

# RICE VALUE CHAIN

## QUARTERLY NEWSLETTER

ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT (APART) 4<sup>th</sup> Edition March 2020

### ADOPTION OF NEW TECHNOLOGY BRINGS SMILES TO MS. PURNIMA OF RAHA, NAGAON

Ms Purnima Deka (40 years old) of Jungal Balahu gaon, Raha, Nagaon, is a progressive women farmer associated with KVK, Nagaon for past few years. In 2019, she opted to cultivate the Sali paddy variety Ranjit-Sub1 through direct seeding with the help of a seed-cum-fertilizer drill.

She was very happy to know that this method of rice establishment requires less time and is cost-effective as it cuts the cost of nursery raising, uprooting and transplanting of seedlings as compared to the traditional method of rice cultivation.



### THE DSR TECHNOLOGY



The field was thoroughly ploughed 4 to 5 times followed by harrowing to obtain a fine seedbed. A day before sowing, 9 kg of MoP and 12 qt of FYM per bigha was applied in the field. Leveling and planking were done on the same day. Seeds were sown in the field @ 5 kg per bigha along with DAP 6 kg per bigha through the seed-cum-fertilizer drill. The seeds were sown in rows at 25 cm apart at 1.5 cm depth. Pre-emergence herbicide Pretilachlor with safener was sprayed. The first dose of urea (5.7 kg/bigha) was top-dressed 15 days after sowing (DAS). Likewise, the second and third top-dressing of urea (6 kg/bigha) were done after the first weeding and second weeding

respectively. Pest and disease management was done as and when required.

The team from APART and IRRI were in constant contact with Ms Purnima and provided all necessary guidance, whenever required. Since the technology was very new to her, she was not sure about the result and most of the fellow farmers told that in DSR the weed infestation is more, as a result, she may fail to get sufficient yield from her plot. During the crop period, many farmers from her village and nearby villages visited her field to know about the performance of the newly introduced technology and

its impact on the overall yield of the crop.

She was very happy with the harvest, as she was able to harvest around 9 quintals of paddy per bigha against 7.5 quintals per bigha in last season from the same plot. It was quite a higher yield, and she decided to take forward the technology to the next season. *“It’s a good learning for me. I have experienced the new technology and its advantages over the traditional method of cultivation. I am very much*

*happy that I got the chance to experiment this method of rice growing and also introducing a new time- and cost-saving technology which will be an example for my fellow farmers. I am satisfied with the performance and result of this new technology, and I am interested to purchase a seed-cum-fertilizer drill machine in days to come. I would like to thank APART, KVK Nagaon and IRRI officials for their continuous support, encouragement and regular monitoring” she said.*



### AAU AND IRRI CONDUCT CONTENT WRITESHOP FOR ASSAM RICE KNOWLEDGE BANK FOR DEVELOPING FACTSHEETS AND RICE PRODUCTION MANUAL

The year 2020 began with a Content Writeshop for the Assam Rice Knowledge Bank under Assam Agribusiness and Rural Transformation Project (APART), at Assam Agricultural University from Jan 06 to 08, 2020 with the technical support from International Rice Research Institute (IRRI). The Write shop was aimed to localize the factsheets, Mechanical Transplanting Manual, Spray Techniques Manual and the Rice Production Manual with the input from scientists of Assam Agricultural University and Department of Agriculture, Govt. of Assam.

During the inaugural session, Ms Poornima Ravi Shankar, Lead Specialist - Knowledge Management and Outreach, IRRI gave a detailed presentation on the

update of the Assam Rice Knowledge Bank development. Dr Kanwar Singh, Resident Consultant – APART and Senior Associate Scientist, in his speech, mentioned the importance of factsheets and the product manual. He also described the accomplishments and outcomes of the previous Assam Rice Knowledge Bank workshop. Dr Mrinal Saikia, Associate Director (Research), AAU underlined the importance of developing factsheets in the local language to minimize the gap between the farmers and the agricultural researchers and scientists. Dr Gopesh Tiwari, Head, IRRI Education ISARC also graced the occasion.





Dr Ashok Bhattacharya, Director of Research, Assam Agricultural University, stressed the need for organising such workshop on regular intervals for the capacity building of the scientists and the farmers. He also urged the scientists to reap the benefit of the Rice Knowledge Bank. It would be pertinent to mention here that the Package of Practices of different crops developed by Assam Agricultural University, with the inclusion of relevant IRRI input was launched on the second day of the Content Writeshop.

Forty participants from various organisations including

IRRI, Assam Agricultural University and Department of Agriculture, Govt. of Assam attended the Content Writeshop. Participants worked on their projects to localize the factsheets and Rice Production Manual. Fifty factsheets were also translated on the same day. Attending the 2nd-day Content Write shop, Dr Arvind Kumar, Director, ISARC, IRRI expressed his satisfaction on the outcome of the workshop and hoped that the factsheets and the Rice Production Manual would help the farmer fraternity of Assam with easy access to knowledge.

### BINA DHAN 11 PERFORMS WELL IN POST-FLOOD SITUATION

The occurrence of the flood is a common and regular feature in Assam, leading to human misery and devastation in agriculture. Flood disrupts the cropping season and reduces the cropping intensity of the state. One of the priority concerns in the agriculture sector of Assam is to strategize a policy to combat the regular flood. During July 2019, the devastating flood completely damaged the paddy fields in Barpeta district. The flash-flood completely washed away not only the paddy fields of Borbila village in Keotkuchi block of Barpeta district but also shattered the hopes and livelihood options of the farmers. Farmers were clueless where to go, or more particularly what to do for their survival. The project staff of APART at Krishi Vigyan Kendra under Assam Agricultural University, where International Rice Research Institute is the technical partner, was around the farmers throughout the year for

providing the best technical options. They assured them to arrange a meeting with the AAU scientists for finding out the possible way to cope up with the situation. The farmers also realized that whatever compensations they would be getting from Govt. would not be sufficient for meeting their household requirements. Therefore, there was no other option but to grow short-duration paddy variety in the same field after flood recession, so that they don't lose the next cropping season. The meeting was fixed with the Director of Extension Education (DEE), Assam Agricultural University, and the criticality of the situation was analyzed. The DEE asked Krishi Vigyan Kendra, Barpeta to intervene and advised growing community nursery with a short-duration high yielding variety. The KVK team to expedite the directions quickly drew an action plan with the involvement of local people.



*Community Nursery for Bina Dhan*

The situation demanded a rice variety which can give better yield, is tolerant to flood if it occurs again and more importantly has a shorter duration. Prioritizing all these key factors, KVK Barpeta suggested cultivation of BINA Dhan 11, a variety introduced by IRRI in collaboration with AAU under APART. KVK purchased 1250kg of BINA Dhan 11 grain from the farmers who grew this variety in the previous Boro season and distributed it among 125 needy farmers as a seed covering an area of 250 bighas. The farmers decided to grow nursery together as a community nursery. Since the area to be covered was quite large, they grew four community nurseries in different locations of the village. The nursery was sown during the first week of August 2019 after the flood

receded, and farmers were able to successfully harvest the paddy during the second week of December. The yield received was up to 7 tons per hectare, quite a satisfactory quantity.

The best things reflected from this farmers' initiative were the farmers' unity for a cause and inclination towards new technology.

The happy farmers while harvesting the bumper yield said, "Flood has been wreaking havoc in our village and our sole source of livelihood, rice, is threatened. BINA Dhan 11 has emerged as the most suitable option for us to save our livelihood."



*Bina Dhan paddy ready for harvest*

## LEARNING THE FOOTPRINTS

In a Project, monitoring and evaluation systems are designed to inform the project management whether the implementation is going as planned, whether mid-term corrective action is needed to adjust implementation plans, to provide evidence of project outcomes and to justify project funding allocations. The system is essentially built on regular tracking and monitoring of carefully constructed matrices based on impact pathways/theory of change for the project in context.

Since 2018, Assam Agricultural University and Department of Agriculture, Govt. of Assam with the technical support from International Rice Research

Institute(IRRI) have been implementing the different technologies for "Increasing productivity and profitability of small and marginal farmers in rice-based cropping systems" in Assam under APART.

A Monitoring and Impact Assessment framework that aims at answering the key evaluation questions (KEQ) and measuring the timely progress of different levels of indicators have already been developed for this project. The major instrument designed is "Quantitative household surveys" scheduled to occur bi-annually from March 2020. The study would be based on cross-sequential sampling covering 1200-1400 respondents

every time with beneficiaries and non-beneficiaries across seasons considered altogether. Every survey will mandatorily include a “Basic Impact Assessment Module” to be repeated every time covering all sample respondents. The basic module essentially captures the development of all major outcome and impact indicators. This is planned to be followed with shorter “component-specific modules” limited to specific surveys and beneficiaries. Data collection will be made through the Enketo web version of Computer Assisted Personnel Interview (CAPI) based software called “Kobotoolbox”.

A 5-day training of 35 enumerators including Project

Scientist, Assistant Project Scientist and IRRI staff, who would be directly involved in ground-level data collection for the same, was organised at Horticultural Research Station, Kahikuchi Guwahati on 25th to 29th February 2020. The training involved elaborate discussion, mock testing and piloting of questionnaire in the field with farmers. The first survey in the sequential set has been planned to start in the second week of March 2020 and expected to complete by May 2020.

It is expected that the results from this survey will help in demonstrating the impact of the project to the stakeholders, and also to learn the effectiveness of the agricultural research and extension process.



*Training of enumerators for monitoring and evaluation*

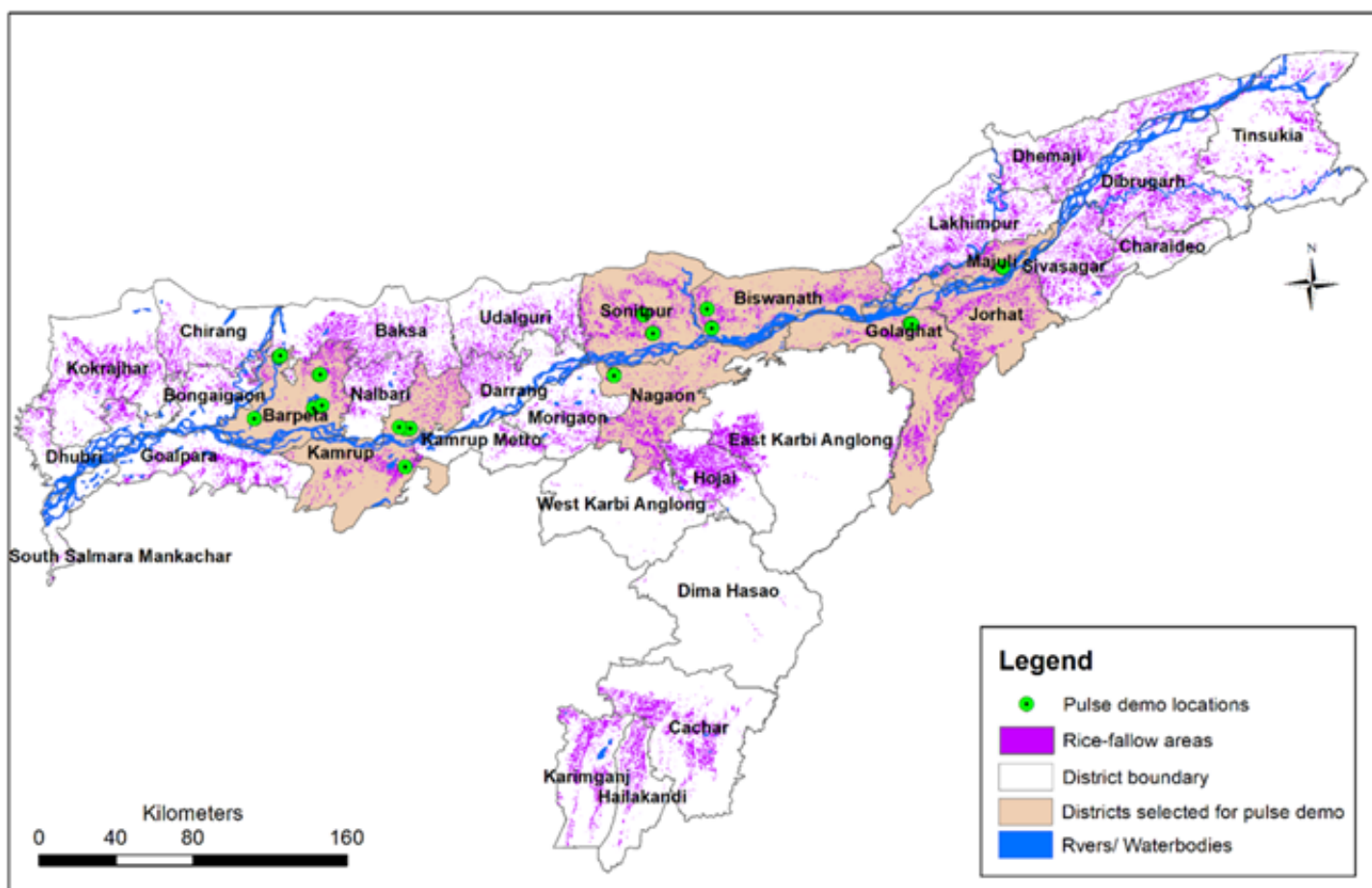


## TARGETING RICE FALLOW AREAS IN ASSAM FOR INCREASING PRODUCTIVITY AND PROFITABILITY

Assam has an estimated 25 lakh hectares area under paddy cultivation which accounts for almost 83% of the total cultivable land of the state (Directorate of Economics & Statistics, 2015-16). But most of this paddy cultivation is confined to the kharif season (sali) during which almost 19 lakh hectares of agricultural land is utilized. Though Assam is blessed with highly fertile arable soils and high rainfall during the monsoon season, the lack of proper irrigation facilities, soil and nutrient management practices among other reasons lead to a large area under paddy cultivation during Sali season but it remains fallow during the other seasons of the year.

One of the objectives under Assam Agri-business and Rural Transformation Project (APART) under IRRI supported activities is the use of geospatial technologies

for developing extrapolation domains of different cropping systems for efficient targeting of technologies in low-productivity rice-fallows and stress-prone areas. Under this objective, IRRI has analysed the satellite images for the last rabi season (2018-19) to estimate the rice-fallow areas. An area of approximately 9 lakh hectares was estimated to be rice-fallow areas during rabi 2018-19. Soil moisture analysis for these rice-fallow areas was done by using satellite-based products to estimate the suitable zones for other crops during the rabi season. There is a wide scope of increasing the cropping intensity by introducing short duration crops such as pulses in the existing cropping systems and targeting of rice-fallow areas to have an additional crop and there is a scope of enhancing the productivity of rice-based systems by efficient use of available resources.



*Locations for pulse demonstrations in different districts of Assam showing rice-fallow areas*

Based on the availability of soil moisture and rice-fallow areas, few districts were chosen for pulse demonstrations during rabi 2019-2020 in a total area of 100 ha with the primary objective of increasing the cropping intensity in areas where farmers are cultivating only single crop during the kharif season. Since black gram is a popular crop in Assam, it was suggested to cultivate high yielding short duration black gram variety which can be easily grown in areas with sufficient soil moisture. IRRI has suggested the IPU-2-43, black gram variety which is suitable for North Eastern plains and resistant to the yellow mosaic virus (YMV) and Cercospora leaf spot disease. This variety can be cultivated in a wide range of soils and is a summer variety, the optimum sowing time is from mid-February to March with a crop duration of around 75 days. IRRI has shared the best management practice with its partner organization AAU, which is the implementing agency

for these demonstrations through the KVKs at selected districts.

The districts selected for summer black gram demonstrations in rice-fallow areas are Kamrup (10 ha), Barpeta (20 ha), Nagaon (15 ha), Sonitpur (15 ha), Biswanath (5 ha), Golaghat (15 ha), Jorhat (5 ha) and Majuli (15 ha). The map shown in the figure shows the selected districts for pulse demonstrations during rabi 2019-2020, the rice-fallow areas during the last rabi season (2018-19) and locations where pulse demonstrations are being carried out in February 2020. Half of the total demonstration area is line sown using seed drill with interventions based on the BMP for summer black gram, while the other half is sown using farmer's practice (broadcasted). Sowing is completed in all the districts with the help of KVKs and the target of 100 ha for entire Assam was completed by the end of February 2020.



*Black gram line sowing using seed drill at Auniati Kheraj village, Nagaon*



*Black gram broadcasting in Amrenga village under Rani block, Kamrup*



*Black gram sowing under APART at Balidua village, Golaghat*





*Ceremonial Transplantation using Mechanical Transplanter in Bangaon, Nalbari*



*ICMD Demo plot in Hajpongbari Village, Kamrup*



*Mat Nursery of Summer paddy in SONipur district*

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