

KRISHI RUPANTAR

25th Issue | October 2021

PARTICIPATORY EVALUATION OF RICE VARIETY CAFETERIA

- Dr Rahul Priyadarshi, Specialist, Agriculture Research and Development, IRRI

The main purpose of conducting a rice variety cafeteria is to demonstrate different types of rice varieties (stress-tolerant, premium quality, high yielding, local, popular and promising varieties). These varieties are planted under similar agronomic management and a participatory varietal selection by different stakeholders is carried out. According to the preference of the stakeholders in a specific region/ agro-climatic zone, key institutions and actors are influenced to accept new potential rice varieties.



Participatory evaluation of rice varieties in the cafeteria at RARS, Gossaigaon, Kokrajhar during Sali season 2021

Objectives of participatory varietal evaluation

- » On-spot selection of stress-tolerant rice varieties (STRVs), premium quality rice (PQR) varieties and high yielding rice varieties (HYVs) for targeted location by different stakeholders
- » Selection of rice varieties based on phenotypic evaluation (duration, agronomic traits and grain type/quality traits)
- » Speeding up variety and seed replacement for STRVs, HYVs and PQR varieties, and adoption by the on-spot rice variety evaluation based on region-specific preference
- » To create mass awareness about STRVs, HYVs and PQR varieties for wider dissemination and improvement of productivity of rice in the region
- » Facilitate implement partners, DoA-ATMA and AAU, to choose the best rice variety for their region, that are adapted to local conditions and to generate a further recommendation for large scale testing/release:
- » To help in generating seed demand for multiple rice varieties

A total 24 rice varieties in three replications were planted at RARS, Gossaigaon and KVK, Nagaon during Sali season 2021, under the Assam Agribusiness and Rural Transformation Project (APART). Out of the 24 rice varieties, 3 were semi-

deep-water rice (SDWR) & deep-water rice (DWR) varieties, 12 stress-tolerant rice varieties (STRVs), 4 premium quality rice (PQR) varieties, 3 high yielding rice varieties (HYVs) and 2 local popular rice varieties (LPVs). The participatory varietal evaluation at RARS, Gossaigaon, Kokrajhar was conducted on October 27, 2021, involving farmers, and on October 28, 2021, involving scientists and other extension agents. At KVK, Nagaon the evaluation was conducted on October 30, 2021, involving farmers, and on November 01, 2021, involving scientists and other extension agents. During the participatory varietal evaluation, duration, crop height, tillering ability (productive tillers), panicle length, grains per panicle, grain colour, grain type, disease resistance, pest resistance, non-lodging, non-shattering, anticipated grain yield and overall performance were considered for final evaluation. A total of 25 farmers including 7 female farmers, and a total of 31 scientists/other extensions functionaries including 5 female scientists/extension functionaries, participated in the evaluation of rice varieties in the cafeteria at RARS, Gossaigaon, Kokrajhar. A total of 23 farmers including 14 female farmers, and a total of 25 scientists/other extension



Participatory evaluation of rice varieties in the cafeteria at KVK, Nagaon during Sali season 2021

functionaries including 9 females, participated in the evaluation of rice varieties in the cafeteria at KVK, Nagaon.

Outcomes

- » The rice varieties selected by farmers during varietal evaluation at RARS, Gossaigaon, Kokrajhar are Ranjit-Sub1, CR Dhan 309, Numoli, Bahadur-Sub1, BRR1 Dhan 75, Swarna Shreya, CR Dhan 505, BINA Dhan 11 and BINA Dhan 17 in Sali season 2021.
- » The rice varieties selected by farmers during varietal evaluation at KVK, Nagaon are CR Dhan 307, Swarna-Sub1, CR Dhan 909, MTU 1156, Bahadur-Sub1, Ranjit-Sub1 and Prafulla in Sali season 2021.

Finally, the combined results of actual agronomic data, farmers' score sheets, and scientists' other extension functionaries' score sheets based on phenotypic traits would be considered to promote the stress-tolerant/premium quality/high yielding rice varieties. The final result would be submitted to DoA and AAU for future introduction / release process of new STRVs, PQR varieties and high yielding rice varieties in the state. Acceptance of different selected rice varieties in the seed chain leads to better seed and varietal replacement rates which finally increase the productivity rate in the state.

USE OF RUBBER ROLLER IN RICE MILLING: ADD-ON QUALITY BY INTRODUCING PORTABLE RICE MILL

- Suryakanta Khandai, Associate Scientist and Saurajyoti Baishya, Specialist, IRRI

Mechanization is an essential input in modern agriculture to enhance productivity, reduce human drudgery and also the cost of cultivation. The use of efficient machinery also helps in improving the utilization efficiency of other inputs, safety and comfort of the agricultural workers, improvements in the quality and value addition of the produce. Out of several parameters that affect the value of rice in the market, the percentage of broken grains in the milled rice is one of the important determinants. The common

rice mills currently available in Assam are mostly the steel-roller types, which produce 30-50% broken grains, resulting in a milled product with low head-rice recovery. Moreover, the farmers incur a high operational cost, as they are bound to carry their paddy to a far-placed miller. The milling of rice can be improved by introducing a tractor-operated portable two-stage rubber-roller type rice mill which brings down the broken percentage to 2-3% and can be used as a business by progressive farmers.



Repair and maintenance training on portable rice mill at Training Facility Centres, KVK Nagaon and Kamrup

APART has introduced a portable rice mill to serve consumers and farmers in remote areas and also provides training on how to use mobile rubber-roller mills.

To train the Farmer Producer Company (FPC) members on operation, repair and maintenance of portable rice mill (PRM), training programs were conducted at each of 7 training facility centres at KVKs, namely Jorhat, Nagaon, Sonitpur, Morigaon, Kamrup, Barpeta and Kokrajhar in September 2021. The training included a pre-evaluation test followed by classroom sessions on the principles of milling, and different options available for milling. Participants were also given practical and hands-on training sessions and made aware of the different parts of the PRM and its working principles by the experts.

The process of the PRM can be explained as follows:

- » The paddy is pre-cleaned and de-stoned by a pre-cleaning unit comprising of a sieve shaker.
- » After cleaning, the paddy is moved to de-husker which is also called sheller through a bucket elevator that is mainly comprised of the rubber roller. The outer covering of the paddy, the husk, is removed here.
- » The whole rice is collected from the sheller and moved on to a polisher/whitener with the help of a bucket elevator. The film coat on the rice which is called bran is removed from the rice, and the bran is collected separately. The whitening process is done by a whitener stone which is mainly an emerald stone.



Assembling of portable rice mill and checking milling quality at Training Facility Centre, KVK Sonitpur

Vegetable Nursery Entrepreneurship Development Program (VNEDP) under APART

- OPIU – Horticulture & Food Processing

Vegetable Nursery Entrepreneurship Development (VNEDP) undertaken by OPIU-Horticulture and Food Processing has been in progress during October 2021 followed by the training in September 2021. 54 Nursery Entrepreneurs were retrained in 2 batches in Daffodil College of Horticulture, Khetri during September 2021. Followed by the Customised Practical Technical Training Programmes the Entrepreneurs have started the construction of the Nursery structure. District Horticulture Coordinators (DHCs) have been providing these Entrepreneurs regular technical advice by visiting the Nurseries during the design and construction of the Low-Cost Bamboo based structure.

It is for the first time that Vegetable Nursery is being developed under APART to scale up in business enterprise mode by OPIU-Horticulture and Food Processing. It is expected that the Nursery Entrepreneurs shall be able to complete the construction activities within the stipulated time to establish and operationalise the Nurseries as business enterprises. There is a target to develop 100 such Vegetable Nurseries in coming years under APART, which is envisaged to result in self-sustaining the Vegetable Cluster Development and Vegetables Value Chain Development.

The Low-Cost Bamboo Based structure of the Nursery is cost-effective



Low cost vegetable nursery constructed using locally available bamboo under construction



Low cost vegetable nursery constructed using locally available bamboo

where locally available construction materials are used and curing practices are advised beforehand. All the Vegetable Nursery Entrepreneurs have sourced locally available “Bholuka” and “Jati” Bamboos and the Bamboos are treated before construction for improving longevity and tenacity. The District Horticulture Coordinators (DHCs), under APART, have been providing technical support the visited the Nursery Entrepreneurs and provided market linkage for

developing the Nurseries as Business Enterprises.

A total of 54 Vegetable Nursery Entrepreneurs have been trained, so far. The feedback from the participants is encouraging and they have started establishing nurseries. APART will be supporting in setting up the nursery enterprises by the provision of technical support, practical training support and handholding advisory support.



Training of Vegetable Nursery Entrepreneurs

“Training on “ Best Management Practices for Rape-seed and Mustard Cultivation in Assam

- ICAR- DRMR, APART

ICAR-Directorate of Rapeseed-mustard Research, Bharatpur, Rajasthan (DRMR) is working as a knowledge partner with the Directorate of Agriculture, Government of Assam under the Assam Agribusiness and Rural Transformation Project (APART) to provide expertise on the Mustard Value Chain through a project "Technical advisory support on Augmenting Rapeseed-Mustard Production of Assam Farmers for Sustainable Livelihood Security". To maximize the oilseeds production, it needn't be stressed too strongly that the extension personnel and ultimately farmers must know what is happening in the research fields at all times. Therefore, the organization of training programmes for extension personnel/Master trainers and farmers from selected districts are important activities under the project.

In this context, ICAR-Directorate of Rapeseed-Mustard Research, Bharatpur, Rajasthan in collaboration with OPIU-Agriculture, Directorate of Agriculture, Assam organized four training programmes of 2 days each (2 Master Trainers Training and 2



Participants during the Training of Trainers workshop at KVK, Kahikuchi, Kamrup

Farmers Training programmes) at Kamrup and Jorhat districts. The training programmes were organized on "Best Management Practices for Rapeseed-Mustard Cultivation in Assam".

Objectives of the training

- » Refresh and upgrade the participants' knowledge and skill on various aspects of scientific production and protection technology of rapeseed mustard,
- » Increase the adoption of scientific recommendations of the crop by the farmers.

- » Develop a team of trained extension personnel and farmers capable enough for effective dissemination of scientific cultivation practices to the farmers for sustainable production of rapeseed mustard.

The first batch of two days Masters Trainers and farmers training programme was organized during 25-26 October 2021 at Krishi Vigyan Kendra, Kamrup and the Second batch was organized during 29-30 October 2021 at Dhanshree Farmers Hostel, AAU, Jorhat.

Resource persons for the training sessions include- Dr Pankaj Sharma, Pr. Scientist; Dr Arun Kumar, Pr. Scientist; and Dr, Harvir Singh, Scientist from ICAR-DRMR, Bharatpur and Ms Ashwini Peter from SKYMET. The training programme covered all aspects of technology interventions that contribute to higher production of rapeseed-mustard like improved varieties, agronomic practices of rapeseed-mustard, seed treatment, soil treatment, line sowing, plant geometry, irrigation management, balanced use of fertilizers, identification of pest and diseases and their management, quality oil extraction, seed production techniques, harvesting, threshing and storage management, methodology of conducting demonstrations, the importance of weather parameters, etc. The DRMR team led by Dr Ashok Kumar, Team Leader & Principal Scientist, ICAR-DRMR, Dr G.N. Hazarika,



Release of technical bulletin and technical folders

Resident Consultant, ICAR-DRMR-APART and other dignitaries from AAU and Department of Agriculture and APART took part in the training sessions. On the occasion of these training programmes, a technical bulletin on “Best Management Practices of Rapeseed-Mustard Cultivation for Assam” and two technical folders on “Scientific Technology of rapeseed-mustard for Assam” and “Integrated disease and insect management in rapeseed-mustard” were also released.

A total of 20 field level extension personnel /BTM/ATM of the State Department of Agriculture, Govt. of Assam and 30 farmers from Darrang, Dhubri, Barpeta, Nalbari, Kamrup, Bongaigaon, Morigaon, Kokrajhar and Nagaon districts and Research Associates of DRMR-APART Project participated in Kamrup training programme. While 20 field level extension personnel /BTM/ATM of

the State Department of Agriculture, Govt. of Assam and 35 farmers from Sonitpur, Golaghat, Lakhimpur, Jorhat, Sivasagar and Dhemaji districts of Assam and Research Associates of DRMR-APART Project participated in Jorhat training programme. Thus, a total of 40 extension personnel and 65 farmers participated in these training programmes. Certificates were also distributed to farmer participants.



Iffco Nano Urea (Liquid): A Ray Of Hope For Small And Marginal Farmers Of Assam

- Anil Medhi, BTM Hajo Block, DAO, Kamrup

Liquid Nano urea is a growth booster and effective nutrient for any crop. It is a unique source of nitrogen and responsible for imparting green colour, vigorous growth and overall development of the crop. It has been already tested on more than 30 crops at different locations all over India in collaboration with the Dept. of Agriculture, KVK, ICAR and Progressive farmers. The main advantage of using nano urea is that application of 1 bottle (500 ml) of Nano urea can effectively replace 1 bag of solid urea, thus storage and handling become easier.

The use of urea granules as basal doses is not very effective economically as well as environmentally as most of the urea applied in the soil is lost through seepage or volatilization thereby polluting the groundwater and above-ground environment. Also, excess application of urea granules leads to more pest and disease infestation, delayed crop maturity and crop lodging due to excessive growth of the crop. On the other hand, liquid Nano urea is applied as foliar spray making it eco-friendly. Application of 50% of nitrogen and a full dose of SSP and

MOP is a must as basal dose even if we apply nano urea as a foliar spray.

Advantages of Nano Urea

- » It fulfils the nitrogen requirement of crops resulting in vigorous growth of plants, roots and increasing the number of tillers in paddy.
- » It increases farmers income by increasing crop productivity.
- » Farmers can easily store or handle one bottle of Nano urea
- » It helps in the conservation of soil, air and water quality. It will somewhat solve the issue of global warming.

Property

- » It disperses evenly after diluting with water
- » Nitrogen present in Nano urea converts into ammonical & nitrate form after hydrolysis.

Application

2-4 ml Nano urea should be mixed with 1 litre of water and sprayed at

the active growth stage. 120-240 ml of Nano Urea is required for 1 bigha of land in a single spray.

For best results 2 sprays are essential.

- » 1st spray at active stages of crops, viz., maximum tillering stage of rice or after 20-25 days after transplanting depending on the duration of rice.
- » 2nd spray after 20-25 days of 1st spray before the flowering of crops.



Demonstration of IFFCO nano urea liquid at Hajo circle and Gerua circle

Important points of nano urea use

- » Cut nozzles for spraying should be used
- » Spray should be done morning or evening hours after dew when stomata are fully open.
- » There should be a rain-free period of at least 1 hour after spray. If rain occurs within 1 hour of spray, repeat it.
- » It is a 100% water-soluble fertilizer
- » It should be used within 2 years after manufacture.
- » Nano urea is safe for farmers, flora, fauna & non-toxic

- » It follows the guidelines of the Department of Biotechnology & Govt. of India & OECD international agencies.

Application of Nano urea in farmers' paddy field

IFFCO has already started its application all over Assam in Sali paddy and vegetable fields in collaboration with the Department of Agriculture, Govt. of Assam. Now its use is expanding in various locations of Kamrup District at farmers' fields.

Awareness & training programmes are being held at various locations of Hajo, Sualkuchi, and Rangia.

It has already been demonstrated at farmers' field of Gerua circle & Hajo circle under Hajo and Sualkuchi Blocks. Farmers are waiting for its effective result. They are very much interested to use Nano urea for its immense advantages. Farmers are already convinced and ready to buy Nano urea for its better result.

Conclusion

Nano urea is eco-friendly and has got no pollution effect and is easy to transport. Cost is low, so farmers are ready to use it in their crop field.

Go Green With Liquid Nano Urea



FIRST-EVER TRAINING ON MARKET INFORMATION AND MARKET-LED EXTENSION SERVICES FOR ADOS AT IIPM FACILITATED BY APART

Introduction

The Department of Agriculture, Assam implements several schemes of Central and State Govt. To name a few- Rashtriya Krishi Vikas Yojna (RKVY), Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), Pradhan Mantri Fasal Bima Yojna (PM-FBY), National Food Security Mission (NFSM), Chief Minister's Samagra Gramya Unnayan Yojna (CMSGUY) etc. To ensure last mile effective delivery of these services to the beneficiary farmers, the Agriculture Development Officers (ADOs) have a key responsibility as they are in direct contact with the farmers. They are involved from beneficiary selection, documentation to service delivery- in almost all aspects of scheme implementation. They can also be considered as on-ground brand ambassadors of the Govt Department to the farming community. They also have regulatory powers as they are designated, seed inspectors and fertilizer inspectors. Accordingly, they have the responsibility to ensure that good quality inputs are supplied to the farmers as good quality input forms the base for good quality



Agriculture Development Officers at IIPM, Hyderabad

agricultural output. These officials play a significant role in disseminating the market information and carrying out market-led extension services. In other words, they have a vital responsibility in transforming agriculture into agribusiness.

The Need for training

Essentially, all the ADOs are bachelors in Agriculture, most of them are Masters in any specialization of Agriculture. Some of them hold Doctorate Degree also. While most of the ADOs are hands-on in agriculture production-

related aspects, their competency in agribusiness, agricultural marketing, Agri entrepreneurship etc remains sub-optimal. The actual benefit to the farmers can indeed be accrued only if their produce is marketed at remunerative prices. This indicates an immediate and urgent need to train these officers on aspects of Agribusiness, Agricultural Marketing, Agri-entrepreneurship etc.



Officials attending the training at IIPM

No such training had been imparted to these officers earlier in their career, the result being most of the deserving officers are deprived of such capacity enhancement and thus their contribution to improving the State's agriculture scenario remains sub-optimal. It is in this backdrop, that upon the insistence of then SPD, Shri Vinod Seshan, IAS, the APART team at the Project Coordination Unit

(PCU) team of ARIAS Society reached out to various organizations across India who could offer such training. While the fund was to be made available from the Directorate of Agriculture (DoA) scheme, technical support in designing the program as well as the Institute was offered by the PCU team of ARIAS Society. Having experience of working with the Indian Institute of Plantation Management (IIPM), Bangalore & its reasonably good credentials made the institute the best bet for conducting such a course for 20 ADOs representing 20 different districts of Assam.

A four-day executive programme on Market Information and Market Led Extension Services for ADOs, Government of Assam was held from 28th September to 1st October 2021 at Indian Institute of Plantation Management (IIPM), Bengaluru. The pedagogy consisted of management games, group exercises, short assignments, and one full day of field visits. The topics were very well chosen after a lot of discussion and deliberation with the faculty of IIPM Bangalore. The four-day training cum exposure program was an eye-opener for the Assistant Development Officers. The key themes of the training program were:

- » Changing Scenario from Extension to Business Led Extension Services (BLESS) for the prosperity of Agrarian Community
- » Emerging Opportunities, Market Selection and Strategies for Marketing

- Agricultural Commodities of Assam
- » Export Opportunities and Procedure for Agricultural Products
 - » Entrepreneurial Opportunities and Developing Entrepreneurial Mindset in farmers: Assam Context
 - » Branding B2B and B2C Strategies for Agri Produce
 - » Application of Digital Tools for Market Led-Extension Service
 - » Engaging with FPOs to Augment Market Access
 - » Effective Communication for Dissemination of Schemes, Information and Building Rapport
 - » Linking Farmers into the market: Discussions on Successful Case Studies on Building a Market Plan & Agribusiness Model

Resource persons for the programme included faculties from IIPM Bangalore and Guest speakers: Prof. V.G. Dhanakumar, Director, IIPMB-Professor (Production & Operations Management), Dr S. John Mano Raj, Professor, IIPMB- Professor (Marketing), Dr ArunBhattacharyya, Professor, IIPMB-Professor (General Management, Strategy & Entrepreneurship), Dr K. Venkateswaran, Associate Professor, IIPMB- Associate Professor (International Business & Computer Applications), Dr K. Shilpa, Assistant Professor, IIPMB, Dr C. Ganeshkumar, Assistant Professor, IIPMB- Assistant Professor (Decision Sciences &

Operations Management), Mr Pritish, Sahyadri FPO, Mr Shubhendu Dash, Program Director, Access Development Services, Mr Sourav Paul Choudhary, Chief Operating Officer, Bazaari Funde Pvt. Ltd

Exposure visit to FPO

Besides the classroom sessions, there was an exposure visit to a very successful FPO in Bangalore namely Shivaganga Organic Farmers Association to understand its fundamentals and working. The officials were taught about the ways of assisting farmers to get a sustainable income which would help to create sustainable groups of farmers and assist the groups in better marketing of the produce. Thus, these officials will be able to assist the farmers, back home in Assam in enhancing their income opportunities.

Some of the key learning outcomes were




Exposure visit to FPOs by the officials

- » Understand the importance of giving priority to the market and understand the market and carry out market-led extension services.
- » Acquire nuances in marketing concepts that can be disseminated to farmers to connect them with the market.
- » Create the backward and market linkages required for domestic and foreign markets
- » Acquire the knowledge to interact with farmer collectives and beneficiaries on market opportunities
- » Ways and means of engaging with Farmer Producer Organization

Program Feedback

Overall, the programme was very informative and well organized which included several brainstorming sessions. As there is a need for a unified thought process and effort by all the extension officials, this kind of session and exposure visit will empower to build an entrepreneurial mindset within the officials and farmers of Assam. This kind of program should be facilitated for all the ADOs of Assam.

TO
THE DIRECTOR OF AGRICULTURE, ASSAM
 KHANAPARA, GUWAHATI-22



Sub:-Feedback on Four Day Exposure Training of ADO'S at IIPM, Bengaluru

A successful Short Term Executive Programme on Market Information and Market Led Extension Services for ADO'S, Government of Assam was held from 28th September – 1st October, 2021 at Indian Institute of Plantation Management (IIPM), Bengaluru sponsored by ARIAS Society, Government of Assam.

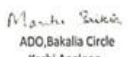
Dr. S. John Mano Raj, Professor IIPM Bangalore was the Programme Designer and course Coordinator and the first Session of the Training Programme was taken by Dr. V. G. Dhanakumar, Director, IIPMB, other faculty are Dr. K. Venkateswaran, IIPMB, AB, Dr. Arun Bhattacharya IIPMB, GK, Dr. C. Ganeshkumar, IIPMB, SK, Dr. K. Shilpa, IIPMB.

The first session of the training Programme was taken by Dr. V. G. Dhanakumar on changing Scenario from Extension to BLESS for the Prosperity of Agrarian Community.

The first session of the second day of the Training was taken by Dr. Arun Bhattacharya on Entrepreneurial Opportunities and Develops Entrepreneurial Mindset in farmers, Assam context.

On the last day of the training we were taken for an Exposure visit to Sivaganga farm/Farmer's Producer Organization(FPO); Overall the Training Programme had been very informative and Entrepreneurial mindset among the Trainees and it will be helpful for me as an Development Officer to provide support for the farmer.

I personally want to thanks the Director of Agriculture, Sri Vinod Seshan IAS Sir and Smt. Reena Borah Madam, Assistant Director of Agriculture, FMC for selecting me to join the Training Programme at IIPM, Bengaluru .


 ADO, Bakalla Circle
 Karbi Anglong

Participants "Quantitative" Feed-back

The programme was evaluated using five-point scale such as poor, average, good, very good & excellent. The majority of participants ranked the programme under the category of **Very Good**. A profile for individual session ranking was tabulated and details are given below:

Programme Assessment Sheet
Score: Poor - 1, Average - 2, Good - 3, Very Good - 4, Excellent - 5

Sl. No	Topics	Poor	Average	Good	Very Good	Excellent	Avg.
1.	Changing Scenario from Extension to BLESS for the prosperity of Agrarian Community (Prof. V.G. Dhanakumar)	0	0	2	10	8	4.3
2.	Emerging Opportunities, Market Selection and Strategies for Marketing Agricultural Commodities of Assam (Dr. S. John Mano Raj)	0	0	0	7	13	4.7
3.	Export Opportunities and Procedure for Agricultural Products (Dr. Venkateswaran)	0	0	3	11	5	4.2
4.	Entrepreneurial Opportunities and Developing Entrepreneurial Mindset in farmers: Assam Context (Dr. Arun Bhattacharyya)	0	0	0	7	12	4.6
5.	Branding (B2B and B2C) Strategies for Agri Produce (Dr. S. John Mano Raj)	0	0	0	6	13	4.7
6.	Application of Digital Tools for Market Led-Extension Service (Dr. C. Ganeshkumar)	0	2	14	3	1	3.2
7.	Engaging with FPOs to Augment Market Access (Dr. K. Shilpa)	0	0	0	10	10	4.5
8.	Effective Communication for Dissemination of Schemes, Information and Building Rapport (Dr. S. John Mano Raj)	0	0	0	3	17	4.9
9.	Linking Farmers into the market: Discussions on Successful Case Studies on Building a Market Plan & Agribusiness Model (Dr. S. John Mano Raj / Dr. Arun Bhattacharyya / Dr. K. Shilpa)	0	0	0	6	14	4.7
10.	Exposure Visit to Sivaganga Farm/FPOs	0	0	0	6	13	4.7
Total							4.4

Sustainability aspect:

While a Project has a certain life and its staff exit once the Project is over but the officials in the Department like ADOs continue for a considerable period and have a substantially better impact making opportunity. The smooth conduct of this Program is a perfect example of integration between APART and the Directorate which had been awaited so far in the symbiotic interest of the Project as well as the Directorate. While the Program was funded from the Directorate Scheme, it was technically supported by APART. It is pertinent to mention here that that off late many of the successful initiatives of Directorate, APART has started to contribute resourcefully, be

it crop cutting experiments, fertilizers, seeds, infrastructure, automation/digitization, farmer database management human resource management, need-based minor civil works etc and vice versa is also largely true. Some of the successful initiatives of APART like Stress Tolerant Rice Varieties (STRVs) have been picked up by the Directorate for scaling up. This also goes in line with the State Govt's motive of:

- » convergence between the flagship programs like Externally Aided Projects including APART and Govt's other schemes
- » Avoiding duplicity in the activities in EAPs and other Govt schemes.

Individual Participants' Feedback

It was a very fruitful training program. We will be taking away a lot of insightful teaching and experience with us.

The programme was very informative, learnt a lot about linking the market for the farmers. The Professors were very friendly and the environment was very pleasant. Looking forward to visiting like FPO's and a farmers field.

The programme was very well organized. The faculty was excellent and it was friendly and the mode of teaching and learning was good. Overall it was a success and hope we will be able to develop entrepreneurship for farmers.

The program was a very successful one. We have learnt a lot of things and new ideas to implement in Assam We expect a few more exposure visits.

I am honoured to be present on this training cum exposure visit in IIPMB. We have learned a different aspect of agricultural activities which are need of the hour. Faculties are very much energetic and classes are refreshing always. Hope for a second meet very soon.

Strengthening the Farmer Producer Organizations/Companies

- OPIU, Horticulture & Food Processing

OPIU-Horticulture and Food Processing is entrusted with providing the support for strengthening 46 Nos of FPOs/FPCs promoted under APART with the main aim to collectivise small farmers and producers for :

- » Backward linkages for inputs like seeds, fertilizers, credit, insurance, knowledge and extension services
- » Forward linkages such as collective marketing, processing, market-led Agriculture etc to gain collective bargaining power for farmers products.

As part of the institutional strengthening process of graduating the FPCs from the existing FPOs (Farmer Producer Organizations), the FPCs require handholding support to upgrade the management skills and abilities like organizational management,

financial management, business plan preparation, marketing management, branding etc OPIU-Horticulture and Food Processing has completed training for Board Of Directors (BoD) of 30 FPCs in 7 batches till 24-9-2021. A total of 155 BODs have been trained, covering Kamrup, Barpeta, Sonitpur, Nagaon, Golaghat districts.

The topics covered during training programmes are:

- » FPC Management,
- » Financial Management of FPCs
- » Legal and Statutory compliances.

The training programme was designed to invite reputed resource persons, expert Chartered accountants at the District level as well as interactions with CEOs of existing successful FPCs.



Capacity Building of FPCs

Workshop On Soil Testing

Soil tests are used to determine the soil's nutrient level and pH content. Armed with this information, the quantity and type of fertiliser needed for application to improve the soil on a farm, can be determined. This is essential because fertile soils are necessary to grow healthy crops.

Considering this fact APART is trying to develop a Soil and water monitoring system using project resources.

A Hands-on Training was organised by APART, ARIAS Society on "Soil and water-testing techniques with portable testing kit" for District



Participants of the Soil Testing Workshop



Practical demonstration during the Soil testing Workshp

Environment Coordinators (DECs) of APART and Engineers from the Agriculture Department was held on September 27th 2021 at Chief Engineer Conference Hall, Agriculture Campus, Khanapara, Guwahati.

The project has procured 20 Nos. of Soil testing kit and 20 nos. of water testing kit. These kits are handed over to District Environment Coordinators for conducting soil and water testing at the field level under APART.

National Level Workshop On Testing Of Agriculture Inputs

A two-day workshop was jointly organized by APART and the Directorate of Agriculture on 27th and 28th October 2021 at the Conference Hall of Chief Engineer (Agri) Office, Agriculture Campus, Khanapara, Guwahati for the Agriculture Development Officers (ADOs) from different districts of Assam.

The workshop was graced by national-level resource persons namely - Dr Sanjay Kumar, Director, IISS, Mau, Uttar Pradesh, Dr Shyam Babu, Director, Central Fertilizer Quality Control and Training Institute (CFQCTI), Faridabad, Dr Amitava Rakshit, Asst. Prof., Institute of Agricultural Sciences, Benaras Hindu University, Dr R. V. Vyas, Professor, Department of Microbiology and Bio-fertilizer Projects, BA College of Agriculture, Anand Agricultural University (AAU), Anand, Mr Dwipendra Thakuria, UN-FAO, National Consultant, School of Natural Resource Management (NRM), College of Post Graduate (PG) Studies in Agricultural Sciences, CAU, Umiam (Barapani), Ri-Bhoi, Meghalaya, Dr Paresh G Shah, Retired Scientist, Pesticide Residue Analysis Lab, AAU (virtually), Dr Anjumoni Devesh, Assistant Professor (Stage-II), Department of Entomology, AAU,



Participants attending the Agriculture Inputs Workshop

Jorhat and also resource persons from the Department of Agriculture: Mr Azim Ahmed, Pesticides Surveillance Officer, Directorate of Agriculture and Shri Nandi Ray, Deputy Director, ASC Ltd.

The following points were discussed and suggested by the resource persons for improving the seed and fertilizer system in the State:

- » Strengthening of the Seed Testing Laboratory (STL) Ulubari needs to be taken up with among others like DNA testing facility.
- » Membership and accreditation of the STL, Ulubari with International Seed Testing Association (ISTA), may be explored by ASOCA

- » Specialized training on seed sampling for ADOs may be arranged with the Indian Institute of Seed Science (IISS)
- » Seed production through FPCs needs to be enhanced to increase self-sufficiency in seed availability in the State.

The workshop was followed by an open discussion on how to improve the pesticide testing scenario in Assam. The participants and the resource persons also visited the State Pesticide Testing Lab (SPTL) and State Bio Control Lab (SBCL), Ulubari, Guwahati.



Technical session during the workshop

Quality Seed Production Of Paddy With Farmer Producer Companies (FPCs) During Sali Season 2021 In Assam Under APART

- Dr Rahul Priyadarshi, Specialist, Agriculture Research and Development, IRRI

Quality seed is an important component for improving agricultural production on which the performance and efficiency of other inputs depend. The use of quality seed alone can contribute up to 5-20% of grain yield enhancement. It is necessary to follow best management practices for seed production during various crop growth stages and post-harvest operations to maintain quality seed. Quality seed production program of Ranjit-Sub1, Bahadur-Sub1, Swarna-Sub1, BINA Dhan 11 and CR Sugandh Dhan 909, with three selected Farmer Producer Companies (FPCs), has been started at Morigaon,

Nagaon and Kamrup in the ongoing Sali season 2021 under Assam Agri-business and Rural Transformation Project (APART). The technical support for quality seed production was provided by Assam Agricultural University's KVKs at Kamrup, Nagaon and Morigaon), International Rice Research Institute (IRRI) and Assam Seed and Organic Certification Agency (ASOCA). The breeder and foundation seed of the above-mentioned varieties were supplied to the FPCs for further multiplication and strengthening the informal and formal seed system in Assam.



Seed production of Swarna-Sub1 and BINA Dhan 11 with Tetelia Agro Organic Producer Company Ltd., Tetelia, Tihu, Kamrup under KVK, Kamrup

The information of breeder and foundation seed linkage with different FPCs are presented in **Table 1**.

Table 1: Institutional linkage for strengthening STRVs and PQR variety seed supply to different seed stakeholders in Assam

Sr. No	Name of the institution	Variety name	Category of seed linked	Quantity of seed (kg)
1	Tetelia Agro Organic Producer Company Ltd., Tetelia, Tihu, Kamrup	Ranjit-Sub1	Breeder seed	200
		Bahadur-Sub1	Breeder seed	200
		Swarna-Sub1	Breeder seed	100
		BINA Dhan 11	Breeder seed	100
2	Shankar Azan Agro Producer Company, Badabazar M. Azad Road, Pakhimoria, Nagaon	Ranjit-Sub1	Breeder seed	200
		Bahadur-Sub1	Breeder seed	200
		Swarna-Sub1	Breeder seed	100
		BINA Dhan 11	Breeder seed	100
		CR Dhan 909	Breeder seed	50
3	Poohar Agro Producer Company Ltd., Manaha, Bhurbandha, Morigaon	Ranjit-Sub1	Breeder seed	400
		BINA Dhan 11	Breeder seed	100
		BINA Dhan 11	Foundation seed	100

In Sali season 2021, 1700 kg breeder seed (BS) and 100 kg foundation seed (FS) of STRVs (Ranjit-Sub1, Bahadur-Sub1, Swarna-Sub1 and BINA Dhan 11), besides 50 kg BS of PQR variety (CR Dhan 909) was provided under APART from different institutes to conduct nine seed

production cluster demonstrations in the ongoing season. The total area under quality seed production with FPCs is 45 hectares (ha), with 5 ha for each cluster demonstration. The total beneficiaries associated with quality seed production is 81.



Seed production of Ranjit-Sub1 and Swarna-Sub1 with Shankar Azan Agro Producer Company, Badabazar M. Azad Road, Pakhimoria, Nagaon under KVK, Nagaon

Major factors that should be taken care of during quality seed production:

- » 3-m isolation distance must be followed in the inbred rice varieties (Ranjit-Sub1, Bahadur-Sub1, Swarna-Sub1 and BINA Dhan 11) for quality seed production
- » Roguing must be done during different plant growth stages, before and after flowering
- » Best management practices should be followed with timely application of fertilizer, weed management, disease and insect-pest management, etc.
- » Early and late harvesting should not be followed in the seed production field
- » FPCs should have to follow the ASOCA suggestions/guidelines
- » Seed processing plant/unit should be used for processing, grading and packing of the seed
- » The moisture content should be <12% for storage upto1 year
- » A good storage facility increases the viability and quality of seed



Seed production of BINA Dhan 11 and Ranjit-Sub1 with PooharAgro Producer Company Ltd., Manaha, Bhurbandha, Morigaon under KVK, Morigaon (Field photo)

Reproductive Health And Mastitis Management Under APART, Dairy Development

A series of Reproductive Health and Mastitis Management camps (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) starting from 30th January 2021 at Maloibari and Nortap clusters under Kamrup (M) district. This initiative is taken up in collaboration with the Animal Husbandry and Veterinary Department (AHVD), Assam and technical support for the same is provided by International Livestock Research Institute (ILRI).

The pilot initiative is planned to cover two clusters with 100 dairy farming households (smallholder and large



RHMM camp (2nd) at Maloibari

commercial) where efforts have been made through a well-designed systematic process to improve reproductive health and reduce mastitis that is considered as economically the most important problem of dairy animals in Assam. 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 this pilot initiative. A 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 1.5 years, to check the improvement in terms of increased



RHMM camp at Nortap, Kamrup (M) by D.V.O., Kamrup

reproductive health, increased milk productivity and farm economics. Finally, the plan is 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 second reproductive health and mastitis management camp (RHMM) was organized at the Maloibari area of Kamrup (M) district on 14th September 2021, where the same cattle of the first camp, belonging to 50 farming households were re-examined and treated with necessary medications. The encouraging fact that was observed during the camp was that most of the dairy cattle are

pregnant and are in a good state of health. The animals were examined by 5 reproductive health experts from the College of Veterinary Science, Khanapara, Animal Husbandry and Veterinary Department and ILRI.

Similarly, the first camp of RHMM was organized at the Nortap area of Kamrup (M) district on 18th September 2021. The camp was inaugurated by the District A.H. & Veterinary Officer Dr Arun Sarma and was attended by the officials from DDD, AHVD and ILRI. For the camp, around 50 farmers were registered and educative and informative brochures and leaflets on reproductive health and mastitis were distributed for awareness generation.



Distribution of medicine & mineral mixtures among beneficiaries



Reproductive health check up of cattle at farmers doorstep by qualified Veterinarians

Orientation Programme For Dairy Cooperative Societies (DCS)

The performance of 50 no. of existing DCSs formed under the AACP project and operating in the peri-urban areas are planned to be assessed freshly based on different parameters under APART for providing further need-based intervention/support through the project.

A one-day awareness programme cum assessment of Dairy Cooperative Societies (DCSs) was organized for the members of peri-urban areas of Nagaon district on 15th September 2021 at the Dairy Campus, Nagaon.

The programme was organised by the Dairy Development Department (DDD) under APART. A total of 31 participants attended the programme.

A similar awareness programme cum assessment of DCSs was also organized for the members of DCSs of peri-urban areas of Darrang district on 28th September 2021 at Dairy Campus, Darrang, under APART Dairy Development Department. A total of 30 participants from 11 different DCSs attended the programme.



Awareness programme cum assessment of DCSs at Nagaon District, Assam.



Awareness programme cum assessment of DCSs at Darrang District, Assam.

Training For Milk Producers

To improve the milk quality and safety in the existing informal milk value chain, a training programme for milk producers, with the technical guidance from ILRI under APART, was conducted by the Dairy Development Department (DDD) at Lakhimpur from 20th to 24th September 2021. The programme was inaugurated by

the Hon'ble Deputy Commissioner, Lakhimpur, in the presence of District A.H. & Veterinary Officer. A total of 30 participants attended the 5 days training programme. OPIU-DDD will encourage the adoption of the new improved practices discussed during the training and also keep a continuous follow up of the same.



Interactive session with the milk producers during training programme at Lakhimpur, Assam

Training Of Trainers (TOT) For Pork Retailers

Although Assam is the largest pork producing state in India, the pork quality here does not meet international standards. The reason for this is that almost 90% of the pork produced in the state comes from the informal sector i.e. unorganised slaughter and selling places. These local butchers, local markets are very effective and in demand for selling the pork. Even the consumers find the places as handy, easy to visit and cheap, so they prefer purchasing pork from here. But lack of knowledge about the pork/meat safety, zoonotic

diseases spread by meat and the importance of hygienicity at meat slaughter as well as selling place; among the owners, vendors, butchers, and pig breeders lead to ignorance in adopting the safety precautions and measures to follow a standard protocol in keeping the meat/pork business clean, safe and hygienic.

To address this burning issue, International Livestock Research Institute (ILRI), under the APART has decided to conduct regular training for the trainers for pork retailers

across the state of Assam. The purpose of the training is to train the government Veterinary and Animal Husbandry Officers, who are directly working in the field along with the pork breeders, producers and sellers. This training aims at imparting some basic knowledge regarding clean pork production, hygienic and scientific slaughter practices, clean packaging practices and also sorted information on microbes associated with unhygienic meat/pork, diseases caused by them to humans and ways to keep the microbial load minimal to supply clean and safe pork for the consumers. One such training of trainers for the pork retailers was organised by ILRI from 01 September 2021 to 03 September 2021. The mode of training was online through the

google meet platform and daily there were various sessions delivered by the experts from ILRI, Guwahati for all the 3 days. A survey was also conducted pre as well as post-training to judge the gain of knowledge from the training which can reveal the effectiveness of this initiative. There were almost 50 Veterinary and Animal Husbandry Officers across the state of Assam who attended this ToT for pork retailers. After successful completion of the training, all the PowerPoint presentations containing the imparted information were also shared with the participants for their future reference and also to make the pork retailers understand the importance of safe/hygienic pork production and slaughter in the field.



Launch Of E-Commerce Website & Aaroi: A Common Brand Of AAPIAM

- Grant Thornton, CDTA-APART

Agriculture and Allied Processors Industrial Association of Morigaon (AAPIAM) members with foresight have conceived the concept of Online Marketing and Selling of Products for more consumer reach and a larger customer base. With the concept of working as a team, and reducing the competition among the entrepreneurs for similar products the idea of Common Branding is formalized. The members of the Fruits and Vegetable Sector has started working on the concept and developed the design and name for the products. These products are launched in the market with a premium price tag and prepared with more rejuvenating ingredients and local spices. The traditional method of fruit processing is incorporated while preservation of various pickles, etc. The team of five entrepreneurs decided to initially launch 6 different products to be linked with www.morigaononline.com for online sale. The program satisfactorily launched and all the below mentioned are available online.

A team of fourteen members from AAPIAM have started developing the following platforms:

1. Online marketing (www.morigaononline.com)

The team of 14no's of entrepreneurs from the Fruits and Vegetable sector and Spice Sector came up together and started developing the website for online marketing. The basic idea is to launch better products and sell in a larger market online emphasizing the concept of "Vocal for Local". The members have presently displayed in total 27 no's of products for online sale. They have enrolled with Ship rocket for Shipment of products and CC Avenue for Payment Gateway. The HDFC bank is put on service for all the bank transactions.

2. WhatsApp Business

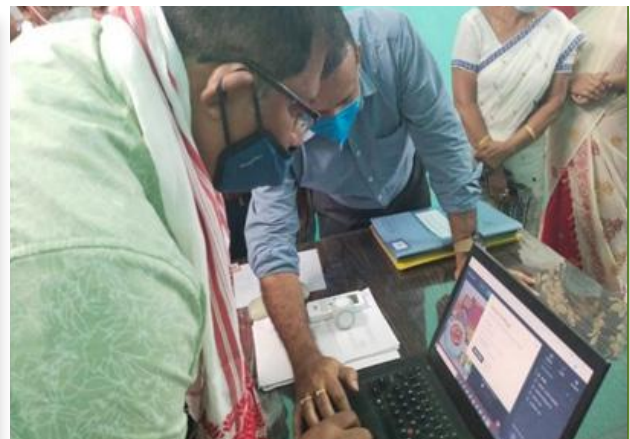
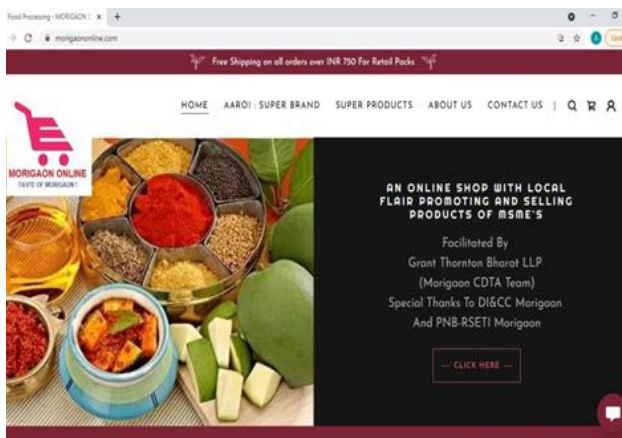
The members of AAPIAM also decided to launch the WhatsApp Business platform for easy reach to the consumers looking for the products. WhatsApp Business is considered as an easy platform to reach out on an individual contact thus more business can be expected.

3. Twitter Account (@morigaononline)

Staying upgraded and showing the presence in larger high profile groups and companies along with a free promotion necessitated the importance of a Twitter Account for www.morigaononline.com products.

4. Facebook Page (MorigaonOnline)

To stay connected and to promote the products is important. Facebook is an easy and most affordable way of reaching a larger group of people and it also provides the required platform for the "Push Strategy" for products. The importance of staying connected through Facebook is also to show the presence of the entrepreneurs associated with the development of common branding and other products.



Launch of e-commerce website & AAROI

E- Portal Release for selling of locally produced Fruits & Vegetables Products by Nalbari Industry Association (NAAPIA)

Belli India, a joint consortium of NAAPIA whose prime objective is to marketing, procurement and production with common purpose launched its online platform for selling their product. The website address is <https://www.belliindia.online>

The basic idea is to launch better products and sell in a larger market online. The members have presently displayed some of the products for online sale. These products shall be launched in the market with a premium price tag.

নলবাৰীত থলুৱাভাৱে উৎপাদিত ফ্ৰুইট এণ্ড ভেজিটেবল সামগ্ৰী বিক্ৰীৰ ই-পৰ্টেল মুকলি

ষ্টাফ ৰিপটাৰনলবাৰী, 17 আগষ্টঃ নলবাৰী জিলা উদ্যোগ আৰু বাণিজ্য কেন্দ্ৰৰ সভাগৃহত আজি বেলি ইণ্ডিয়াৰ উদ্যোগত আৰু নাপিয়াৰ সহযোগত অনুষ্ঠিত হোৱা এখন সভাত www.belliindia.online নামেৰে এটা ই-পৰ্টেল আনুষ্ঠানিক ভাবে মুকলি কৰে নলবাৰী সদৰ মহকুমাধিপতি সঞ্জীৱ ফুকনে উল্লেখ্য যে উক্ত পৰ্টেলটোৰ জৰিয়তে আজিৰে পৰা গুঠৰ বিধ সামগ্ৰী বিক্ৰীৰ বাবে উপলব্ধ হ'ব। বেলি ইণ্ডিয়াৰ সভানেত্ৰী বিতুমণি দেৱীয়ে আঁত ধৰা উক্ত সভাত উপস্থিত থাকি ভাষণ আগবঢ়াই জিলা উদ্যোগ আৰু বাণিজ্য



কেন্দ্ৰৰ প্ৰধান পৰিচালক তপন ডেকা, জি টিৰ বিষয়া বাতুল দাস আৰু নাপিয়াৰ সাধাৰণ সম্পাদক ভ্ৰমৰ মজুমদাৰে বেলি ইণ্ডিয়াৰ উক্ত অনুষ্ঠানটো সাফল্যমণ্ডিত কৰাৰ বাবে সম্পাদক পংকজ বৰুৱা আৰু প্ৰতুল কৈশাই সকলোকেই ধন্যবাদ জ্ঞাপন কৰে।

Export Conclave Organised By DICC, Kamrup

The Government of Assam, Industries Department of Industries and Commerce has taken the initiative to increase the export potential of goods from Assam. As part of this initiative, the District Industries and Commerce Centres (DICC) across the state have organized Export Conclave in most of the districts of the state. The Industry Associations being an important body representing Agro-based enterprises in the 16 APART districts have taken active participation in this initiative. Most of the organisations have facilitated the conduction of these Export Conclaves in their respective district i.e. Kamrup (R), Nagaon, Hojai, Sonitpur, Goalpara, Morigaon are a few among them.

Under the District Administration, Kamrup Rural Industry Association



Export Conclave , Kamrup

& District Industries & Commerce Centre (DI&CC), Kamrup Rural, one-day Export Conclave was held as a part of the celebration of 75 years of independence, AZADI KA AMRIT MAHOTSAV, was organised at the auditorium of Dakshin Kamrup Girls College, Mirza, on 26th September 2021. As part of the 75 years of Indian Independence, the Department of



Export Conclave at Hojai



Commerce, Ministry of Commerce & Industry, Govt. of India, organised a week long Vanijya Utsav throughout the country. In this connection, a Conclave was organised for local exporters and entrepreneurs along with an exhibition of their products. The District of Kamrup Rural has the unique distinction of being known as the Industrial Hub

of Assam. Among the participants, were Self Help Groups (SHGs), Farmer Producer Companies (FPCs), Industrial Societies, representatives from various organisations, Boards and Industry Associations and other entrepreneurs. Along with the participation, they also displayed various products in the exhibition.

Kesseru Plantation – An Investment For Future

– Alakesh Malla Barua, Sericulture Coordinator

Smti Karuna Baruah was selected as a beneficiary in the Eri sector under APART in the year 2018-19. She has been involved in eri cultivation for the last 8 years since she got married to Sri Jogen Baruah of Pockpara village, Biswanath district. She learnt about rearing eri from her mother in law as a traditional practice and took it up for commercial production after being selected as a beneficiary under

APART with the hope to contribute to her family income. With the guidance of District Sericulture Officials, she planted kesseru (a host plant of eri silkworm) in 3 bighas of her land. At present, she has around 300 nos of kesseru plants along with 200 numbers of castor plants as intercrop.

Availability of quality leaves in sufficient quantity was always been a problem



Karuna Baruah with her silk worms and Kesseru Plants

to her earlier, like other eri rearers in the village. So until two years ago, she used to produce around 5-6 kg of eri cut cocoons along with around 3000 numbers of eri seed cocoons that fetched her around Rs.6,500/ to 7,000/ per annum. But after the systematic host plant plantation, in the year 2020-21, she produced 15 kgs of eri cut cocoons and 10,000 numbers of seed cocoons, which is almost 3 times more than before the APART intervention. She sells eri cut cocoons at Rs.800/ per kg, eri seed cocoon at Rs.1/ per cocoon and eri

pupae at Rs.250 per kg, which fetched her an amount of Rs.30,000/ in 2020-21. Smti Karuna Baruah is not only a happy but a proud woman now, as she could contribute to her poverty laden family's income.

She expressed her gratitude and acknowledged the support of APART and Dept of Sericulture. Earlier she could hardly rear 100 dfl of eri eggs in a year and hopes to go beyond 200 dfls in the current year.

(Courtesy: The district sericulture officials of Biswanath district for information and photographs)

The Journey Of A Young Fish Farmer Ruhul Amin

Ruhul Amin is a young and energetic fish farmer from Darrang district of Assam. Initially, his father worked in Agriculture (paddy cultivation). Due to financial constraints, his father had to mortgage the farm to private money lenders despite having substantial land resources, and roughly 2 bighas of agricultural land was left for the family out of approximately 20 bighas, with the remainder being mortgaged out.

During that period, Ruhul was a school student. Following his graduation, he considered building a fish pond on



Ruhul in his fishery pond

the family's remaining two bighas of property. His father was opposed to the notion of digging a pond in the paddy field since it would cause damage to the crop. Ruhul, on the other hand, was adamant about the creation of a fish pond. He managed to pursue his father to let him excavate a 1 bigha pond in 2015. He started by raising fish seed spawn to fry and fingerlings in the first year. He first purchased 4 lakh of spawn from Barpeta via a middleman. From his new pond, he was able to produce three quintals (300kg) of fish fry and fingerling, with an annual profit of Rs. 60,000/-. The following year, he doubled the size of his pond from one to two bigha. Through fish seed cultivation, he could make a profit of Rs. 300000/- in the second year.

During the year 2018, he considered producing spawn. As a result, he began "hapa" (a technique of fish breeding) breeding on his property. He learned the technique of hapa breeding from some fish seed breeders, from Nagaon district. Since then, there was no stopping for him. Gradually, he was able to return the loan with the profits from his fish farm, and he was able to reclaim all the land that had been mortgaged. Ruhul gradually increased the size of his fish farm to 20 bighas. His father, like Ruhul Amin, has been inspired to take up fish farming and



Spawns from Ruhul's fishery pond

is now a full-time fish farmer. Ruhul Amin was appointed as the C&F Agent for Nexture Feeds Pvt. Ltd, Andhara Pradesh, in the year 2018. He is involved in the supply of feeds to other States. He also works as a distributor for a few fish prophylactic manufacturers and his annual earnings from the fish feed trade is around Rs. 500000/-

During the year 2019-20, one of his farm's ponds was chosen for a polyculture demonstration project by the Darrang District Fishery Office, as part of the Assam Agri-Business and Rural Transformation, Project (APART) which is funded by the World Bank. Ruhul's father, who looks after the fish farm in his absence and is now a full-time fish farmer, is chosen as the project's beneficiary. "APART has opened a new dimension in fish farming. My father and I have learnt new things about scientific Carp-mola farming practises," he says.

On being selected as a beneficiary under the APART scheme, initially in July 2020, Ruhul stock 20 kg Mola (Moah) with carps in 0.5 ha area and after three months of stocking, he was harvesting around 10 kg per month. The Better Management Practice prepared by WorldFish also built confidence in him for augmenting Carp-mola farming. During the lockdown period, he started door to door sell of Mola in small packets of 250 gms and 500 gms.

He sold around 1960 kg Carp and 167

kg of Mola and earned approximately Rs 3,07,400, which was almost double from his previous earnings of Rs 1,69,250 of normal Carp farming. Seeing the market demand and profitability of carp-mola farming, Ruhul started mola monoculture because it is a highly fecund prolific breed of fish with a high return. This year, he started monoculture of mola in 0.1 bighas of pond area and stocked with a 20kg Mola seed. After the second month of stocking, he has harvested 5-8 kg of mola and sold the price between 150 and 180 rupees per kilogram.

Freshwater Prawn Fish Farming – A Turning Point For Shambhu Haloi

Fish culture, undoubtedly, is one of the major economic and livelihood activities of rural communities in Assam. Though diversification in the fish culture system is always a part of the discussion in the fish culture system for better productivity, income and sustainability, but the majority of the State fish culture system is under the traditional species culture of Indian major carps and exotic & minor carps.

This is a success story of Shri Shambhu Haloi, from Khatkatara village, Nalbari district, who was able to increase his income through diversified fish culture. He had introduced high value giant freshwater prawn *Macrobrachium*



Shambhu with his harvested prawns

rosenbergii in carp polyculture system under APART. His success of freshwater prawn polyculture in Assam agro-climatic condition sends a positive message to other fish farmers and boost up the confidence

of the rural youths, mainly the educated youth who had lost jobs during the COVID pandemic and who wants to come forward in freshwater prawn-fish polyculture system for earnings.

Intervention

Shri Shambhu Haloi, 42, owns two ponds and was practising fish farming in a traditional method. During the year 2020-21, Shambhu was selected as a beneficiary for polyculture of carps with freshwater prawn demonstration under World Bank finance Assam Agri-Business and Rural Transformation Project (APART). From the APART scheme, he got the inputs like freshwater prawn seed & prawn feed, quality carp seed, fish feed, lime, zeolite and fertilizer as well as technical support for freshwater prawn farming from WorldFish and the Department of Fisheries. After getting inputs and technical support he started practising freshwater prawn with carp culture in a scientific way and flourishing of his pond with the stock of fishes.

The technology involved removal of bottom-dweller fish such as Common Carp fetches low price and Mrigal has a low growth rate, therefore replacement of bottom-dweller fish by freshwater prawn will pay rich dividends.

With a good market price, he sold 87 kg of freshwater prawn and was able to earn around Rs. 52,200/- from his pond sponsored under APART. Apart



Prawns from Shambhu's fishery pond

from freshwater prawn he was able to produce 876 kg of carps and earned an amount of Rs. 1,31,400/-. Looking for a way to increase his earnings, he invested in the construction of 5 more ponds with nursery rearing facilities in his parental land through proper guidance from officers of District Fishery Office, Nalbari and he started doing fish culture in new ponds and has a plan of fish seed rearing in the coming season.

Support and Encouragement: *"The World Bank aided APART scheme is a turning point in my life, the freshwater prawn was very new for me and only because of continuous support from this scheme and encouragement and guidance from officials of the Fisheries Department, I can culture and produce freshwater prawn and carp in the same pond and my income becomes double and I am confident that by introducing freshwater prawn in traditional culture system increase the farmers' income and I will continue the new farming system,"* says Shambhu.

এগৰাকী সফল মহিলা কৃষক - 'মনজুমা বেগম'

ভাস্কৰ পাঠক
জিলা উদ্যানশস্য সমন্বয়ক
এপাৰ্ট, গোলাঘাট

অনেক আগৰ কথা, আদিযুগৰ কৃষি আছিল প্রকৃতিৰ ওপৰত নিৰ্ভৰশীল। সেই সময়ত মানৱ সকলে জীৱিকাৰ বাবে হাবি-জংঘলত ঘূৰি ফুৰিছিল। পশু চিকাৰ আৰু ফলমূল সংগ্ৰহ কৰাই আছিল তেওঁলোকৰ প্রধান কাম। এয়া কৰিছিল পুৰুষসকলে আৰু নাৰীসকলে সন্তান লালন-পালনৰ লগতে ফলৰ বীজ মাটিত ৰোপণ কৰিছিল। বীজৰ পৰা হোৱা গছ ডাঙৰ হৈ যেতিয়া ফল ধাৰণ কৰিছিল তেতিয়া নাৰীসকল আৰু অধিক উৎসাহিত হৈ পৰিছিল। তেতিয়াৰ পৰাই কৃষি কৰ্মত নাৰীৰ যাত্ৰা আৰম্ভ হৈছিল। মহিলাসকলৰ কৃষি কাৰ্যত অৱদান বহু বেছি, বিশেষকৈ শাক-পাচলিৰ খেতিত। সেই ধাৰা অক্ষুণ্ণ ৰাখি এইবাৰ গোলাঘাট জিলাৰ শ্ৰেষ্ঠ কৃষকৰ সন্মান লাভ কৰিছে এগৰাকী মহিলা কৃষকে। দেৰগাঁও চহৰৰ পৰা ১০ কি:মি: নিলগত অৱস্থিত কাকডোঙা উন্নয়ন খণ্ডৰ ৪৫ বৰ্ষীয় এগৰাকী মহিলা কৃষক, তেওঁৰ নাম মনজুমা বেগম। তেওঁ বাস কৰা গাঁওখনৰ নাম ধেমাজি কৈৱৰ্ত গাঁও। উল্লেখযোগ্য যে, ২০২০ চনৰ ২৬ জানুৱাৰী তাৰিখে মনজুমা বেগমে লাভ কৰিছিল জিলা কৃষি বিভাগ, গোলাঘাটৰ তৰফৰ পৰা আগবঢ়োৱা এগৰাকী আদৰ্শ কৃষকৰ পুৰস্কাৰ।

মনজুমাই খেতি কৰি এক মানসিক প্ৰশান্তি লাভ কৰে, লগতে তেওঁ সংগ্ৰহ কৰে সতেজ

আৰু নিৰাপদ ফচল। শাক-পাচলি আৰু নাৰীৰ সংপৃক্ততা সৰ্বতে বিৰাজমান। কিন্তু মনজুমাৰ জীৱন যাত্ৰা ইমান সহজ নাছিল। তেখেতৰ স্বামী মৰহুম আনোৱাৰ হুছেইনৰ ২০০৪ চনৰ অক্টোবৰ মাহত, দুৰাৰোগ্য ৰোগত মৃত্যু হয়। ইয়াৰ পিছতেই মনজুমাই তিনি সন্তানৰ সৈতে জীৱন যুঁজত নামি কৃষিকৰ্মত আত্মনিয়োগ কৰে। মনজুমাই অলপ অলপকৈ ২০০৯ চনৰ পৰা খেতিত লাগিবলৈ আৰম্ভ কৰিছিল। তেওঁ



২০১১ চনত আত্মসহায়ক গোটৰ পৰা তিনি হাজাৰ টকা ঋণ ল'লে। লগতে, মনজুমাৰ কনিষ্ঠ ভাতৃ আজগৰ আলিয়েও তেওঁক আৰ্থিক ভাৱে কিছু সহায় কৰিবলৈ আগবাঢ়ি আহিল। মনজুমাই সম্পূৰ্ণভাৱে খেতিত ব্যস্ত হৈ পৰে ২০১২ চনৰ পৰা। ২০১৮ চনত গোলাঘাট কৃষি বিভাগৰ আটমাৰ তৰফৰ পৰা মনজুমাই লাভ কৰিছিল ১৫০ কেজি আলুৰ বীজ। সকলোকে আচৰিত

কৰি মনজুমাই ১৫০ কেজি আলুৰ পৰা উৎপাদন কৰিছিল প্ৰায় ২০ কুইণ্টল আলু। মনজুমাৰ এই সফলতাত সন্তুষ্ট হৈ গোলাঘাট কৃষি বিভাগৰ তৰফৰ পৰা সেইবাৰ তেওঁৰ পথাৰত “আলুৰ পথাৰ দিৱস” অনুষ্ঠিত কৰিছিল। তেওঁৰ শস্যডৰাত, অসমৰ কৃষি বাণিজ্য আৰু গ্ৰাম্য ৰূপান্তৰকৰণ প্ৰকল্প বা চমুকৈ এপাৰ্টৰ সৈতে সহযোগী হিচাপে কৰি থকা দক্ষিণ আমেৰিকাৰ



পেৰুস্থিত আন্তঃৰাষ্ট্ৰীয় আলু কেন্দ্ৰ (চি. আই.পি.) ৰ তৰফৰ পৰা ২০১৯ চনত মনজুমা বেগমক ৬ বিধ বেলেগ বেলেগ জাঁতৰ আলুৰ এক প্ৰদৰ্শনীমূলক খেতি কৰিবলৈ সুযোগ প্ৰদান কৰা হৈছিল। আলুৰ জাঁত কেইবিধ আছিল কুফ্ৰী সূৰ্য্য, কুফ্ৰী জ্যোতি, কুফ্ৰী পোখৰাজ, কুফ্ৰী হিমালিনী, কুফ্ৰী খ্যাতি আৰু চিপ চোনা ৪। তেওঁ আলু খেতিৰ বাবে বীজ লাভ কৰে ১৯০ কেজি। খেতি কৰা মাটি কালিৰ পৰিমাণ আছিল ১ বিঘাতকৈ অলপ কম। আন্তঃৰাষ্ট্ৰীয় আলু কেন্দ্ৰ (চি. আই.পি.) ৰ এই খেতিত মনজুমাই

২১ কুইণ্টল আলু উৎপাদন কৰি এক অভিলেখ সৃষ্টি কৰে। উল্লেখ্য যে, তেওঁ উৎপাদন কৰা এটা আলুৰ ওজন প্ৰায় ৬০০ গ্ৰামলৈকে হৈছিল।

একেদৰে গোলাঘাটৰ খুমটাই কৃষি বিজ্ঞান কেন্দ্ৰৰ তৰফৰ পৰা ২০২০ চনত মনজুমাই ‘মাধুৰী’ জাঁতৰ বন্ধাকবিৰ প্ৰদৰ্শনীমূলক খেতি কৰিবলৈ সুযোগ পাইছিল। সম্পূৰ্ণ জৈৱিকভাৱে কৰা বন্ধাকবি এটাৰ ওজন সৰ্বোচ্চ প্ৰায় ২.৫ কেজি লৈকে হৈছিল। যদিও লখন দাস আৰু মানোৱাৰা বেগম নামৰ দুগৰাকী শ্ৰমিকে বৰ্তমান সময়ত মনজুমাক খেতি কৰা কামত সহায় কৰে; কিন্তু তেওঁলোকৰ সমানে মনজুমাইও বীজ ৰোপণৰ পৰা আৰম্ভ কৰি খেতিত সাৰ দিয়া, পৰিচৰ্যা, কীট-পতঙ্গ, বেমাৰ আজাৰ নিয়ন্ত্ৰণ, শস্য চপোৱা, বীজ সংৰক্ষণ, প্ৰক্ৰিয়াকৰণৰ লগতে বিপণনৰো কাম কৰে। মুঠ ২২ বিঘা মাটিত তেওঁ কুঁহিয়াৰ, বিলাহী, অমিতা, আলু, ব্ৰকলি, কচু, জাতিলাও, জিকা, ভেন্দি, কেপচিকাম আদি শস্যৰ খেতি কৰে। সকলো খৰছ বাদ দি মনজুমাৰ বছৰত উপাৰ্জন হয় প্ৰায় তিনি লাখ টকা। তেওঁৰ ২ খন ট্ৰেক্টৰও আছে। ২০২০ চনত উৰিষ্যাৰ অনুষ্ঠিত হোৱা এক কৃষি সন্মিলনত অংশ গ্ৰহণ কৰিবলৈ যাওঁতে তেওঁ দেখিছিল ঘাঁহ-বন কটা যন্ত্ৰ। ঘৰলৈ আহি মনজুমাই ২৬০০০ হাজাৰ টকাৰে বিলাহী খেতিত হোৱা অপতৃণ নিয়ন্ত্ৰণ কৰিবলৈ সেই যন্ত্ৰ কিনে আৰু সেই যন্ত্ৰ তেওঁ নিজে চলায়।

এই গৰাকী উদ্যসমী নাৰীৰ সফলতাৰ জীৱনগাঁথা ইয়াতে শেষ হোৱা নাই। এতিয়ালৈ ৭১ টা আত্মসহায়ক গোট মহিলাসকলৰ বাবে গঢ়লৈ উঠিছে, তাৰে ভিতৰত ৫২ টা আত্মসহায়ক গোট “কনকলতা মহিলা সবলীকৰণ আঁচনিৰ” জৰিয়তে লাভ কৰিছে ২ লাখ টকাকৈ ঋণ, তাৰে ৫০ হাজাৰ ৰাজ সাহায্য আৰু লগতে আছে ২৫ হাজাৰকৈ ঘূৰ্ণীয়মান পুঁজি। সকলো দিশতে অগ্ৰীণ ভূমিকা দেখা গৈছে মনজুমাৰ। কাকডোঙা উন্নয়ন খণ্ডত ‘ৰাষ্ট্ৰীয় গ্ৰামীণ জীৱিকা মিছন’ত মনজুমা বৰ্তমানে “জীৱিকা সখী” ৰূপে কৰ্মৰত। তেওঁৰ সফলতাই যাতে আনকো বাট দেখুৱাব পাৰে, সেই উদ্দেশ্যে যোৰহাট অনাতাঁৰ কেন্দ্ৰই এই বছৰৰ ২১ মাৰ্চ তাৰিখে মনজুমাক “কৃষক বাণী” অনুষ্ঠানত অংশ ল’বলৈ নিমন্ত্ৰণ কৰিছিল। স্বৰ্গীয় আকবৰ আলি আৰু জয়তুন নেছাৰৰ সন্তান মনজুমায়ৈ নিজৰ কৃতিত্বৰ বাবে এপাৰ্টৰ অৱদান সদায়ে স্মৰণ কৰে। লগতে কৃষি বিভাগ, আটমা আৰু এপাৰ্ট, গোলাঘাটৰ পৰা সময়ে সময়ে লাভ কৰা দিহা পৰামৰ্শ আৰু সুযোগ সুবিধাৰ বাবে কৃতজ্ঞতা প্ৰকাশ কৰে। মনজুমা এতিয়া বহুতৰে আদৰ্শ।



এপাৰ্ট প্ৰকল্পৰ অধীনত প্ৰগতিশীল কৃষক চম্পক ভূঞাৰ সফলতাৰ কাহিনী

পংকজ হাজৰিকা
জিলা উদ্যান-শস্য সমন্বয়ক,
এপাৰ্ট, নগাওঁ

অসম গ্ৰাম্য আন্তঃগাথনি আৰু কৃষি সেৱা সমিতি চমুকৈ এৰিয়াছ চছইটিৰ তত্বাৱধানত ৰূপায়িত এপাৰ্ট প্ৰকল্পই অসমৰ প্ৰায় ১৬ খন জিলাত ২০১৬ চনৰপৰা কৃষিৰ লগতে অন্যান্য উন্নয়নমুখী কাৰ্য পৰিচালনা কৰি আহিছে। কৃষি ক্ষেত্ৰত ভিন্ন পথাৰ শস্যৰ লগতে উদ্যান শস্যৰো উৎপাদন তথা চাহিদা বৃদ্ধি, বতৰৰ লগত খাপ খোৱা প্ৰযুক্তি, মূল্য সংযোজন আৰু বিপণনৰ লক্ষ্য আগত ৰাখি এপাৰ্ট প্ৰকল্পটি জিলা কৃষি বিষয়া তথা প্ৰকল্প সঞ্চালক, আটমাৰ তত্বাৱধানত ১৬ খন জিলাত ৰূপায়িত হৈ আহিছে। উদ্যান শস্যসমূহৰ ভিতৰত বন্ধাকবি, ফুলকবি, বিলাহী, বেঙেনা, ৰঙালাও, কল, আনাৰস, আদা, আলু ইত্যাদি উৎপাদন, চাহিদাৰ ক্ষেত্ৰত নতুন নতুন প্ৰযুক্তি ব্যৱহাৰ কৰি অসমৰ কৃষক সকলৰ মাজত আশাৰ সঞ্চাৰ সৃষ্টি কৰা দেখা গৈছে।

এপাৰ্ট প্ৰকল্পৰ আলুৰ প্ৰদৰ্শনমূলক খেতিৰ ক্ষেত্ৰত নগাওঁ জিলাৰ কলিয়াবৰ কৃষি উন্নয়ন খণ্ডৰ পুৰথৰিয়া গাঁৱৰ এজন কৃষকৰ সফলতাৰ কাহিনী আপোনালোকলৈ আগবঢ়াইছো।

২৩ বছৰ বয়সতে নিজ পিতৃক হেৰুৱাই, পৰিয়াল পোহ-পালৰ সমস্ত দায়িত্ব নিজ কান্ধত লৈ, পূৰ্বপুৰুষৰ কৃষি পৰম্পৰা বজাই নিজকে কৃষি কৰ্মত নিয়োজিত কৰা চম্পক ভূঞা, কলিয়াবৰ উন্নয়ন খণ্ডৰ, পুৰথৰিয়া গাঁও পঞ্চায়তৰ, পুৰথৰিয়া গাঁৱৰ নিবাসী। চম্পক ভূঞাই ভিন্ন জটিল পৰিস্থিতিৰ মাজেৰে জীৱন অতিবাহিত কৰি তেজপুৰস্থিত দৰং কলেজৰপৰা উচ্চতৰ মাধ্যমিক শিক্ষা সম্পূৰ্ণ নৌহওঁতেই শিক্ষা জীৱনৰ পৰা অব্যাহতি ল'ব লগা হৈছিল আৰু পৰিয়ালৰ তিনি ভাতৃৰ লগত লগ হৈ কৃষিকৰ্মৰ লগতে দৈনিক হাজিৰা কাম কৰি পৰিয়াল পোহ-পাল দিছিল।

২৫-৩০ বছৰ ধৰি কৃষিকৰ্মৰ লগত জড়িত চম্পক ভূঞাই পৰম্পৰাগত/থলুৱা কৃষি পদ্ধতিৰে ধান, মৰাপাট, মাহ, সৰিয়হ, আলু, শাক-পাচলিৰ খেতি কৰাৰ উপৰিও প্ৰায় ৯ বিঘা আধিত লৈ উপৰোক্ত খেতিসমূহ কৰি বছৰি ৪০,০০০ ৰ পৰা ৫৬,০০০ টকা প্ৰতি বছৰে উপাৰ্জন কৰি নিজৰ ৪ জনীয়া পৰিয়ালটোক পোহ-পাল দি আহিছিল।

২০১৯ বৰ্ষৰ জুনমাহৰ পৰা চম্পক ভূঞা এপাৰ্ট প্রকল্পৰ লগত জড়িত হৈছিল। প্ৰাৰম্ভিক পৰ্যায়ত এপাৰ্ট প্রকল্পৰ অধীনত অনুষ্ঠিত বিভিন্ন কাৰিকৰী প্ৰশিক্ষণত অংশ গ্ৰহণ কৰিছিল। ইয়াৰ লগতে আলুৰ মূল্যশৃংখল বিদ্যালয়ত (Potato Value Chain School) নামভৰ্তি কৰি প্রকল্পৰ লগত পোনপটীয়াকৈ জড়িত হয়। এই জৰিয়তে কলিয়াবৰ উন্নয়নখণ্ডত আলুৰ সংগবদ্ধ কৃষিৰ গুৰুত্ব উপলব্ধ কৰাৰ লগতে, বিজ্ঞানভিত্তিক আলুৰ খেতিৰ প্ৰশিক্ষণ আৰু Exposure visit আদি পাবলৈ সক্ষম হৈছিল। ইয়াৰ উপৰিও জিলা কৃষি বিভাগৰ তহাৰধানত এই বিদ্যালয়ৰ সদস্যসকলে কৃষক গোট (FIG) গঠন কৰি বিভিন্ন চৰকাৰী সা-সুবিধাৰ কাৰণে আবেদন কৰে আৰু লগতে আলুৰ বিপণনৰ ক্ষেত্ৰত গোট পোনপটীয়াকৈ স্থানীয় বজাৰ আৰু নিয়ন্ত্ৰিত বজাৰ সমূহত আলুৰ বেপাৰ আৰম্ভ কৰি আহিছে। ২০২০-২১ বৰ্ষৰ আলুৰ প্ৰদৰ্শনীমূলক খেতিৰ বাবে কলিয়াবৰ উন্নয়নখণ্ডৰ ৫ জন হিতাধিকাৰীৰ ভিতৰত চম্পক ভূঞা অন্যতম আছিল। চম্পক ভূঞাই এপাৰ্ট প্রকল্পৰ অধীনত নিম্নোক্ত সাহায্য আহৰণ কৰিছিল।

মুঠ ৬ কঠা মাটিৰ প্ৰদৰ্শনীমূলক খেতিৰ বাবে - আলুৰ বীজ (কুফ্ৰি চিপচোনা-৩) আলুৰ পৰিমাণ ৫০০ কেজি ইয়াৰে ৩০০ কেজি মূল প্ৰদৰ্শনীমূলক খেতিৰ বাবে আৰু ২০০ কেজি কণ্ট্ৰল প্লট (কৃষকৰ নিজা পদ্ধতিৰে কৰা আলুৰ খেতিৰ বাবে), ইউৰীয়া - ৩৩ কেজি, ছিংগল

চুপাৰ ফছফেট - ৯০ কেজি, মিউৰেট অৱ পটাছ - ৫০ কেজি, ডাই এম'নিয়াছ ফছফেট - ৩৩ কেজি, বৰাক্স - ২ কেজি, জিংক ছালফেট- ৩ কেজি, মাইক্ৰ' নিউট্ৰিয়েণ্ট সাৰ- ৩ কেজি, কীটনাশক/বেক্টেৰিয়া নাশক ঔষধ, লেট ব্লাইটৰ বাবে ছেকাটিন - ১০০ গ্ৰাম, ইন্ডফিল - ১০০।



প্ৰদৰ্শনীমূলক খেতিৰ বাবে প্ৰয়োগ হোৱা পদ্ধতি - (ৰেইজ বেড + নৰাৰে ঢাকি কৰা আলুৰ প্ৰদৰ্শনীমূলক খেতি) :

এই পদ্ধতিত মাটিত প্ৰথমে ৬ ইঞ্চি ওখ আৰু ৩ ফুট বহল টিপ বা ভেটি বনোৱা হয়। দুটা টিপৰ মাজৰ দূৰত্ব ৬ ইঞ্চি লাগিব। প্ৰতিটো টিপত দুই শাৰীকৈ ১ ফুট ব্যৱধানত আলু ৰোপনৰ ব্যৱস্থা কৰা হয়। এটা টিপ কাষৰ আলুটোৰ আনটো টিপৰ কাষৰ আলুটোৰ মাজৰ দূৰত্ব ৩ ফুট হ'ব লাগিব। টিপ প্ৰস্তুত কৰি আলু ৰোপনৰ পাছত ৭ ইঞ্চি ডাঠ কৰি ধানৰ নৰাৰে সম্পূৰ্ণ ভেটিবিলাক ঢাকি দিয়া হয়। ভেটিৰ মাজে মাজে নলাৰ ব্যৱস্থাপনা কৰা হয় আৰু সম্পূৰ্ণ শস্য কালত

প্ৰায় ১ বাৰকৈ পানীৰ ব্যৱস্থাপনা কৰা হয়।
উল্লেখনীয় যে, জলসিঞ্চন কৰোতে নলাটোত
২-৩ ইঞ্চি পানী থাকিব লাগিব।

- » ৰোগ ব্যাধিৰ প্ৰকোপ কম হয়।
- » উৎপাদন বৃদ্ধি হয়।
- » আলুৰ আকাৰ সম পৰিমাণৰ হয়।
- » উৎপাদনৰ ব্যয় কম হয়।

**ৰেইজ বেড আৰু নৰাৰে ঢাকি কৰা আলু খেতি
সুবিধাসমূহ :**

- » আলু ৯০ দিনৰ ভিতৰত চপাব পাৰি।
- » আলুৰ মাজত অপতৃণ কম হয়।

চম্পক ভূঞাৰ প্ৰদৰ্শনমূলক খেতিৰ বিষয় তথ্য সমূহ-

খেতি ডৰাৰ বিৱৰণ	
আলু লগোৱাৰ সময়	২ ডিচেম্বৰ, ২০২০
জলসিঞ্চন	১ বাৰ
শস্যকাল	৯০ দিন
বজাৰ মূল্য (বিজ্ৰী)	১৭ টকা প্ৰতি কেজি
আলু চপোৱাৰ সময়	৩ মাৰ্চ, ২০২১

প্ৰদৰ্শনমূলক খেতি ডৰাৰ উৎপাদন (প্ৰায়)	
প্ৰতি ২৫ বৰ্গমিটাৰত	৯০ কেজি
প্ৰতি বিঘা মাটিত	৪৮ কুইণ্টল
প্ৰতি হেক্টৰ মাটিত	৩৬ মেট্ৰিক টন

নিজে কৰা খেতি ডৰাৰ উৎপাদন (প্ৰায়)	
প্ৰতি ২৫ বৰ্গমিটাৰত	৬৩ কেজি
প্ৰতি বিঘা মাটিত	৩৩.৬ কুইণ্টল
প্ৰতি হেক্টৰ মাটিত	২৫.২ মেট্ৰিক টন

২০১৯-২০ বৰ্ষত কৰা আলুৰ উৎপাদন (প্ৰায়)	
প্ৰতি ২৫ বৰ্গ মিটাৰত	৭৭ কেজি
প্ৰতি বিঘা মাটিত	৪১ কুইণ্টল
প্ৰতি হেক্টৰ মাটিত	৩০.৭ মেট্ৰিক টন

উপৰোক্ত উৎপাদন আৰু গড় বজাৰ মূল্যৰ
তথ্যৰ ওপৰত ভিত্তি কৰি আমি সিদ্ধান্তত
উপনীত হ'ব পাৰো যে, পুৰথৰিয়া গাঁৱৰ নিবাসী
চম্পক ভূঞাই এপাৰ্ট প্ৰকল্পৰ অধীনত আলু
খেতি কৰি প্ৰতি বিঘাত ৭.৪ কুইণ্টল পৰিমাণ
অতিৰিক্ত আলু উৎপাদন কৰিবলৈ সক্ষম হৈছে।

তেওঁৰ এই উৎপাদন কৌশল আন আন কৃষক
সকলে গ্ৰহণ কৰি কৃষি উৎপাদনত সফল হৈ
আৰ্থিকভাৱে অধিক স্বাৱলম্বী কৰিব পৰাটোৱেই
'এপাৰ্ট' আঁচনিখনৰ লক্ষ্য। চম্পক ভূঞাৰ দৰে
প্ৰগতিশীল কৃষক সকলে এপাৰ্ট আঁচনিখন সফল
ৰূপায়ণত অৰিহণা যোগাই কৃতিত্ব লাভ কৰিছে।

ধান কটা যন্ত্ৰ বা ৰিপাৰ

- » ৰিপাৰ চলাবলৈ পাৰাৰ টিলাৰ বা ট্ৰেক্টৰৰ প্ৰয়োজন নহয়।
- » ধান কটাৰ সময়ত খেৰ বোৰ নষ্ট নহয়।
- » সঠিক সময়ত ধান চপোৱাৰ বাবে ধানৰ লোকচান কম হয়।
- » সময় ৰাহি হয়।
- » শ্ৰমিকৰ বাবে হোৱা খৰছ ৰাহি হয়।
- » মূল্য ১,৫০,০০০ টকা।
- » প্ৰতি হেক্টৰ মাটিৰ ধান কাটিবলৈ ৩.৫ ঘণ্টাৰ প্ৰয়োজন হয়।



পৰ্টেবল ৰাইচ মিল

মূল্য :

৩,০০,০০০ - ৩,৫০,০০০ টকা

ক্ষমতা :

- » এক ঘণ্টাত ১ টন ধান কুটাব পাৰে।
- » মিল (৪২ হৰ্চ পাৰাৰ বা তাতোধিক) ৰ দ্বাৰা চালিত।
- » মিল চলাবলৈ প্ৰতি ঘণ্টাত ৩ লিটাৰ ডিজেলৰ প্ৰয়োজন হয়।

সুবিধা :

- » ইয়াৰ জৰিয়তে কৃষকসকলে ধান নষ্ট নোহোৱাকৈ কুটাব আৰু পৰিস্কাৰ কৰিব পাৰে।
- » মুগা চাউল এই ধানবনা প্ৰক্ৰিয়াৰে কুটাব পাৰি।
- » সহজতে চলাব পাৰি।



সংগ্ৰহ : ইন্টাৰনেছনেল ৰাইচ ৰিচাৰ্চ ইনষ্টিটিউট



KRISHI RUPANTAR

25th Issue | October 2021

ARIAS SOCIETY

(An Autonomous Body of the Govt of Assam)

Agriculture Complex, Khanapara, G.S Road, Guwahati -781022 (Assam, India)

Tel: +91 361-2332125 | Email: spd@arias.in | Web site: www.arias.in

Grievance Redressal : grievances@arias.in | Toll Free : 1800-102-0338

(10 a.m – 5 p.m- excluding holidays)
