeholders of the AFM:

The stakeholders of the mission are Department of Agriculture, Directorate of Horticulture and Food Processing, Horticulture Research Station, Kahikuchi, Assam Agricultural University, APEDA, ASOCA, Assam Seed Corporation.

A note on progress of Assam Floriculture Mission

The AFM will be implemented through the following components :

Area Expansion (Cut & Loose Flowers) : For area expansion of Cut and Loose flowers, under Open cultivation , in Winter Marigold, Gladiolus, Chrysanthemum, Lilium are proposed. In Summer Marigold, Lotus, Tuberose are proposed. Under Protected cultivation Gerbera, Orchid, Anthurium, Green Foliage plants, Dutch Rose are proposed.

Development of Floriculture nursery for quality planting materials production: AFM proposes establishment of mother block in the 2nd year. In the subsequent years multiplication are proposed.

Post Harvest Management: In Post Harvest Management section , provision for Pack House Up to 80% subsidized rate to FPCs/ Farmer groups. Provision for Transport Vehicles Up to 80% subsidized rate to FPCs/ Farmer groups Provision for refrigerated van at Rs.13 Lakh (9 MT capacity) subsidized rate to FPCs/ Farmer groups are proposed. In Value addition facilities to FPCs/ farmer groups : Agarbatti units up to 80% subsidized rate and Essential & Aromatic Oil Extraction unit up to 80% subsidized rate are proposed.

Market Linkage: In Market Linkage development of Wholesale flower market (Existing /New) are proposed along with exploring the potential of export.

F. Capacity Building : Under this component , Training of Farmers and Officials on production technology, post harvest management and value addition shall be provided along with exposure visits of farmers and officials.

Status so far:

The AFM will be supported under APART for first one and half years to be coordinated by OPIU- Horticulture and FP. The mission has been rolled out through exposure visit of 20 (Twenty) nos of State Level Nodal Officers and District Nodal Officers of Department of Agriculture to IIHR (Indian Institute of Horticulture Research) , Bangalore 25th March to 30th March 2023 coordinated by OPIU- APART Cell



Status Report on progress of Natural Farming

In ancient times, the farmers mainly practised growing of crops which are naturally found by using the natural resources. With time farmers became more production oriented and as a result they have given emphasis on judicious use of chemical fertilisers, pesticides and use of farm mechanisation, use of hybrid seed etc. to get more production in short period. This leads to the distortion of cultivable land due to repeated intensive ploughing practices resulted in unfertile soil and health hazards. Natural Farming offers a solution to various problems, such as food insecurity, farmers' distress, and health problems arising due to pesticide and fertilizer residue in food and water, global warming, climate change and natural calamities. It also has the potential to generate employment, thereby stemming the migration of rural youth. Natural Farming, as the name suggests, is the art, practice and, increasingly, the science of working with nature to achieve much more with less.

9 Principles of Natural Farming are :

- Soil to be covered
- Minimal disturbance to soil
- Bio stimulants as necessary catalysts
- Use of indigenous seed
- Diverse crops/trees of 15-20 crops
- Integrate animals into farming
- Increase organic residues on the soil
- Pests and diseases management through botanical extracts and
- No synthetic fertilizers , pesticides and herbicides

ZBNF is based on 5 pillars:

- Jivamrit:** The process enhances the fertility of soil using cow urine, dung, flour of pulses and jiggery concoction.
- Beejamrit :** The process includes treatment of seed using cow dung , urine and lime based formulations.
- Mulching:** The process involves creating microclimate using different mulches with trees, crop bio-mass to conserve soil moisture.
- “Whapasa” (Return to Natural Farming) :** The process involves activating earthworms in the soil in order to create water vapour condensation.
- Plant Protection:** The process involves spraying of biological concoctions which prevents pests, diseases and weed problems and protects the plant and improve soil fertility.

With these objectives APART project has included natural farming demonstration in the Annual work plan of 2022-23 on pilot basis for 5 districts of Assam viz Kamrup, Karbi Anglong, Golaghat, Sonitpur and Nagaon implemented by OPIU- Horticulture & Food Processing, Directorate of Horticulture and FP, Khanapara , Guwahati. Followed by the pilot project the Mission on Natural Farming has been initiated by Directorate of Agriculture covering selected 10 more districts of Assam **totalling 15 districts** viz Barpeta, Dhemaji, Dima Hasao, Kokrajhar, Baksa , Chirang, Odalguri, Goalpara, Dibrugarh and Majuli. The initial grounding has been anchored by OPIU-DoHFP in collaboration with Department of Agriculture

The details of milestones achieved under Natural Farming

Sl No	Training	Participants	Nos	Duration	Venue	Level of Training	Dates	Remark
1	Natural Farming – Principles and Practices	District Horticulture Coordinator	5	3 days	Spread NE Learning Centre , Sonapur	State Level	17 th August to 19 th August 2022	First Residential Orientation Training Programme
2	Natural Farming – Principles and Practices	Master Trainers	15	3 days	Spread NE Learning Centre , Sonapur	State Level	17 th August to 19 th August 2022	First Residential Orientation Training Programme
3	Practical Training by Master Trainer at Village Level	Farmers	374	1 day	Kamrup District all block	Village Level	September 2022 onwards till February 2023	These trainings are conducted at village level by Master Trainer
4	Practical Training by Master Trainer at Village Level	Farmers	496	1 day	Nagaon District all block	Village Level	September 2022 onwards till February 2023	These trainings are conducted at village level by Master Trainer
5	Practical Training by Master Trainer at Village Level	Farmers	271	1 day	Golaghat District all block	Village Level	September 2022 onwards till February 2023	These trainings are conducted at village level by Master Trainer
6	Practical Training by Master Trainer at Village Level	Farmers	249	1 day	Sonitpur District all block	Village Level	September 2022 onwards till February 2023	These trainings are conducted at village level by Master Trainer
7	Residential Training and awareness programme for Champion Farmers on Natural Farming	Champion Farmers for DoA	36	2 days	Directorate of Extension Education , AAU, Khanapara	State Level	14 th Feb to 15 th Feb 2023	Practical Training done at Master Trainer farm at Dhireswar Tiwa's farm in Sonapur

The details of milestones achieved under Natural Farming

Sl No	Training	Participants	Nos	Duration	Venue	Level of Training	Dates	Remark
8	Residential Training and awareness programme for Champion Farmers on Natural Farming	Champion Farmers for DoA	30	2 days	Directorate of Extension Education , AAU, Khanapara	State Level	24 th Feb to 25 th Feb 2023	Practical Training done at Master Trainer farm at Dhireswar Tiwa's farm in Sonapur
9	Exposure Visit to MANAGE, Hyderabad	DoA Officials , DHCs	20	4 days	MANAGE, Hyderabad, Andhra Pradesh	National Level	2 nd March to 4 th March 2023	
10	Orientation on Natural Farming	District Nodal Officers and BTMs	30	1 day	Mumai Tamuli Baruah Farmers Training Center	State Level	9 th March 2023	
11	Exposure Visit to MANAGE, Hyderabad	DoA Officials , DHCs	20	4 days	MANAGE, Hyderabad, Andhra Pradesh	National Level	27 th March – 29 th March 2023	
12	Workshop on National Mission on Natural Farming	DoA Officials/ Champion Farmers	100	1 day	AASC, Jayanagar, Khanapara, Guwahati	Regional Level	27 th March 2023	

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