

# Krishi Rupantar

20<sup>th</sup> Issue  
JANUARY 2021

## Behind the success of a farmer: A story

Sri Kamal Pegu of Khot Khoti Kachari Gaon in Karbi-Anglong district of Assam used to grow paddy in his 20 bighas of land to support his family. He has been working hard but the production was hardly sufficient for this family. He could only produce

around 15 to 20 quintals of rice, which made it difficult for him to be self-sufficient. With no alternative means of livelihood, he was planning to take up some private job, to support his family.

The Krishi Vigyan Kendra, Diphu and International Rice Research Institute (IRRI) under the Assam Agribusiness and Rural Transformation Project (APART) had organized training on advanced agricultural technology at Khot Khoti village, and Kamal attended the same with much enthusiasm. Kamal was so impressed with the learnings that he instantly decided to adopt the new technologies in his field for paddy cultivation.

weed, fertilizer, water, and could harvest around 45 -50 quintals of paddy from the same plot, where he practised traditional methods earlier. Kamal Pegu understood the advantage of STRV seeds and preserved it in IRRI super bag for the next Sali season.

Kamal Pegu expresses his thankfulness to KVK and IRRI team and also to APART for introducing new and advanced technologies



Kamal Pegu in his demonstration plot

With technical guidance from KVK, APART, Diphu and technical experts of IRRI, he took up the cultivation of Ranjit Sub 1, a stress-tolerant rice variety followed by best management practices for

for rice cultivation. He is now a role model for other farmers of the village who are interested to adopt the new technologies for a better harvest.

## Farmer's details

Name	:	Kamal Pegu
Father's name	:	Late Sri Dilaram Pegu
Age	:	45 years
Village	:	Khot Khoti Kachari Gaon
Block	:	Bokajan
PO/ PS	:	Khot Khoti
District	:	Karbi Anglong

*Contributed by*

Pradumnya Mahapatra and Dibyarishi Bhattacharya, IRRI

## Horizontal Expansion of Bina Dhan 11: A Case Study

During Sali 2020, Shri Jatin Bangthai of Barukata village under Mayong development block of Morigaon district received 10 kg seeds of BINA Dhan 11 from the District Agriculture Office; Morigaon under IRRI supported ICMD of Assam Agribusiness and Rural Transformation Project (APART).

In the nursery stage of the crop, his rice field was submerged by recurrent floodwaters, several times. Each time, the submergence

of the field lasted for 5-7 days. Due to continuous stress, the water in his nursery turned muddy resulting in 70% damage of the nursery. He could transplant only around 3-kathas of land from the remnant surviving seedlings. Since BINA Dhan 11 variety was a new variety for him, and most of the seedlings were already damaged, he was not sure about the performance of the variety. So, he did not pay any attention or gave any special care to the crop. He was even reluctant



to visit the field during its growth stage, but when he finally did, it amazed him. In the words Jatin, he says “I had given less attention to that plot, thinking that the variety may not perform well. But I was surprised to see the development of the panicles, it was developed fully had a good number of grains in each panicle....says Jatin.

When the crop was matured and ready for harvest, few fellow farmers visited the field and were interested in the new variety i.e Bina Dhan 11. Jatin distributed around 135 kgs of seeds to four of his fellow farmers.



Jatin Bangthai, Barukata

horizontal expansion is also evident from another farmer, Mr Ramu Medhi of Manaha Kachari Gaon under Mayong Block. Mr. Ramu is associated with KVK Morigaon since 2018 and was growing submergence-tolerant rice varieties like Ranjit-Sub1 and Bahadur-Sub 1. During Boro 2019-20, he cultivated 1 ha of BINA Dhan 11, the seeds of which were provided by KVK Morigaon under IRRI-supported demonstration. He transplanted his crop using Mechanical Transplanter and managed to harvest a good production. This drew the attention of his fellow farmers who were extremely satisfied with the performance of BINA Dhan 11. In the Boro season 2020-21, Medhi could sell around 110kgs of Bina Dhan 11 from his saved seeds to seven different farmers@ Rs.12.50/kg.



Ramu Medhi, Manaha Kachari Gaon

The popularity of BINA Dhan 11 among the farmers of Morigaon district and dissemination for

The stress-tolerant varieties introduced through APART have been well accepted by the farmers, who have adopted the demonstrations and have started cultivating at scale.

*Contributors: Dr Kasturi Goswami, IRRRI; Mr Chintumoni Bora, ATM; Mayong Block, DoA Morigaon*

## Rise of Private Service Providers for Farm Mechanization

Mechanization has been considered as an important input to the rice crop cultivation process. As an essential factor/input it enhances the production; reduce human drudgery and overall cost of cultivation. Mechanization also helps in increasing the efficiency of water and fertilizer, easiness in the agricultural operations, improvement in the quality and value addition/processing of the rice crop.

As per the great vision of our Hon'ble Prime Minister making the farm income double by 2022, use of appropriate machinery leads to increase in production and productivity, besides enabling our farmer to go for the second crop or to commercialise agriculture instead of subsistence farming.

In a state like Assam, agriculture sector continues to support more than 75 per cent of the state



Paddy Reaper for paddy cultivation – saving time & labour

employment. Yet, the state is far behind in the use of modern agricultural technology, particularly farm mechanization, to improve its agricultural productivity compared to the rest of the country. During 2014-15, the availability of farm power in Assam was 1.78 HP per hectare which was less as compared to 2.05 HP per hectare at the national level. Use of animal-drawn implements like an indigenous plough and the traditional practices are commonly adopted by the farmers, and its percentage is

quite high for tillage, sowing and intercultural operations, harvesting and threshing etc. A major constraint in the mechanization of rice crop includes small and fragmented land holdings, hill agriculture, poor road infrastructure, the low purchasing power of the farmers, and easy availability of indigenous bull calves. Besides, lack of dealer networks, service centres for repair and replacement facilities, unavailability of spare parts especially in the remote areas, lack of knowledge on the adaptation of different machines and their suitability in specific agro-ecology of various parts of Assam also contribute to the challenges in farm mechanization. Inadequate

and Rural Transformation Project (APART), a World Bank-funded project with technical support from the International Rice Research Institute (IRRI) has introduced different types of machinery for farm mechanization in the state of Assam.

Under the scheme, around 10 different types of machines were received by the Krishi Vigyan Kendra, Barpeta and were demonstrated and used in the farmers' field from the starting of the project in the year 2018-19. Along with the awareness program, the center has also conducted many training programs on-campus and off-campus in association with the IRRI. The training and demonstration program on postharvest machineries under APART, the KVK, Barpeta in collaboration with IRRI, proved to be a source of inspiration for the farmers towards farm mechanization in the district.

<b>Cost of the machine: INR 1, 51,000/-</b>
Total area harvested: <b>393 bigha</b>
Rate charged/bigha: <b>INR 500</b>
<b>A. Total income: INR 1,96,500</b>
Labour cost: <b>INR 35,370</b>
Oil and other miscellaneous cost: <b>INR 19,320</b>
<b>B. Total operational cost: INR 54,690</b>
<b>Net income (A-B) =INR 196500-54,690 =1,41,810</b>

training and handholding facilities for farmer-users and local service providers, faulty operation and maintenance at farmers' level leading to excess recurring cost & increasing safety risks, and lack of proper regulations on custom hiring services are some more hurdles in the journey towards mechanization.

Through the Assam Agribusiness

A farmer named Thuleswar Kalita of Kolbari village of Bhawanipur block, Barpeta district participated in a 3-day training on postharvest machineries organized under APART by KVK, Barpeta. He got motivated by the harvesting technology that reduces drudgery, labour cost and time. Soon after



attending the training programme with the support of IRRI and APART, KVK, Barpeta, he purchased a self-propelled multi-crop reaper. Besides using it for his field, he operated it for harvesting the fields of other farmers also in the village on a hire basis. He is now a private

service provider of the reaper. During the last cropping season, he has harvested 393 bighas of land with the reaper on a fee-for-service basis at the rate of Rs 500/- per bigha. The details of the module have been formulated below.

*Contributors: Mridupaban Mudoi & Dr. Suryakanta Khandai, IRRI*

## Seed Stakeholder's Meeting

The availability of quality seed is one of the major concerns for seed system in Assam. The seed stakeholder meeting is a common platform for all seed stakeholders for awareness creation, linkages and decision making to strengthen seed system in Assam. The 3rd Seed stakeholders meeting were organized by Assam Agricultural University (AAU) with the support of International Rice Research Institute (IRRI) under APART on December 23, 2020, at IIBM, Guwahati, Assam. The objective of this meeting was "Opportunities and challenges of community-led seed production and creating a sustainable business model with the involvement of Farmer Producer Organization (FPO)/ Farmer Producer Company (FPC) in Assam". The meeting started with the welcome address by Mr Bhaskar



Participants of the Stakeholder's meeting

Jyoti Mahanta, Project Coordinator, APART, AAU. Dr Kalyan Pathak, Principal Scientist & Alternate Nodal Officer, while addressing the participants encouraged the Farmer Producer Organizations (FPO)/Farmer Producer Companies (FPC)'s to adopt seed production program. Dr Kanwar Singh, Resident Consultant stressed on the provision of seed collection system at different blocks, and construction of community godowns at different blocks to improve the seed storage

to reduce the seed gap in Assam. Dr A. K. Bhattacharya, Director of Research (Agri) emphasized the importance of the seed sector in doubling farmers' income. Dr P. K. Mahanta, Agri Adviser, ARIAS society, Dr K. Barman, Director, ASSCA, Mr M. Patiri, Nodal officer, OPIU (Agri), Dr Dhiren Kalita, Head, KVK Kamrup also addressed the gathering. Mr Probin Bharali, Cluster Development Specialist ARIAS Society gave a detailed presentation on FPC approach of APART.

Mr Sosida Nanda Bardoli & Tilan

Nath, Board of Director, Poohar Agro Producer Company Ltd. from Morigaon and Mr Trideep Khanikar from Agritech, Seuj Satirtha of Sivasagar presented on "Private seed grower production system and their requirement for business extension" and stressed on proper marketing of the seeds produced by farmers.

The outcome of the group discussion carried out by participants regarding the seed sector of Assam is summarized below.

Challenges	Opportunities	Solutions
Seed certification problem in district level	Employment generation in Assam	Seed rolling plan should be formulated
Lack of awareness on seed production, Seed Replacement Rate (SRR) and seed business for farmers' groups	Helpful in doubling of farmers' income/self-sufficiency & revenue generation by FPCs and seed certification agencies in Assam	Establishing of Seed Processing Plant under GOI scheme Sub-Mission on Seed and Planting Material (SMSP)
Lack of buyback policy on seeds	Farmers will get reliable and best quality seed on time	Establishment of seed storage godowns at village/block level
Lack of planning for targeted rice varieties	Lack of planning for targeted rice varieties	Publicity and training to grow a new variety of quality seed
Lack of storage facility for seeds	Production increase to meet the national level target	Proper procurement & pricing policy
Lack of quality seed production and problems in quality management of seed	Market linkages with proper branding of FPCs, and exports	The need for proper awareness and training of the seed growers
Lack of awareness & acceptance of new variety among the farmers	Encouraging youth to participate in seed production	Need to give full authority/ responsibility to seed growers to form a cluster at village and district level
Lack of Seed Processing Plant		Proper storage facility
Lack of uniform seed cost		Financial assistance on time to purchase the seeds from the seed growers



Lack of proper selection of rice varieties for breeder seed		Need to strengthen ASSCA, and provide seed testing laboratories at the district level
Variety as per the market demand is not available on time		Proper linkages to the other agencies for the quality breeder seed and foundation seed
Insufficient funds with FPOs/FPC's to purchase all seed from seed growers at the time of sale		The need for complete farm mechanization
Farm mechanization		FPC should get financial support for contract farming from Bank and other financial institutions
Crop insurance		Need permanent space for FPC for the common demonstration and training for quality seed production
Lack of packaging materials		MoU with govt. departments for regular seed supply

*Contributors:*

*Dr. Rahul Priyadarshi, IRRI and Miss Jutika Das, AAU*

## Farming with an improved technology: An option for young farmers

With changing times, it has been observed that more and more young farmers are taking up agriculture as a source of livelihood. Progressive farmers, namely Anjan Nath, Anjan Mahanta, Debojit Saikia, Apurba Hazarika, and Nilotpal Bora from Sonitpur district got the opportunity to attend several IRRI supported trainings under KVK Sonitpur, Assam Agricultural University under APART related to seed system, resource-efficient crop establishment methods,

better management practices in rice, postharvest and rice value-chain technologies etc. from 2019 onwards. During these training programmes, they were given practical teachings on the climate-resilient technologies of rice.

The team of five were entrusted with the responsibility of running the Custom Hiring Centre (CHC) set up by KVK, Sonitpur under APART at Jamuguri, Sonitpur district.

The CHC at Jamuguri was inaugurated on 4th December 2020, and during the Boro/Early Ahu season the team transplanted an area of 14 hectares by using the machine (mechanical rice transplanter) and 7 hectares by using wet DSR technology. In early January 2021, they laid the nursery of rice varieties DRR44 and BINA Dhan11. The team has plans to take

up at least 100 bighas for mechanical transplantation and encourage more farmers to adopt farm mechanization.

This initiative by the young and progressive farmers is steps towards creating awareness on adoption of new technologies as well create the new employment avenues in agriculture for the youth.



Preparation of nursery using wet DSR technology

*Contributed by Dibyarishi Bhattacharjya, Jr. Researcher, IRRI*

## Reproductive Health and Mastitis Management under APART

A Reproductive Health and Mastitis Management (on a pilot basis) has been initiated by the Directorate of Dairy Development (DDD), Assam under the World Bank aided Assam Agribusiness and Rural Transformation Project (APART) on 30th January 2021 at Maloibari under Kamrup (M) district. This initiative is taken up in collaboration

with the Animal Husbandry and Veterinary Department (AHVD) and technical support of the International Livestock Research Institute (ILRI). The pilot initiative is planned to cover two clusters with 100 dairy farming households (smallholder and large commercial) where efforts have been made through a well-designed systematic process

to improve reproductive health and reduce mastitis that are considered as the economically most important problems of the dairy animals in Assam. Reproductive health camp is planned every three months, in each cluster, covering the targeted farming households. The changing process of reproductive health of the cattle will be tracked, and the outcome will be evaluated at the end of the of 1.5 years, to check the improvement in terms of increased reproductive health, increased milk productivity and farm economics. Finally, there is a plan to consider the pilot initiative as a learning hub for farmers/ veterinarians of other districts and efforts will be made to replicate the model throughout the State.

The first reproductive health and mastitis camp was organized in

Maloibari area of Kamrup (M) district on 30th January 2021, where cattle belonging to 50 farming households were examined and treated with necessary medications. Before the initiative, a baseline survey was conducted by ILRI, and a similar survey will be done at the end, to evaluate the outcome of the pilot initiative. The animals were examined by 5 reproductive health experts and 5 assistant veterinarians from the College of Veterinary Science, Khanapara, Animal Husbandry and Veterinary Department and ILRI. The camp was inaugurated by the Chairman of the local Panchayat and attended by officials from DDD, AHVD and ILRI. During the camp, around 50 farmers were registered and educative and informative brochures and leaflets on reproductive health and mastitis were distributed for awareness generation.



Vaccination on Reproductive Health and Mastitis Management at Maloibari block



## Infrastructure development for ensuring bio-security

As in 2020 for the first time African Swine fever was reported in Assam among the states of India. To control this emerging disease, ILRI actively supported the A.H. & Veterinary Department in different ways including improvement of bio security infrastructure in five govt. pig breeding farms viz. Sonapur, Khanapara, rani, Diphu and ALPCo farm. In this connection, Dr. Ram

Deka of ILRI was made the Chairman of the Technical Committee to improve bio security infrastructure in those five govt. pig breeding farm in the state. ILRI involved in guiding the engineers team of AHVD in designing bio security infrastructure in each farm, monitored the progress of work at regular interval and get completed the infrastructure within three months.



Quarantine shed



Wire netting above the half wall



Security room & selling outlet

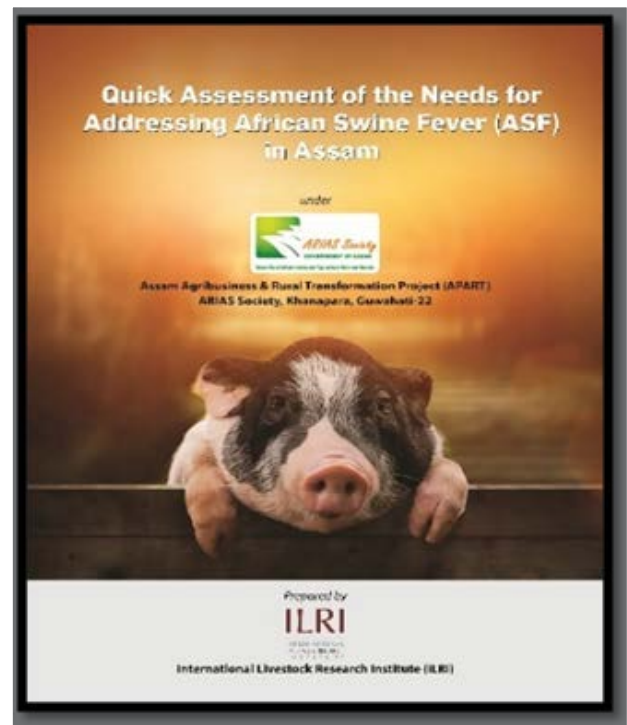


Wheel Dip at the entrance



## Need assessment study to address African Swine Fever

A Need Assessment Study to Address African Swine Fever in Assam was conducted by ILRI within a stipulated period of one month. The report was prepared based on primary survey of ASF affected areas and interacting with the concerned District Veterinary Officers, Veterinary Officers, Veterinary Field Assistant, villagers, commercial pig farmer, smallholder pig farmers, pork retailers, butchers, etc. Also, it interacted with the key A Need Assessment Study to Address African Swine Fever in Assam was conducted by ILRI within a stipulated period of one month. The report was prepared based on primary survey of ASF affected areas and interacting with the concerned District Veterinary Officers, Veterinary Officers, Veterinary Field Assistant, villagers,



commercial pig farmer, smallholder pig farmers, pork retailers, butchers, etc. Also, it interacted with the key concerned officials of AHVD, AAU, ALPCo, NRCP and NEPPFA. The report explains the magnitude of affect of the disease in the villages, actions taken at the villages,



ILRI staff collecting data on need assessment study to address ASF

resource availability and scarcity, socio-economic issues, diagnostic issues etc. and made specific recommendations to overcome the problems. The final report was submitted to AHVD, Govt. of Assam, ARIAS Society and the World Bank on 31st Dec 2020.

## Accolades for hard work done by Enterprises

The National Agri-Horticultural Show 2021 with International (virtual) Participation was organized by Department of Agriculture, Government of Assam in association with Federation of Indian Chambers of Commerce and Industry (FICCI) from 21st to 23rd January 2021 at Bokakhat Stadium, Bokakhat, Assam. The three-day extravaganza included sector-specific webinars, meets, seminars, workshops and training on evolving Agri-Horti practices and concepts, various competitions, and exhibition for local and domestic exhibitors. During the event, various entrepreneurs who participated in different categories were awarded for the contributions made. The competition for Processed food was won by the entrepreneurs from various districts such as Kamrup Metro, Morigaon, Goalpara, Nalbari and Sonitpur. The details of the entrepreneurs who were awarded for their products are as follows:



- » 1. President of Kamrup Metro Agro-Industry Association (KAMAIA), Mrs Malamoni Hazarika, founder & proprietor of Kamdhenu Industries, Guwahati has been awarded 1st position for Guava jelly and 2nd position for coconut kiwi jam.
- » 2. Three entrepreneurs from

Goalpara under GAAFIA have got awards in different segments. Mr Pranab Rabha has been awarded 1st position for Banana, Mr R Hajira Marak has been awarded 2nd position for Bonsai and Mr Abdul Halim has been awarded 3rd position for Chilli.

- » **3.** An entrepreneur from Morigaon district named Smt. Lakhimai Bharali, an owner of M/s Lakhimi Food Products has been awarded 1st position for Mango pickle and Tilladu, 2nd position for Mix jam and coconut laddu and 3rd position for Coconut pitha.
- » **4.** Three entrepreneurs from Goalpara under GAAFIA have got awards in different segments. Mr Pranab Rabha has been awarded 1st position for Banana, Mr R Hajira Marak has been awarded 2nd position for Bonsai and Mr Abdul Halim has been awarded 3rd position for Chilli.



- » **5.** Three entrepreneurs from Nalbari district have got the award in different segments. Mr Dipul Haloi was awarded the 1st position for Oyster Mushroom Pickle, Mr Bapkan Barman has been awarded 2nd position for Vegetables-Cucurbits and Mr Pankaj Kalita has been awarded 1st position for Fruits and Nuts(Papaya).
- » **6.** Ms Amrit Madhuri Devi from Sonitpur District, founder & proprietor of Madhur Food products and president of TAAPIA was awarded 1st position for Jackfruit Pickle.



## Exposure Visit of the Industry Association, NAAPIA under APART

Assam Agri-Business and Rural Transformation (APART) Project started its activities in Nalbari district by June 2019. As part of the technology and machinery support, Grant Thornton Bharat LLP created a linkage with Gravity India, Road No-01, Ramkrishana Nagar, Patna-27. It is a machinery manufacturer company who manufactures a different kind of tools & machinery used in Rice Mills. The initial talks were initiated by Grant Thornton Bharat LLP officials from the district to understand the services

Kisanganj & Purnea District of Bihar on the 26th of January 2021. A total of 4 rice millers (3 from NAAPIA, Nalbari & 1 from KAIA, Kamrup) and Mr Ratul Das, Cluster Team Leader from Nalbari District visited the plants.

During the visit, the team got an insight on various tools and machinery like paddy separator, polisher, de-stoner, paddy dryer. They could understand the gap in the milling process that is existing in Nalbari district. This exposure visit gave immense



provided by them and accordingly an exposure visit was planned. With the initiative of GT team and NAAPIA members, the exposure visit was conducted to two rice mill plants in

knowledge to the team and also the millers got required information regarding capacity and rates of the machinery.



## A collaboration of OPIU-Fisheries and Canara Bank under APART for Fish Value Chain through instrument KCC-Fishery

OPIU-Fisheries under APART has entered into an MoU with Canara Bank for extending credit using the instrument KCC-Fisheries. OPIU-Fisheries has submitted the loan applications of APART beneficiaries to different branches of Canara Bank. Financial services team has actively supported in liaising with Canara Bank and OPIU-Fisheries to smoothen the interface for creating a trusting environment for extending the credit to the Fishermen. A total of 1200 loan applications were submitted for KCC –Fisheries and more than 750 applications were submitted for Fish Vendors for extending a microloan of Rs 12000/- to different branches of Canara Bank.



For encouraging the Banks to extend the loan to farmers and for forging a long term partnership and collaboration towards Fish Value Chain development efforts, OPIU-Fisheries organized a ceremonial distribution of KCC-Fisheries loan to Fish Farmers and Vendors on 12-12-2020 at Fishfed complex. Honourable Minister of Fisheries, Shri Parimal Suklabaidya, Commissioner and Secretary, Fishery Department Shri Rakesh Kumar, IAS, Director –Fisheries, Shri N.K. Debnath, Dr Dhruvajyoti Sharma, Nodal Officer, APART, Dr Sanjay Sarma, Fishery Coordinator, APART, Canara Bank Officials and Fish Farmers/FPOs and officials



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Officials and Fish Farmers/FPOs and officials from APART were present in the function and contributed. A showroom of Fish Marketing and a mobile app for marketing were inaugurated in Fishfed complex on the same day as well as bikes with iceboxes were provided to the FISHFED through APART for selling / marketing the quality fishes door to door in different wards of Guwahati metro. A mobile app was also inaugurated through the financial assistance of APART.

In the Loan sanction meeting, the Canara Bank sanctioned Rs 3.0 Crores to 539 Fish Farmers and it was distributed to the Fish Farmers and Vendors. OPIU-Fisheries felicitated the Branch Managers and Officials of Regional Office Canara Bank for their prompt response at sanctioning and disbursing the loan and also to encourage the Banks for coming forward to provide loans to the smallholder Fishermen /Vendors at the bottom of the pyramid.



# Initiatives of mustard value chain under APART



Vaccination on Reproductive Health and Mastitis Management at Maloibari block



Technical trainings at farmers field conducted at different mustard clusters across Project districts



Field technical advisory at farmer's field by the technical team





Visit of experts form DRMR, Bharatpur Experts to the mustard Demo plots in Darrang distict, Assam



Mustard pamphlets, for advance cultivation, were distributed among 100 farmers during the training session in Skill development center, Patarighat, Mangaldai



Post Harvest demonstration linked with a field day of Banana conducted at Bortari FPC in presence of FIG members and farmers at Chaygaon, Kamrup (R).



## মাটি চহ নকৰাকৈ কৰা আলু খেতিৰ সফলতা

সাম্প্ৰতিক সময়ত কৃষকৰ আয় দুগুণ বৃদ্ধি কৰাৰ লক্ষ্যৰ কথা বিভিন্ন মাধ্যমৰ জৰিয়তে সঘনে প্ৰকাশ পাই আহিছে। অসমৰ কৃষি মন্ত্ৰীয়েও কৃষকক মৰ্যদাপূৰ্ণ ভাবে প্ৰথম শ্ৰেণীৰ নাগৰিকৰ আসনত প্ৰতিষ্ঠিত কৰিবলৈ যত্নপৰ হৈছে। চৰকাৰৰ বিভিন্ন আঁচনি আৰু প্ৰকল্প সমূহৰ সফল ৰূপায়নৰ প্ৰচেষ্টা কৃষি বিভাগ তথা বিভিন্ন চৰকাৰী-বেচৰকাৰী প্ৰতিষ্ঠানেও অহৰ্নিশে অব্যাহত ৰাখিছে। সময়ৰ আহুনৰ প্ৰতি লক্ষ্য ৰাখি কৃষক সকলেও উন্নত প্ৰযুক্তিৰ ব্যৱহাৰৰ প্ৰতি আগ্ৰহী হোৱা পৰিলক্ষিত হৈছে। নৱপ্ৰজন্ম আৰু শিক্ষিত যুৱক-যুৱতী সকল কৃষি কাৰ্যৰ প্ৰতি ধাৰমান হোৱাটো বৰ্তমানৰ সমাজৰ বাবে এটা উল্লেখনীয় শুভলক্ষণ।

পুৰুষৰ লগতে নাৰী সকলৰ কৃষি কাৰ্যত অৰিহণা প্ৰাচীন কালৰ পৰাই অনস্বীকাৰ্য। কিন্তু পুৰুষৰ সহায় নোহোৱাকৈ অকল মহিলাই স্বাধীনভাৱে বাণিজ্যিক ভিত্তিত খেতি কৰাৰ উদাহৰণ আঙুলিৰ মূৰত লিখিব পাৰি। এনে এটি আশাব্যঞ্জক খবৰ আজি পাঠক সকললৈ আগবঢ়াইছে।

অসমৰ মানচিত্ৰত কৃষিজাত সামগ্ৰীৰ উৎপাদন আৰু বিপননৰ বাবে দৰং জিলাৰ এক স্বকীয় গৰিমা আছে। দৰং জিলাৰ পশ্চিম প্ৰান্তৰ বিভিন্ন গাঁৱৰ মহিলাই কৃষি বিভাগৰ “কৃষি প্ৰযুক্তি ব্যৱস্থাপনা অভিকৰণ” চমুকৈ ‘ATMA’ আৰু বিশ্ববেংকৰ বিত্তীয় সহযোগত ৰূপায়ণ হোৱা এপাৰ্ট প্ৰকল্পৰ অধীনত উন্নত কৃষি প্ৰযুক্তিৰ প্ৰশিক্ষণ ল’বলৈ আগ্ৰহী হোৱা দেখা গৈছে। বিভিন্ন আত্ম সহায়ক গোটৰ লগত জড়িত হৈ থকা এই মহিলা সকলে বিগত ২০১৮-১৯ বৰ্ষৰ পৰা ২০২০-২১ বৰ্ষলৈ হাল-কোৰ নমৰাকৈ কৰা আলু খেতিৰ উন্নত আৰু নতুন প্ৰযুক্তিৰ ওপৰত প্ৰশিক্ষণ লৈছে। লগতে হালধা, তিতকুছি গাঁৱৰ বহুলোকে এপাৰ্ট প্ৰকল্পৰ জিৰ’টিলেজ অথবা হাল-কোৰ নমৰাকৈ কৰা আলু খেতিৰ প্ৰদৰ্শনীমূলক খেতিৰ প্ৰতি আকৃষ্ট হৈছে। বিগত দুটা বৰ্ষত দৰং জিলাৰ ছিপাঝাৰ খণ্ডৰ অন্তৰ্গত হালধা, তিতকুছি, বাচাচুবা, জয়ন্তীপুৰ, নিজ সৰাবাৰী আদি গাঁৱত মহিলা আত্মসহায়ক গোট কিছুমানে হাল-কোৰ নমৰাকৈ কৰা কৃষি পদ্ধতিৰ সহায়ত আলু খেতি কৰি বিঘাত প্ৰায় ৩০ ৰ পৰা ৪০ কুইণ্টল



এপাৰ্ট প্ৰকল্পৰ অধীনত উন্নত কৃষি প্ৰযুক্তিৰ প্ৰতি আগ্ৰহী হোৱা গাঁৱৰ মহিলা কৃষক সকল

আলু উৎপাদন কৰিবলৈ সক্ষম হৈছে। ২০২০ বৰ্ষৰ লকডাউনৰ বাবে আলুৰ বীজ দাম তিনি-চাৰি গুণলৈ বৃদ্ধি হোৱাৰ পৰিপ্ৰেক্ষিতত প্ৰথম অৱস্থাত মহিলা কৃষক সকল কিছু পৰিমাণে হতাশ হৈছিল যদিও শেষত চ'ৰা দামত বীজ ক্ৰয় কৰি জিৰাটিলেজ কৃষি পদ্ধতিৰ আলু খেতিত মহিলা সকলে আত্ম-নিয়োগ কৰিছে। বানপানীৰ বাবে ২০২০ বৰ্ষত শালিধান চপাওঁতে কিছু পলম হয়। সেইবাবে নৱেম্বৰৰ শেষ সপ্তাহৰ পৰাহে বাচাচুবা, তিতকুছি, পাটগিৰিচুবা, হালধা, আদি গাঁৱৰ প্ৰায় ২০ গৰাকী মহিলা আত্মসহায়ক গোটৰ উদ্যমী মহিলাসকলে নৰা কটা, নৰা জপা আলুৰ বীজ সংগ্ৰহ কৰা, পচন সাৰ সংগ্ৰহ কৰা, পথাৰৰ ধান চপোৱাৰ পিছত শাৰী শাৰীকৈ আলু ৰোৱা আদি কামত ব্যস্ত হৈ পৰে।

জিৰাটিলেজ অথবা হাল-কোৰ নমৰাকৈ কৰা আলু খেতি পদ্ধতিটোৰ প্ৰতি মহিলা কৃষক সকল অধিক আগ্ৰহী হোৱা দেখা গৈছে। এতিয়া হয়তো পাঠকৰ মনত এটা প্ৰশ্ন উদয় হৈছে - কিহৰ বাবে এই পদ্ধতিৰ প্ৰতি মহিলা সকল আগ্ৰহী হৈছে? এই প্ৰশ্নৰ উত্তৰত ছিপাবাৰ খণ্ডৰ তিতকুছি গাঁৱৰ মহিলা কৃষক সকলে জানিবলৈ দিছে এনেদৰে- জিৰাটিলেজ অথবা হাল-কোৰ নমৰাকৈ কৰা আলু খেতিৰ পদ্ধতিটো অতি সহজ



কম খৰছত অধিক আলু উৎপাদন লাভ

যুগ্মতালে : শংকৰ নাথ খণ্ড প্ৰযুক্তি প্ৰবন্ধক, (BTM)



আলু বীজ ৰোপণত ব্যস্ত মহিলা কৃষক সকল

কৃষি পদ্ধতি। এই পদ্ধতিটোৰে আলু খেতি কৰিলে কম খৰছত অধিক উৎপাদন লাভ কৰিব পৰা যায়। অধিক পৰিশ্ৰমৰ প্ৰয়োজন নহয়। আলু চপোৱাৰ কাৰ্যটো অতি সহজ হৈ পৰে। শালি ধানৰ খেতি কৰা দ' বা মধ্যমীয়া মাটিত এই খেতি কৰিব পাৰি বাবে মাটিৰ অভাৱ নহয়। জিৰাটিলেজ পদ্ধতিটোত মাটি চহোৱাৰ খৰছ আৰু সময় বাহি হয়। ইয়াৰ উপৰি শস্য প্ৰতিপালনৰ ক্ষেত্ৰত হোৱা শ্ৰমিকৰ খৰছো কমি যায়। এই পদ্ধতিত জলসিঞ্চনৰ ব্যৱহাৰ অতি নিম্ন। কাৰণ খেতি ডৰাত নৰা ঢাকি দিয়াৰ ফলত বাষ্পীভৱন হ্রাস হয়। আনহাতে গঁজালি ওলোৱা আলুবোৰ ৰোৱাৰ পিছত ঢাকিবলৈ ধানৰ নৰাৰ অভাৱ নহয় বা কিনিব নালাগে।

কৃষি খণ্ডত মহিলাৰ আত্ম নিয়োগৰ এনেধৰণৰ আশাব্যঞ্জক বাৰ্তাই কৃষি খণ্ডত এক নতুন আশাৰ সঞ্গৰ কৰিছে। মূলতঃ হাল-কোৰ নমৰাকৈ কৰা আলু খেতিয়ে সকলো শ্ৰেণীৰ খেতিয়কক উৎসাহিত কৰিব লগতে একেদৰা মাটিতে অধিক শস্য উৎপাদনৰ জৰিয়তে অসমৰ কৃষি উৎপাদন বৃদ্ধি কৰাটো সহায় কৰিব বুলি খেতিয়কসকল আশাবাদী।



## মিনি কম্বাইন হাৰভেষ্টাৰ আৰু ইয়াৰ সম্পৰ্কে কিছু জানিবলগীয়া কথা :

সাম্প্ৰতিক সময়ত কৃষিখণ্ডত ধান চপোৱাৰ বাবে কৃষকে বিভিন্ন নতুন প্ৰযুক্তি ব্যৱহাৰ কৰিবলৈ আৰম্ভ কৰিছে। অসম এখন কৃষি প্ৰধান ৰাজ্য তৎস্বত্বেও কৃষিখণ্ডত কৃষক সকলে বিভিন্ন সমস্যাৰ সন্মুখীন হৈ আহিছে। বিশেষকৈ কৃষকসকলে ধান চপোৱাৰ সময়ত বহুতো অসুবিধাৰ সন্মুখীন হয়। প্ৰতিবছৰে হোৱা প্ৰবল বৃষ্টিপাতৰ ফলত ধান চপোৱাত পলম হয়। ধান চপোৱাত পলম হ'লে ধান অত্যাধিক পুৰঠ হৈ পৰে আৰু ফলত ধানৰ গুণগত মানদণ্ড আৰু ধান উৎপাদনৰ পৰিমাণ নিম্নগামী হৈ পৰে। এই সমস্যাবোৰৰ পৰা কৃষক সকলে



এপাৰ্টৰ অধীনত মিনি কম্বাইন হাৰভেষ্টাৰৰ ব্যৱহাৰ সমন্ধে প্ৰশিক্ষণ

পৰিত্ৰাণ পোৱাৰ বাবে, অসম কৃষি বাণিজ্য আৰু গ্ৰাম্য ৰূপান্তৰকৰণ প্ৰকল্প (এপাৰ্ট), অসম কৃষি বিশ্ববিদ্যালয় আৰু ইন্টাৰনেছনেল ৰাইচ ৰিচাৰ্চ ইনষ্টিটিউট (আই আৰ আই) ৰ কাৰিকৰী সহযোগীতাত ২০১৯-২০ বৰ্ষৰ পৰা ৰাজ্যত কম সময়ত ধান চপোৱা, মৰণা মৰা আদি কাম কৰিবৰ বাবে কম্বাইন হাৰভেষ্টাৰ নামেৰে এটি যন্ত্ৰৰ সূচনা কৰিছে। ইতিমধ্যে এই আধুনিক পদ্ধতিৰ মিনি কম্বাইন হাৰভেষ্টাৰৰ ব্যৱহাৰ সমন্ধে এপাৰ্টৰ অধীনত কৃষক সকলক প্ৰশিক্ষণ দিয়া হৈছে।

মিনি কম্বাইন হাৰভেষ্টাৰ দৰাচলতে কি আৰু ইয়াৰ সুবিধা সমূহ কেনেধৰণৰ তলত উল্লেখ কৰা হ'ল-



খেতি পথাৰত মিনি কম্বাইন হাৰভেষ্টাৰ

মিনি কম্বাইন হাৰভেষ্টাৰ হৈছে আধুনিক পদ্ধতিৰ ধান চপোৱা আৰু মৰণা মৰা যান্ত্ৰিক বাহন; য'ত কেইবাটাও যন্ত্ৰ সংলগ্ন হৈ আছে। এই মিনি কম্বাইন হাৰভেষ্টাৰৰ সহায়ত অতি সহজে অতি কম সময়ৰ ভিতৰত অধিক শস্য চপোৱাৰ লগতে এই যন্ত্ৰৰ সহায়ত এক ঘণ্টাত প্ৰায় ৩ বিঘা ধান কটা, মৰণা মৰা কাম একেলগে কৰিব পাৰে। মিনি কম্বাইন হাৰভেষ্টাৰৰ সহায়ত ধান কাটিলে খেৰবোৰ নষ্ট নহয় আৰু কৃষকে দীঘল খেৰ পায়। ইয়াক বিশেষকৈ ধান, ঘেঁহু, বাৰ্লি আদি শস্য চপোৱা কাৰ্য্যত ব্যৱহাৰ কৰা হয়। ইয়াৰ জৰিয়তে ধান কটা, মৰণা মৰা আৰু মোনাত ভৰোৱা কাম একেলগে কৰিব পৰা যায়। এই মিনি কম্বাইন হাৰভেষ্টাৰ খন শুকান আৰু বোকা পথাৰত সহজে ব্যৱহাৰ কৰিব পৰা হয়। মিনি হাৰভেষ্টাৰ খনৰ মূল্য প্ৰায় ১২,০০,০০০ লাখৰ পৰা ১৩,০০,০০০ লাখ টকা। এই বাহনখন চলাবলৈ ট্ৰে'ৰৰ প্ৰয়োজন নহয়। ই স্বয়ংচালিত।

সংগ্ৰহ : ইন্টাৰনেছনেল ৰাইচ ৰিচাৰ্চ ইনষ্টিটিউট

## আগতীয়াকৈ কৰা ফুলকৰি খেতিৰ সাফল্যৰ কাহিনী :

দৰং জিলাৰ বেচিমাৰী উন্নয়ন খণ্ডৰ অধীনৰ নিজ দলগাওঁ নিবাসী ম: জিয়াৰুল হক, এজন শিক্ষিত প্ৰগতিশীল খেতিয়ক। তেওঁ বিগত ৮-১০ বছৰৰ পৰা ৫-৬ বিঘা ভূমিত বিভিন্ন শাক-পাচলিৰ খেতি কৰি আহিছে। কৃষি প্ৰযুক্তি ব্যৱস্থাপনা অভিকৰণ চমুকৈ (**ATMA**) আৰু বিশ্ব বেংকৰ বিত্তীয় সহযোগত ৰূপায়ন হোৱা 'অসম কৃষি বাণিজ্য আৰু গ্ৰাম্য ৰূপান্তৰণ প্ৰকল্প' চমুকৈ এপাৰ্ট (**APART**) ৰ অধীনত ২০২০-২১ বৰ্ষৰ বাবে জিয়াৰুল হকক চি. এফ.এল-১৫২২ জাতৰ আগতীয়া ফুলকৰিৰ প্ৰদৰ্শন মূলক খেতিৰ বাবে হিতাধিকাৰী

মাহৰ পৰা ছেপ্টেম্বৰ মাহলৈ প্ৰচুৰ বৃষ্টিপাত হোৱাৰ ফলত অপতৃণৰ বৃদ্ধি, পোক-পতংগৰ আক্ৰমণ নিয়ন্ত্ৰণ কৰিবলৈ বিভিন্ন অসুবিধা সন্মুখীন হ'ব লগা হয়। কিন্তু জিয়াৰুল হকে বিজ্ঞান সন্মত পদ্ধতি অৱলম্বন কৰি মাটিত জৈৱিক সাৰ ব্যৱহাৰ কৰিছিল। যাৰ ফলত শস্যত পোক-পতঙ্গই কমকৈ অনিষ্ট কৰিছিল লগতে শস্যৰ বেমাৰ আজাৰ কিছু পৰিমাণে নিয়ন্ত্ৰণ কৰিব পাৰিছিল। ফলস্বৰূপে তেওঁ প্ৰতি বিঘাত ৬০ কুইণ্টল ফুলকৰি উৎপাদন কৰে; যিটো বাকী সকল খেতিয়কতকৈ তথা বিগত বছৰ সমূহতকৈ ১৫ কুইণ্টল



ৰূপে বাচনি কৰিছিল। "বিজ্ঞান সন্মত পদ্ধতিৰে আগতীয়াকৈ কৰা ফুলকৰিৰ খেতি" সন্দৰ্ভত অনুষ্ঠিত হোৱা এক প্ৰশিক্ষণ অনুষ্ঠানত তেওঁ অংশগ্ৰহণ কৰি পাচলিৰ উন্নত পদ্ধতিৰে পুলিবাৰী প্ৰস্তুতি কৰা, পোক-পৰুৱা, বেমাৰ আজাৰ নিয়ন্ত্ৰণ আদি বিষয়ত জ্ঞান লাভ কৰে। তদুপৰি খেতিৰ সময়চোৱাত আৰম্ভণি পৰ্য্যায়ৰ পৰা শস্য চপোৱালৈ খণ্ড প্ৰযুক্তি প্ৰবন্ধক (**BTM**), সহকাৰী প্ৰযুক্তি প্ৰবন্ধক (**ATM**), জিলা উদ্যান-শস্য সমন্বয়ক (**DHC**) আৰু ৱ'ৰ্ল্ড ভেজিটেবল চেণ্টাৰ (**WVC**) ৰ পৰামৰ্শই তেখেতক যথেষ্ট অনুপ্ৰাণিত আৰু মনোবল বৃদ্ধি কৰিছিল। খেতিয়ক সকলে জুলাই

অধিক উৎপাদন কৰে। আগতীয়াকৈ বজাৰলৈ উলিওৱা কৰিব মূল্য অধিক হোৱাৰ বাবে অতিৰিক্ত উৎপাদন মূল্য প্ৰায় ৪৫০০০ টকা।

জিয়াৰুলে প্ৰতি কেজি ফুলকৰি ২০ টকাৰ পৰা সৰ্বোচ্চ ৪০ টকালৈ বিক্ৰী কৰে। তেওঁৰ উৎপাদিত সামগ্ৰী সমূহ বালুগাঁও বজাৰ, বেচিমাৰী বজাৰত বিক্ৰী কৰে। মুঠ চাৰি বিঘা মাটিৰ পৰা তেওঁ উপাৰ্জন কৰিছিল ৫ লাখ টকা। **ATMA** আৰু এপাৰ্টৰ বিষয়া সকলৰ নিয়মিত কৃষিৰ পৰিদৰ্শন, পৰামৰ্শ আৰু সহায় সহযোগ পোৱাৰ বাবে জিয়াৰুল হকে প্ৰতিগৰাকী বিষয়ববীয়াক ধন্যবাদ জনায়। ২০২০-২১ বৰ্ষৰ প্ৰদৰ্শন মূলক



খেতিৰ সফল পৰিসমাপ্তিত প্ৰায় ৬০ গৰাকীৰো অধিক খেতিয়কে জিয়াৰল হৰুৰ সাফল্যত অনুপ্ৰাণিত হৈছে আৰু অহা বৰ্ষৰ পৰা উন্নত কৃষি পদ্ধতিৰে আগতীয়া বতৰৰ ফুলকৰি খেতিৰে অধিক উপাৰ্জন লাভ কৰি প্ৰত্যেকে একোজন সফল খেতিয়ক হোৱাৰ বাবে আশা কৰিছে।



যুগ্মতালে : নিতুল কলিতা  
খণ্ড প্ৰযুক্তি প্ৰবন্ধক, (BTM)

# Krishi Rupantar

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