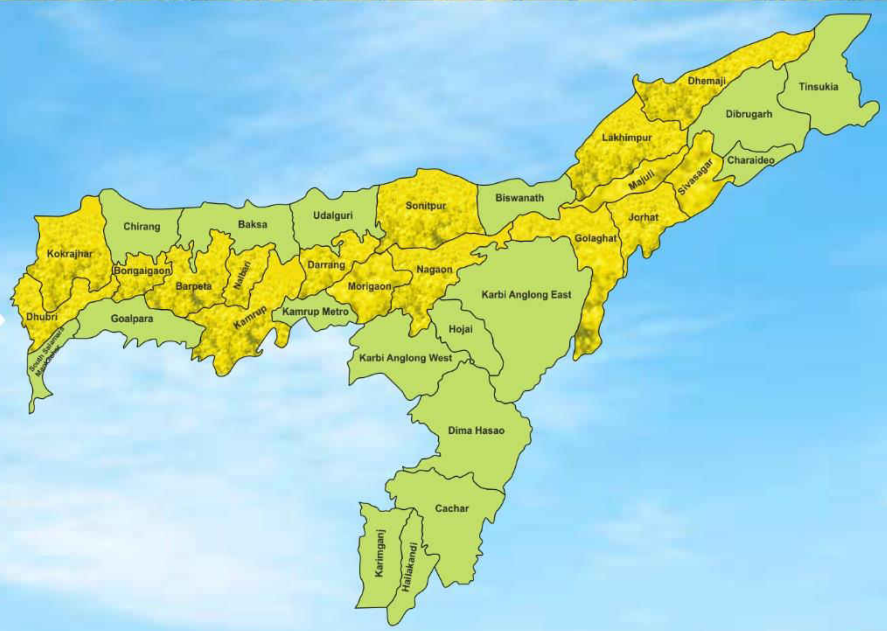
ICAR-DRMR-OPIU (Agri)-APART Project

THIRD SIX MONTHLY REPORT

JULY - DECEMBER 2021



ICAR-DIRECTORATE OF RAPESEED-MUSTARD RESEARCH
BHARATPUR, RAJASTHAN-321303

ASSAM AGRIBUSINESS & RURAL TRANSFORMATION PROJECT
(APART)

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ICAR

सरसों अनुसंधान निदेशालय
Directorate of Rapeseed-Mustard Research
DRMR
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ARIAS Society
GOVERNMENT OF ASSAM
Assam Rural Infrastructure and Agricultural Services Society

APART

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সত্যমেব জয়তে
GOVERNMENT OF ASSAM

Six Monthly Report

July-Dec. 2021

Consulting services for technical advisory support on Augmenting Rapeseed-Mustard Production of Assam Farmers for Sustainable Livelihood Security

Assam Agribusiness and Rural Transformation Project (APART)

Contract No. OPIU Agri/APART/DRMR/23

World Bank Financed

Submitted by

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(An ISO 9001-2008 Certified Organization)

Correct citation:

Sharma, A.K., Kumar, V., Singh, N. and Rai, P.K. (2021). Six Monthly Progress Report-III. ICAR-DRMR-OPIU (Agri)-APART Project "Augmenting Rapeseed-Mustard Production of Assam Farmers for Sustainable Livelihood Security". (OPIU Agri/APART/DRMR/23/ Report-II/January-June 2021). ICAR-Directorate of Rapeseed-Mustard Research, Sewar, Bharatpur, Rajasthan-321303, India, pp. 96

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Augmenting Rapeseed-Mustard Production of Assam Farmers for Sustainable Livelihood Security

Table and Figures

Glimpses of Activities

Acronyms	
AAU	Assam Agricultural University
AEA	Agricultural Extension Agent
ANLD	Anisotropic Non-Linear Diffusion
APART	Assam Agribusiness & Rural Transformation Project
ARIASS	Assam Rural Infrastructure and Agricultural Services Society
ATM	Assistant Technology Manager
ATMA	Agriculture Technology Management Agency
AWP	Annual Work-Plan
BTM	Block Technology Manager
BVZ	Barak Valley Zone
CBVZ	Central Brahmaputra Valley Zone
CD	Crop Demonstrations
DRMR	Directorate of Rapeseed-Mustard Research
DoA	Department of Agriculture
GDP	Gross Domestic Product
Ha	Hectare
HYV	High Yielding Variety
HZ	Hills Zone
ICAR	Indian Council of Agricultural Research
ICT	Information and Communication Technology
IMD	India Meteorological Department
INM	Integrated Nutrient Management
INR	Indian Rupee
IPM	Integrated Pest Management
ITK	Indigenous Technical Knowhow
IWM	Integrated Weed Management
KVK	Krishi Vigyan Kendra
LBVZ	Lower Brahmaputra Valley Zone
MSP	Minimum Support Price
MT	Master Trainer
NARES	National Agricultural Research and Extension System
NBPZ	North Bank Plain Zone
NEH	North East Hills
NER	North Eastern Region
NGO	Non-Government Organization
PHM	Postharvest Mechanization
ToT	Training of Trainers
TT	Technical Training
UBVZ	Upper Brahmaputra Valley Zone
UPS	Uninterruptible Power Source
WUE	Water-Use Efficiency

Preface

Oilseed crops are the second most important determinant of agricultural economy, next only to cereals. Today, the demand for vegetable oils is out pacing the supply with more than half of its annual requirements being met mainly through imports.

Enhancing the domestic edible oil availability is one of the prime concerns of the policy planners to check the rising edible oil imports. Rapeseed-mustard is one of the important sources of edible oil in the country which has made a significant contribution to domestic edible oil availability over the last few decades. Rapeseed-mustard crop has good production potential, where the cultivation is supported with technology and knowledge inputs.

Over the last decade, the number of rapeseed-mustard technologies have been developed, but for certain proven technologies there is a profound adoption gap particularly among smallholder farmers. Increased technology adoption, broadly defined to include adoption of improved agricultural practices, crop varieties, inputs and associated products has the potential to contribute to economic growth through increasing production and productivity of rapeseed-mustard.

Crop area expansion, either through inter cropping or spreading the crop in rice fallow land in the country may also help in increasing the production of rapeseed-mustard. Rapeseed- mustard is grown in substantial area in Assam. However, low and unstable oilseed system productivity is major problem in these areas where cultivation is undertaken mostly on small and marginal agricultural holdings. Keeping in view the vast availability of natural resources and fertile lands offering ample scope to promote oilseed cultivation in Assam, there is an urgent need to identify/screen the suitable technologies of rapeseed-mustard production for rice–fallow situation and motivate the farmers of these areas to adopt identified technologies through demonstrations, trainings, fairs, exhibitions and visits to research and experimental farm.

With this background, ICAR-DRMR is contributing for enhancing rapeseed-mustard production in Assam through a project on "Consulting services for technical advisory support on augmenting rapeseed-mustard production of farmers of Assam for sustainable livelihood security" since April 28, 2020. ICAR-DRMR as a knowledge partner is providing the expertise under the project to support the Directorate of Agriculture, Govt. of Assam for

a) Enhancing adoption of high yielding short duration rapeseed-mustard varieties
b) Enhancing area and raising productivity, profitability, and resource use efficiencies of rapeseed-mustard cultivation in Assam through improved crop management and protection technologies.
c) Strengthening post-harvest management, reduce losses, increase efficiency and profitability, and improve mustard value chain
d) Developing knowledge materials and capacity development of various stakeholders and extension functionaries in Assam.

The activities under the project were carried out in seven undivided districts namely; Jorhat, Sivsagar, Golaghat, Sonitpur, Morigaon, Darrang and Dhubri of Assam during 2020-21. The results of demonstrations were very encouraging and technology dissemination through various programmes was effective and created interest and motivation in the farmers to adopt the scientific rapeseed-mustard production technologies in larger area. The results also invigorated the policy makers for expanding the scope of the project in new districts of Assam. After having long deliberation with all stakeholders, it was mutually agreed between ICAR-DRMR and Directorate of Agriculture to expend the project activities in additional districts namely; Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup, Lakhimpur, Dhemaji, Nagaon and Tinsukia of Assam with additional number of demonstrations and other activities for next three years (2021-22 to 2023-24). In this regard, a contract variation in "Consulting services for technical advisory support on augmenting rapeseed-mustard production of Assam farmers for sustainable livelihood security" was signed on 21-10-2021 between Director, Directorate of Agriculture, Khannapara, Guwahati, Govt. of Assam and Director, ICAR-Directorate of Rapeseed-Mustard Research, Bharatpur, Rajasthan. ICAR-DRMR is satisfied with the amount of cooperation and support received from DoA, APART, ARIAS society/ DAO and Nodal officers/ ATM/BTM of districts *vice versa*. It is really an interesting and enriching experience for ICAR-DRMR to work with the dedicated team of DoA, APART, ARIAS society during the implementation of the programme

Keeping in view the low productivity, poor marketing support and low confidence and capacities of the value chain actors, ICAR-DRMR believes that interventions with regards to organizing crop demonstrations along with technical trainings, PHT demonstrations, and training and capacity building of the value chain actors is critical for enhancing the production and productivity of rapeseed-mustard in Assam. Therefore, ICAR-DRMR is working with the Director of Agriculture, Government of Assam on the mustard value chains especially on organizing demonstrations, and training & capacity building programmes to increase the average productivity of rapeseed-mustard.

Other interventions in the mustard value chain are development of knowledge materials in the form of simple and actionable farmer-friendly extension material and digital/IT tools on the different aspects of scientific production and protection technology of mustard to reach a large number of farmers quickly and simultaneously at a low cost and provide accurate, motivating,

credible and distortion free information to them. To create awareness among farmers about varieties, technologies, practices in the mustard value chain including post-harvest and market linkages, ICAR-DRMR is providing technical support to organize farmer fairs.

To reinforce the confidence of the extension personnel and farmers in new technologies, methods, etc., exposure visit of extension functionaries and farmers are being organized to ICAR-DRMR along with interaction with progressive farmers and visit to farmers' field in Bharatpur and surrounding areas, to have better knowledge and understanding of technology, methods and to improve the skills of the extension personnel and farmers in scientific production and protection technology of rapeseed-mustard.

ICAR-DRMR will also support in organizing a round table conference/workshop/ seminar to gain further insight into opportunities in Assam and to include and identify all mustard value chain actors from the agro-system (farmers to consumers)

Executive summary

Under the ICAR-DRMR OPIU (Agri)-APART project 59 clusters of 15 districts of Assam namely; Golaghat, undivided Jorhat including Majuli, Sivasagar, Darrang, Sonitpur, Morigaon, Dhubri Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup, Lakhimpur, Dhemaji and Nagaon were selected to implement and organization of approved activities during 2021-22. For better supervision, monitoring, efficient delivery and effective implementation of mustard activities, ICAR-DRMR has deployed its team at all fifteen districts.

A detailed survey of all the selected clusters of 15 districts was conducted to study weather condition, rainfall pattern, soil type, cropping pattern, major crops, resources availability, status of mustard cultivation, insect-pest and disease problems in the areas, seasonal crop activity, irrigation facilities, etc by ICAR-DRMR.

The selection of the sites for conducting demonstrations was done by ATMA personnel of respective districts in consultation with concerned stakeholders and Research Associates/Sr. Research Fellow keeping in view the accessablity to farmers of neighboring villages and extension workers coming from different parts of the district. During 2021-22, organization of 5000 mustard crop demonstrations and 9000 minikit demonstrations in selected 15 districts were approved. Accordingly, a total of 5000 mustard crop demonstrations in 59 Clusters in fifteen selected districts were laid out.

Based on the climatic situation, cultivation of rapeseed-mustard, prevailing cropping pattern and resources, these demonstrations were conducted with three improved varieties of Indian mustard viz. NRCHB-101 (1700), PM-28 (1690) and DRMR-150-35 (350) and one variety of toria, i.e. TS-38 (1260) along with crop management and protection technology like line sowing, proper seed rate, seed treatment, proper plant population, thinning, weeding, intercultural operation, management of pest and diseases, etc. Along with these demonstrations, Research Associate/ SRF also helped in conducting minikit demonstrations in each of the selected districts.

The seed of these improved varieties were directly supplied by ICAR-DRMR to DAOs/PD ATMA/Nodal officer, APART of fifteen selected districts well in time. The seed of demonstrated varieties along with required fertilizers and need based fungicides/pesticides were given to selected farmers for demonstration. Under minikit demonstrations, only one kg seed of improved variety was supplied to the farmers.

The high temperature in the month of October and late withdrawal of monsoon (up to last week of October to first week of November at some places) forced delay in sowing of the crops. Keeping in view of rainfall and land preparation in different clusters, the sowing was done during last week of October to mid Dec. 2021

Regular visits and monitoring of the crop demonstrations and minikit demonstrations are being done by Research Associates/SRF and ATMA personnel to educate and motivate the farmers to adopt crop management practices like thinning, intercultural operations, weeding, applying irrigation, management of insects and diseases, etc.

ICAR-DRMR in collaboration with OPIU-Agriculture, Directorate of Agriculture, Assam organized four training programmes of 2 days each (2 Master Trainers Training and 2 Farmers Training programmes) on "Best Management Practices for Rapeseed-Mustard Cultivation in

Assam". First batch of two days Masters Trainers and farmers training programme was organized during 25-26 October, 2021 at Krishi Vigyan Kendra, Kamrup and Second batch was organized during 29-30 October, 2021 at Dhanshree Farmers Hostel, AAU, Jorhat. Thus, a total of 40 extension personnel /BTM/ATM of the State Department of Agriculture, Govt. of Assam and 65 farmers from Darrang, Dhubri, Barpeta, Nalbari, Kamrup, Bongaigaom, Morigaom, Kokrajhar, Nagoan, Sonitpur, Golaghat, Lakhimpur, Jorhat, Sivasagar and Dhemaji districts and Research Associates of ICAR-DRMR-APART Project participated in these training programmes.

To provide first-hand information and practical exposure to the farmers about scientific production and protection technology of mustard, technical trainings were organized in three phases upto last week of January 2022. The first phase of technical training for mustard crop demonstrations farmers on "Scientific production technology of rapeseed-mustard" was conducted cluster wise at Department of Agriculture/ATMA office/ block office of respective districts before sowing. The technical knowledge and skill about land preparation, seed treatment, fertilizer application, seed rate, sowing method, sowing time, spacing, etc. were provided along with distribution of seeds and fertilizers to the participants. The second phase of technical training was conducted on "improved agronomic practices of rapeseed-mustard for higher production" during Oct. 202-Dec. 2021 at the time of vegetative growth of the crop at farmers' field in each of the selected clusters. The technical knowledge and skill about weeding, hoeing, thinning, irrigation management, top dressing, etc. were provided to the participants by ICAR-DRMR during second phase of technical training.

The third phase of technical training was conducted on "Integrated pest and disease management in rapeseed-mustard" during Dec. 2021 to Jan 2022 at the time of flowering stage of the crop at farmers filed in each of the selected clusters.

Thus a total of 250 technical trainings were organized during the period wherein 6365 farmers and farm women participated. These technical trainings were organized at farmers' field by the District ATMAs with the technical support of ICAR-DRMR.

Table 1: Executive summary of physical targets and achievements during AWP 2021-22

Activities	Unit	Target	Achievement	Remarks
Crop Demonstrations	No.	5000	5000	All demonstrations were laid out successfully
Minikit ATMA	No.	9000	9000	All minikit demonstrations were laid out successfully

Technical trainings	No.	250	250	Completed
Training for Master Trainers	No.	2	2	Completed
Training for progressive farmers	No.	2	2	Completed

Chapter 1:

Detailed Report

1.1 About ASSAM

Assam, a state with a geographical area of 78,438 km^2, forms about 2.4% of the country's total geographic area and is the core of the North Eastern Region (NER) of India. It is situated in the South of the Eastern Himalayas, between 89°42□ E to 96°E longitude and 24°8□ N to 28°2□ N latitude. A large part of Assam is surrounded by hilly areas and it has both National as well as International boundaries. Assam shares its north boundary with Bhutan and Arunachal Pradesh.

Nagaland, Manipur and a part of Arunachal Pradesh are to the east of Assam while Mizoram is to the south of it. States Tripura, Meghalaya and the country Bangladesh are situated to the south-west of the state and West Bengal is to the west of it. Assam comprises three broad natural divisions, namely, the Brahmaputra valley, the Barak valley, and the Hill range. The Brahmaputra valley is the largest strip of plain land extending from the West to North-East in the northern part of the state. The river is the main source of life for the people of Assam and a contributing factor for the fertile agricultural land of the state. Adding quality to alluvial soil, the river Brahmaputra is a perennial source of water for the state.

The southern part of the state is another valley with the river Barak passing through it, known as the Barak valley. This region is relatively small and accounts for only about 9% of the area of the state, accommodating about 12% of the state's population. The hilly range of Karbi Anglong and North Cachar lies in the middle of the state, separating the two valleys.

1.2 Agro-climatic Zones

Based on the amount and characteristics of rainfall, temperature, relative humidity, terrain condition (a stretch of land with regard to its natural features), and soil characteristics, Assam has been broadly divided into six agro-climatic regions. They are:

1. The North Bank Plain Zone (NBPZ), comprises of the districts Dhemaji, Lakhimpur, Sonitpur, Udalguri (BTAD) and Darrang, contributing to 18.37% area of Assam. Rice, Rapeseed-Mustard and Sugarcane are the major crops of the zone.
2. The Upper Brahmaputra Valley Zone (UBVZ), comprises of the districts Tinsukia, Dibrugarh, Sivasagar, Jorhat, and Golaghat, and accounting for 20.40% of the total area of Assam. Rice, Rapeseed-Mustard and Sugarcane are the major crops of the zone.
3. The Central Brahmaputra Valley Zone (CBVZ) comprises of the districts Nagaon and Morigaon, accounting for only 7.08% of the area of the state. This region is bowl-shaped and often flooded. Rice, Rapeseed-Mustard, Jute and Pulses are the major crops of the zone
4. The Lower Brahmaputra Valley Zone (LBVZ) comprises of the districts Kamrup, Nalbari, Barpeta, Bongaigaon, Kokrajhar, Chirang, Baksa, Dhubri, and Goalpara covering an area of 20,222 km2, accounting for 25.75% of the area of the state. Rice, Rapeseed-Mustard, Jute, Potato, Wheat and Pulses are the major crops of the zone
5. The Barak Valley Zone (BVZ) comprises of the districts Cachar, Hailakandi, and Karimganj and covers a total area of 6,962 km2, i.e., 8.9 % area of the state. Rice, Sugarcane and Potatoare the major crops of the zone
6. The Hills Zone (HZ) comprises of two districts Karbi Anglong and North Cachar Hills, encompassing 19.4% of the total state area. Maize and Sugarcane are the major crops of the zone.

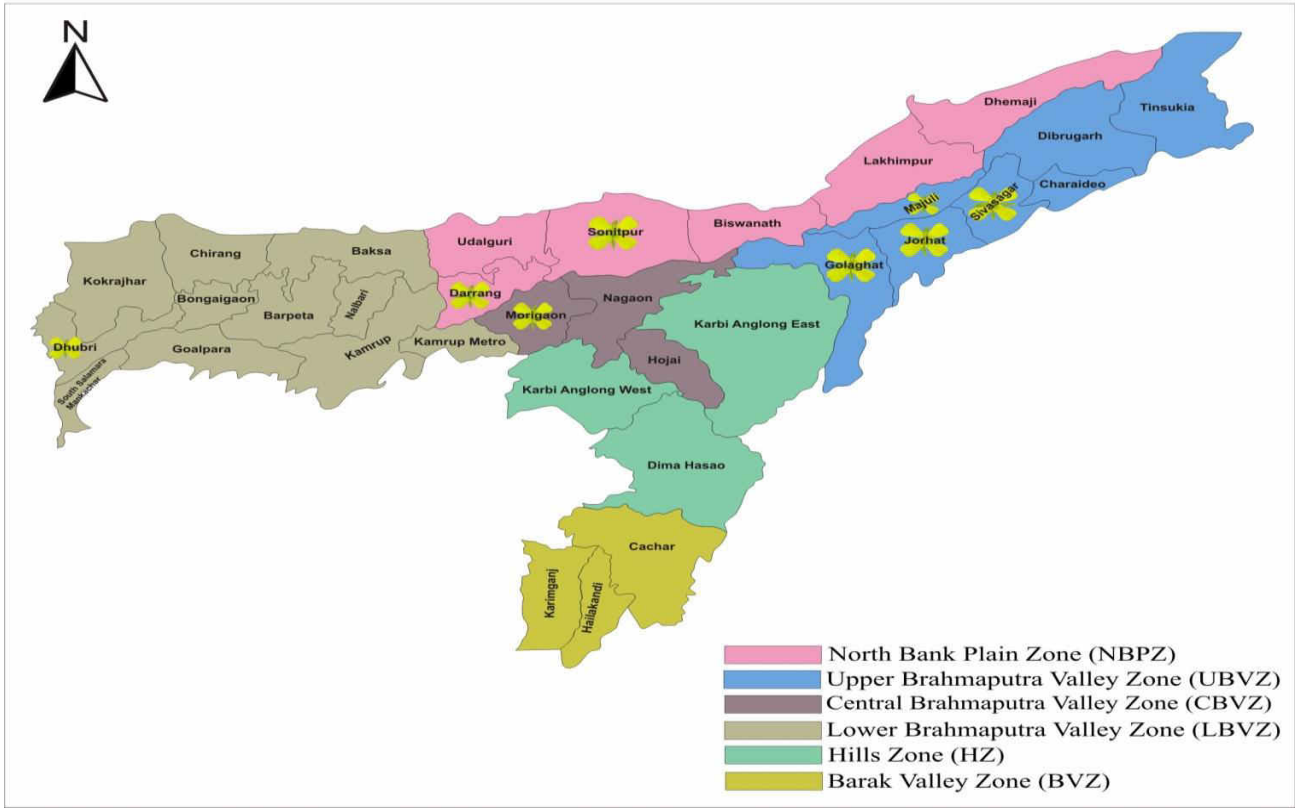


Fig 1: Agro-climatic Zones of Assam

There is a similarity of farm operation in the first five plain agro-climatic zones of Brahmaputra valley and Barak valley. The method of cultivation adopted in the plain region of Assam is more or less similar to that followed in most parts of India. Rice, grown during the wet season (June-Oct/Nov) also called Sali /winter rice, has traditionally been the principal crop in all these zones. Moreover, jute is also grown during the same period at a substantial scale. During the winter months when rainfall is scanty, and the scale of cultivation is also much smaller, the less water requiring crops, such as oilseeds, pulses, potato, and vegetables are traditionally grown in the plains. On the other hand, the system of farming in the hilly areas is significantly different from the system of farming in the plains. The primitive practice of shifting cultivation is still predominant mode of cultivation in the hills.

Climatic Condition: Generally Assam's climate comprises very wet summer season and sunny winter season. The monsoon rain normally starts from early June and continues up to the month of October. Moreover, in late April and May, normally there is also heavy pre-monsoon rain in the state. In Assam, during the summer, temperature normally varies between 25^{o}C and 40^{o}C. During the winter period, i.e., from the month of November to the February, climate mostly remains dry. Sometimes, the temperature during the winter falls bellows 5^{o}C.

The state normally witnesses a very heavy rainfall during the period from June to September. As opposed to monsoon season, the state witnesses on an average 51.0 millimeter rainfall during the winter season. Again in summer and post monsoon period, the average rainfall is 578.00 and 176.00 millimeter, respectively. The average rainfall in the state in a year is 2294 millimeter.

Sources of Irrigation: The major sources of irrigation in Assam are canal, tube well, tank and well supplying irrigation.

1.3 Brief description of the districts identified for rapeseed-mustard programme under the project

For the rapeseed-mustard programme under APART project from 2021-22 onward, fifteen districts of Assam namely; 15 districts of Assam namely; Golaghat, undivided Jorhat including Majuli, Sivasagar, Darrang, Sonitpur, Morigaon, Dhubri Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup, Lakhimpur, Dhemaji and Nagaon were selected. For better supervision, monitoring, efficient delivery and effective implementation of mustard activities of APART, ICAR-DRMR has deployed its team at all fifteen district locations. The selected districts belong to different Agro-climatic zones of the state as follows:

Districts for rapeseed-mustard programme	Agro-climatic zone of Assam
Jorhat, Golaghat and Sivasagar	Upper Brahmaputra Valley Zone
Dhemaji, Lakhimpur, Sonitpur and Darrang,	North Bank Plain Zone
Nagaon and Morigaon,	Central Brahmaputra Valley Zone
Kamrup, Nalbari, Barpeta, Bongaigaon, Kokrajhar and Dhubri	Lower Brahmaputra Valley Zone

Normally, there are considerable variations in physiography, climate, soils, flooding and cropping pattern etc. in an agro-climatic zone and these variations lead to formation of agro-ecological situations within the zone.

Morigaon: This district comprises of 155100 ha area, having 5 blocks. Total cropped area of the district is 214921 ha. and rice, mustard and maize are the major crops. The district is considered as flood prone having sandy loam soil. The 75% area is under rainfed and only 25% cropped area is covered by tube well irrigation. About 12546 ha area is under mustard crop and aphid and saw fly are the major pest of mustard in the district. The major cropping pattern are Sali Rice-Mustard-Summer Pulses and Sali Rice-Mustard-Jute. The occurrence of flood and sometimes drought in summer are the major constraints with respect to agriculture. The Mayong and Bhurbandha block of district have been selected for project activities.

Jorhat undivided including Majuli: This district comprises of 192862 ha area, having 8 blocks. Total cropped area of the district is 102839.2 ha and rice, paddy, pea, pulse, cabbage, cauliflower, brinjal and mustard are the major crops. The district is considered as flood prone having sandy loam soil. The 91% area is under rainfed and only 9% cropped area is covered by tube well irrigation. About 9507 ha area is under mustard crop and aphid and saw fly are the major pest of mustard in the district. The major cropping pattern are paddy- vegetables-vegetables, paddy-potato-vegetables, paddy-pulse-paddy-mustard. The occurrence of flood and sometimes drought in summer are the major constraints with respect to agriculture. The Kaliapani, Majuli, Ujani block of district were selected for project activities.

Sonitpur: This district comprises of 271729 ha area, having 7 blocks/cluster. Total cropped area of the district is 112281 ha and rice, maize, pulses, jute, sugarcane, potato and mustard are the major crops. The soil is clay loam and sandy loam. The 91 % area is under rainfed and only 9% cropped area is covered by tube well irrigation. About 15501 ha area is under mustard crop and aphid and saw fly are the major pest of mustard in the district. The major cropping pattern are rice-

mustard, rice-vegetables, mustard-kharif vegetables. The occurrence of flood, soil erosion, non-adoption of line transplanting are the major constraints with respect to agriculture. The Gabhoru, Balipara, Bihaguri, Chaiduar Dhekiajuli, Rangapara and Biswanath clusters of district have been selected for project activities.

Sivasagar: This district comprises of 159885 ha area, having 5 blocks/ clusters. Total cropped area of the district is 1, 16,579 ha and rice, maize, pulses, jute, sugarcane, potato and mustard are the major crops. The district is considered as alluvial soil, clay loam and sandy loam soil. About 2,750 ha area is under mustard crop and aphid and saw fly are the major pest of mustard in the district. The major cropping pattern are rice-mustard, rice-vegetables, mustard-kharif vegetables. The occurrences of water stress, early shower during harvesting, dense foggy during the month of November are the major constraints with respect to agriculture. The Demow and Gaurisagar clusters of district have been selected for project activities.

Darrang: This district comprises of 158500 ha area, having 6 blocks/clusters. Total cropped area of the district is 73619 ha and paddy, maize, vegetable and mustard are the major crops. The district is considered as sandy loam and clay loam soil. About 15447 ha area is under mustard crop and aphid, white rust and saw fly are the major pest and disease of mustard. The major cropping patterns are sali paddy–maize-vegetable, sali paddy- mustard. Late sowing of sali paddy, laggard to new technology and flood are the major constraints with respect to agriculture. The Bechimari, Sipajhar and Pachim Mangaldai clusters of district have been selected for project activities.

Golaghat: This district comprises of 350200 ha area, having 8 blocks/clusters. Total cropped area of the district is 2,28325 ha and paddy, banana, pineapple, ginger, chilli tomato, sugarcane, potato, rapeseed-mustard, pea, lentil, green gram, maize and vegetable are the major crops. The district is considered as sandy loam and clay loam soil. About 13450 ha area is under mustard crop and aphid, white rust and saw fly are the major pest and disease of mustard in the district. The major cropping patterns are sali rice-rabi vegetables / rapeseed-mustard / black grams, sali rice-summer paddy and summer paddy-black gram / rapeseed-mustard / rabi vegetables. The occurrences of flood and water stress, attack of insect pests such as aphid, early shower during harvesting, non-availability of fertilizers and chemicals during peak seasons etc. are the major constraints with respect to agriculture. The Bokakhat, Kakodonga and Podumoni clusters of district have been selected for project activities.

Dhubri: This district comprises 2,36,126 ha. area, having 11 blocks/ cluster. Total cropped area of the district is 2,30,536 ha and paddy, kharif vegetables, black gram, maize, jute, potato, rapeseed-mustard, and pea are the major crops. The district is considered as sandy loam and clay loam. About 23471 ha area is under mustard crop. The major cropping patterns are mustard –boro paddy, sali paddy-rapeseed /mustard/ rabi vegetables/ rice-pumpkin/potato/mustard. The occurrences of flood and water stress, attack of insect pests such as aphids, powdery mildew, early shower during harvesting, non-availability of fertilizers and chemicals during peak seasons etc. are the major constraints with respect to agriculture. The Gauripur, Rupshi, Agomani, Chapar-Salkocha and Mahamaya clusters of district have been selected for project activities.

Kokarajhar: This district comprises of 3,16,900 ha area, having 4 blocks/clusters. Total cropped area of the district is 1,55,276 ha and paddy, maize, rapeseed and mustard, potato, are the major crops. The district is considered as sandy loam. About 23873 ha area is under mustard crop and aphid, white rust and saw fly are the major pest and disease of mustard in the district. The major cropping patterns are mustard-summer paddy/sali paddy- mustard- summer paddy/ sali paddy- vegetables-ahu paddy. The occurrences of flood and water stress, attack of insect pests

such as aphid, early shower during harvesting, non-availability of fertilizers and chemicals during peak seasons etc. are the major constraints with respect to agriculture. The Kokrajhar, Dotma and Kachugaon clusters of district have been selected for project activities.

Nagaon: This district comprises of 260879 ha area, having 13 blocks. Total cropped area of the district is 151744 ha. and paddy, mustard and maize are the major crops. The district is considered as flood prone having sandy loam soil. The 70% area is under rainfed and only 30% cropped area is covered by tube well irrigation. About 27236 ha area is under mustard crop and aphid and saw fly are the major pest of mustard in the district. The major cropping pattern are jute- rice-toria/ wheat -summer pulses and cowpea - rice- toria. The irrigation facilities, non-availability of improved variety at the sowing time, lack of knowledge about pests and disease management, fragmented land of farmers, lack of knowledge about soil condition and fertilizer application are the major constraints with respect to agriculture. The Raha, Khagorijan, Koliabor, Batadrava blocks of district have been selected for project activities.

Kamrup: This district comprises of 4,34,500 ha area, having 22 blocks. Total cropped area of the district is 2,07,344 ha. and paddy, mustard, maize, fruit crops i.e. Banana, and vegetables are the major crops. The district is considered as flood prone having clay loam, sandy loam, sandy soil, alluvial soil and red soil. The 81% area is under rainfed and only 19% cropped area is covered by irrigation. About 15820 ha area is under mustard crop and aphid and saw fly are the major pest of mustard in the district. The major cropping pattern are sali paddy-vegetable-rapeseed and mustard, sali paddy-mustard, sali paddy-boro paddy, fallow (summer)- vegetable/ Mustard, Summer vegetable-toria/ rabi vegetables. The Insect pest and disease, labour constraints, unseasonal rain/ weather constraints, non-availability of improved variety on time, lack of irrigation facilities, and lack of scientific knowledge on crop production are the major constraints with respect to agriculture. The Kamalpur, Bihdiya-Ajikona, Bongshor and Chandrapur blocks of district have been selected for project activities.

Lakhimpur: This district comprises of 2,27700 ha. area, having 9 blocks. Total cropped area of the district is 2,17,222 ha. and winter paddy, summer rice, rapeseed and mustard, potato, blackgram, arecanut and banana, are the major crops. The district is considered as flood prone having alluvial soil. About 15820 ha area is under mustard crop and aphids, mustard sawfly, bihar hairy caterpillar, Pea leaf miner, powdery mildew, sclerotinina rot, alternaria leaf spot, white rust are the major pest of mustard in the district. The major cropping pattern are Winter Rice-Rape & Mustard, Winter Rice- Potato, Winter rice-Summer paddy. Non-availability of seeds at right time, low adoption of early maturing varieties, late sowing, pests and diseases infestations the major constraints with respect to agriculture. The Telahi, Dhakuakhana, Ghilamora, Narayanpur and Dhakuakhana blocks of district have been selected for project activities.

Bongaigaon: This district comprises of 172592 ha area, having 5 blocks. Total cropped area of the district is 1,17,685 ha. and paddy, jute, black gram and kharif vegetables, rapeseed and mustard, maize, potato, lentil, wheat and rabi vegetables are the major crops. The district is considered as flood prone having alluvial soil. About 8,487 ha area is under mustard crop aphids, and sawfly are the major pest of mustard in the district. The major cropping pattern are sali paddy – mustard – summer paddy, sali paddy – potato – summer paddy and sali paddy – maize – summer paddy. lack of appropriate high yielding variety for rice and mustard, pest and disease problems and shortage of agriculture implements in farmers the major constraints with respect to agriculture. The Manikpur, Patiladoha and Bidyapur blocks of district have been selected for project activities.

Barpeta: This district comprises of 264500 ha area, having 11 blocks. Total cropped area of the district is 249307 ha. and paddy, Jute, maize, seasamum and rapeseed and mustard, potato, lentil, linseed, wheat and rabi vegetables are the major crops. The district is considered as normal / flood prone having sandy soil. About 18,850 ha ha area is under mustard crop and aphids and mustard sawfly are the major pest of mustard in the district. The major cropping pattern are sali paddy–mustard–summer paddy sali paddy–potato–summer paddy. Lack of appropriate variety for rice and mustard, pest and disease problems, shortage of agriculture implements are the major constraints with respect to agriculture. The Bajali, Bhawanipur, Barpeta, Chenga, Pakabethbari, Sarukhetri, Mandia, Chakachaka, Rupshi, and Gumafulbari blocks of district have been selected for project activities.

Dhemaji: This district comprises of 3,23700 ha area, having 5 blocks. Total cropped area of the district is 2,02,730 ha. paddy maize, rapeseed and mustard, potato, Blackgram, turmeric and arecanut, are the major crops. The district is considered as flood prone having sandy loam. About 22,456 ha area is under mustard crop aphids, mustard sawfly, bihar hairy caterpillar, pea leaf are the major pest of mustard in the district. The major cropping pattern are sali rice - ahu rice - toria, rice-vegetables and rice- fallow. Flood, non-availability of quality seeds at right time, non- adoption of modern technology, non-availability of input dealers, pests and diseases infestations, improper use of fertilizer and chemicals, lack of knowledge of production technology are the major constraints with respect to agriculture. The Sissiborgaon, MSTD and Machkhowa blocks of district have been selected for project activities.

Nalbari: This district comprises of 100957 ha area, having 7 blocks. Total cropped area of the district is 1,03,231 ha. paddy, maize, rapeseed and mustard, potato, vegetables are the major crops. The district is considered as flood prone having clay, loamy and sandy. About 8020 ha area is under mustard crop aphids and mustard sawfly are the major pest of mustard in the district.The major cropping pattern are, sali paddy- mustard- summer paddy, sali paddy- vegetables -ahu paddy and jute-mustard-summer paddy. Non-availability of improved variety on time, non-availability of fertilizers on time and lack of knowledge about pests and disease scenario and management of the same are the major constraints with respect to agriculture. The Barkhetri and Borigog-Banbhag block of district have been selected for project activities.

1.4 Weather

The climate of Assam is typically 'tropical monsoon rainfall' type, with high levels of humidity and heavy rainfall. In the monsoon season, the whole state comes alive with the beauty of nature. Assam is well known for its diverse sub-Himalayan agro-climatic conditions which is suitable for the growth of varieties of crops across the districts.

Weather parameters play major role in determining the crop growth, development and yield because weather strongly influences the physical expression of genetic potential of the crop. Any significant deviation of this parameter from the optimum value become detrimental for the crop productivity. Weather has direct effect on growth and development of plants. All the physio-chemical and biological activities of the plants are governed by the weather variables prevailing in the area. In case of rapeseed-mustard, maximum temperature plays an important role for germination of crop in late October to second week of November. If the maximum temperature during this period remains low (27-35ºC), the germination of the seed is not affected.

1.4.1. Upper Brahmaputra Valley Zone (UBVZ).

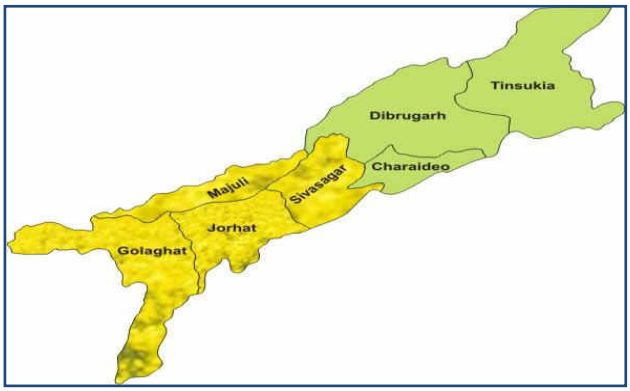


Figure 2 shows the monthly maximum minimum temperature and rain fall in the Upper Brahmaputra Valley Zone (UBVZ). The analysis of the temperature profile during July to December 2021 in the zone shows that the maximum temperature ranged from 26.0 to 33.7 ºC and minimum temperature from 10.8 to 25.2 ºC. The maximum rain fall 177.4 mm and minimum 0.6 mm was recorded in the months July and December respectively.

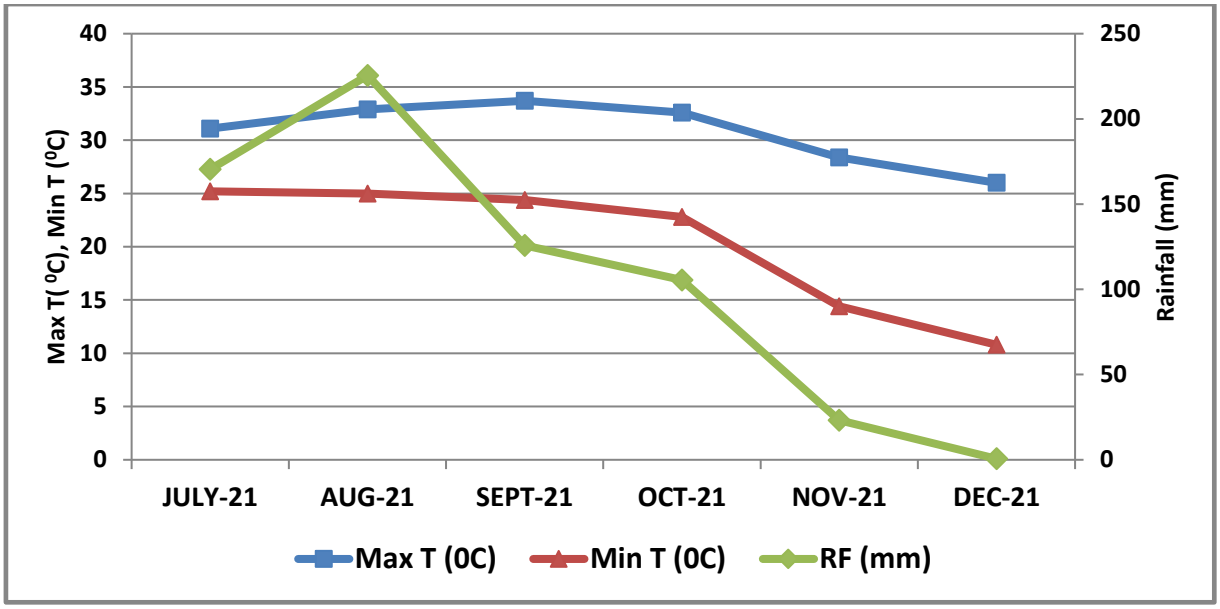


Fig 2: Maximum & Minimum temperature and rainfall in UBVZ

1.4.2. Central Brahmaputra Valley Zone (CBVZ).

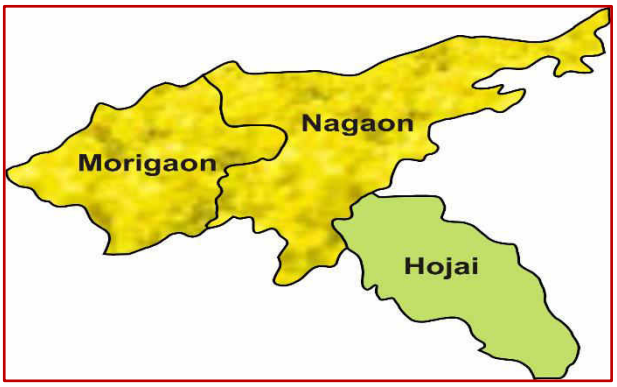


Figure 3 shows the monthly maximum, minimum temperature and rainfall in the Central Brahmaputra Valley Zone (CBVZ). The analysis of the temperature profile in the zone shows that the maximum temperature ranged from 26.0 to 33.5 °C and minimum from 9.3 to 21.8 °C. The minimum, almost no rainfall in month of November and December and maximum 359.4 mm was recorded in the months July.

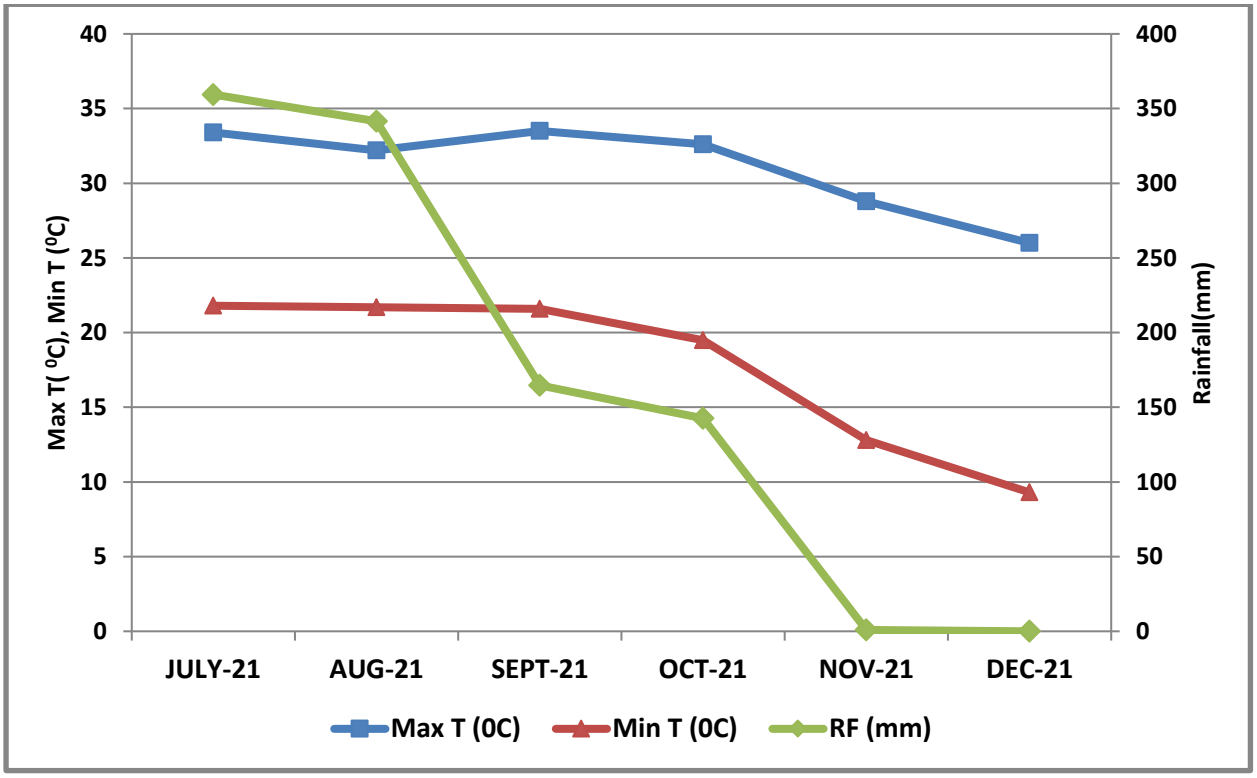


Fig 3: Maximum & Minimum temperature and rainfall in CBVZ

1.4.3. Lower Brahmaputra Valley Zone (LBVZ).

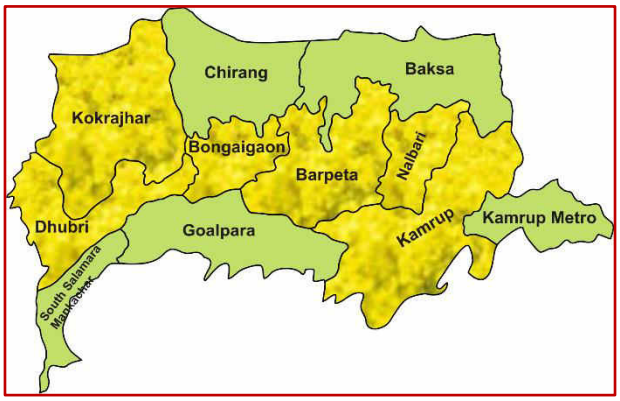


Figure 4 shows the monthly maximum, minimum temperature and rainfall in the Lower Brahmaputra Valley Zone (LBVZ). The analysis of the temperature profile in the zone shows that the maximum temperature ranged from 27.1 to 33.6 °C and minimum from 10.6 to 25.4 °C. The minimum rainfall almost no rain in November and December and maximum 645 mm was recorded in the month of August in the zone.

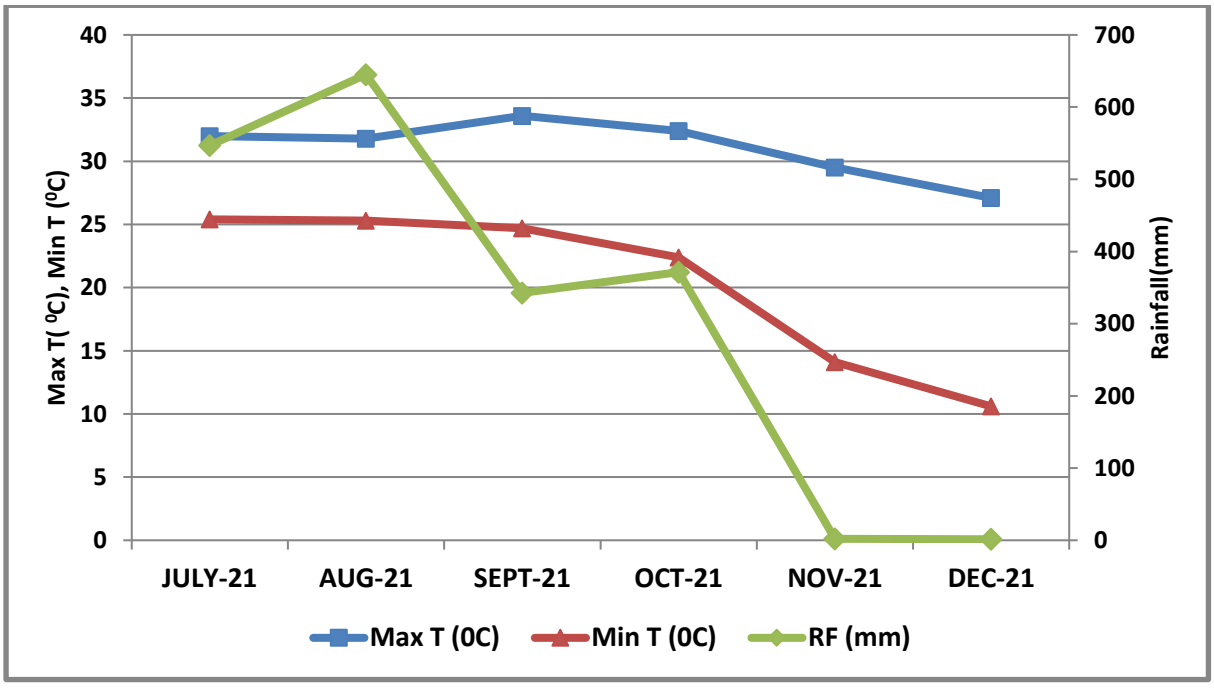
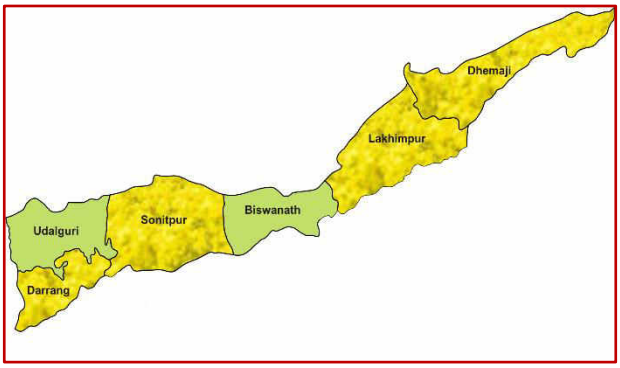


Fig 4: Maximum & Minimum Temperature and Rain fall in LBVZ

1.4.4. North Bank Plain Zone (NBPZ).

Figure 5 shows the monthly maximum minimum temperature and rain fall in the North Bank Plain Zone (NBPZ). The analysis of the temperature profile in the zone shows that the maximum temperature ranged from 25.6 to 33.5 ^{0}C and minimum temperature from 12.2 to 23.8 ^{0}C. It can be seen that the NBPZ gets highest rainfall 434 and 343 mm July and August respectively.



The minimum almost no rain fall received in month of December.

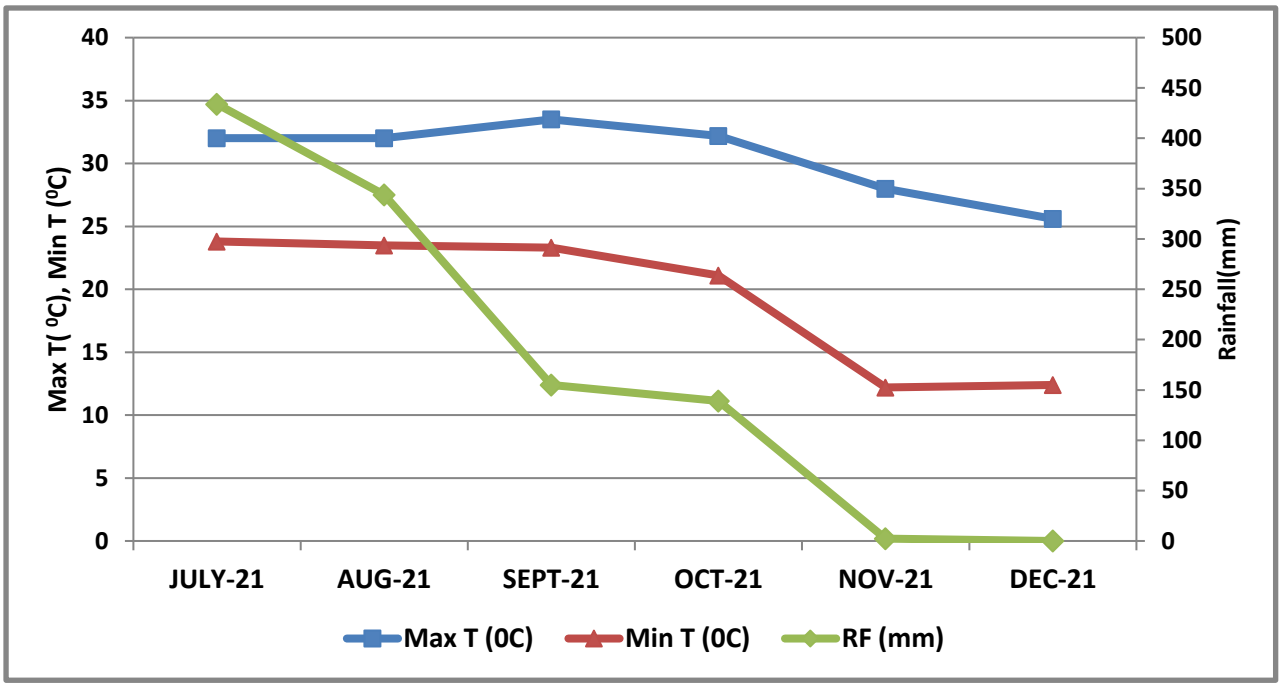


Fig 5: Maximum & Minimum Temperature and Rain fall in NBPZ

Almost all zones received heavy rain fall in the months of July and August. In general, higher sunshine hours, maximum temperature (> 30 ^{o}C) and lower temperature (<14 ^{o}C) during flowering and pod development stage of the crop were favorable for mustard crop. The average temperature in January and February months in all zones was about 11 ^{o}C which suited for pod formation and resulted good yield in all zones.

Chapter 2:
Technical Report

2. PROGRESS OF THE PERIOD July-December 2021

2.1 Signing of contract variation:

Starting Rabi 2021 onwards, the client was desirous of modification to the above contract to include additional 23 mustard clusters of new districts of Assam to which consultant has agreed and hence amendment to the contract variation was signed jointly by Director, Agriculture & SPD, ARIAS Society, Guwahati, Assam and Director, ICAR-DRMR on 21st October 2021.

2.2 Joining of the contractual Staff members in the Project:

After approval of the contract variation, the selection process of all contractual staff was completed before Nov. 5, 2021. All contractual staff are in place.

2.3 Survey of the clusters:

A detailed survey of all the selected clusters of 15 districts namely Golaghat, undivided Jorhat including Majuli, Sivasagar, Darrang, Sonitpur, Morigaon, Dhubri Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup, Lakhimpur, Dhemaji and Nagaon was done by Research Associates/ Sr. Research Fellows to study weather condition, rainfall pattern, soil type, cropping pattern, major crops, resources availability, status of mustard cultivation, insect-pest and disease problems in the areas, seasonal crop activity, irrigation facilities, etc.

2.4 Activity 1: Laying out of crop demonstrations: Crop demonstration is the method of motivating farmers for adoption of new varieties and techniques by showing their distinctly superior result. Crop demonstration shows the advantages and applicability of a newly recommended practice in farmer's own situation. Demonstrations are conducted on the farm of selected farmers and are utilized to educate and motivate groups of people in their neighborhood. This is very effective method for the transfer of technology and build up confidence in the farmers and extension agents. Demonstrations may stimulate farmers to try out innovations themselves or may even replace a test of the innovation by the farmers. They can show the causes of problems and their possible solutions without complicated technical details. Under the project, it was planned to organize mustard crop demonstrations on small plots of 0.25 ha area along with 0.05 ha. of control plot to provide practical learning situation and show the production potential of newly released varieties and crop management and protection practices of rapeseed-mustard to farmers, extension personnel and all other stakeholders at farmers' field.

The selection of the sites for conducting demonstrations was done by ATMA personnel of respective districts in consultation with concerned stakeholders and Research Associates/SRF of the project keeping in view of that it should be easily accessable to farmers of neighboring villages and extension workers coming from different parts of the district. Identification of beneficiaries for demonstration was carried out by the Implementing agency with the help of FPC/FPOs working in the district as per the requirement/aptitude of the farmers to conduct the demonstrations. Preference for demonstration was given to the socio-economically backward / small/ marginal / ST / SC / OBC farmers. The selected demonstrating farmers are progressive one with lead and who is easily approachable by other farmers & extension workers. During 2021-22, 5000 mustard crop

demonstrations were approved. Accordingly a total of 5000 mustard crop demonstrations in different clusters of 15 districts were laid out. Along with mustard crop demonstrations, 9000 minikit demonstrations in the selected clusters to strengthen mustard value chain- production were also laid out. In each minikit, one Kg seed was provided to each farmer to compare it with other existing varieties.The minikit demonstrations are accelerating informal dissemination of scientific cultivation of mustard from farmer to farmer through the introduction, exposure, experience, for acceptance of new varieties. These minikits would help farmers and other stakeholders to grow, observe and experience the performance of the introduced variety and develop learning for self and the associated community. This intends to create awareness in the region and thereby producing demand and a market for the variety for the future. This will also make seeds available in the next season.

Table 2: Progress of crop demonstrations and minikits during crop season 2021-22

SN	Activities	Target	Achieved
1.	Climate resilient production demonstrations	5000	5000
2	Minikit demonstrations	9000	9000

Based on the climatic situation, cultivation of rapeseed-mustard, prevailing cropping pattern and resources, these demonstrations were conducted with three improved varieties of Indian mustard viz. NRCHB-101 (1700), PM-28 (1690) and DRMR-150-35 (350) and one variety of toria, viz. TS-38 (1260) along with crop management and protection technologies like line sowing, proper seed rate, seed treatment, proper plant population, thinning, weeding, intercultural operations, management of pest and diseases, etc. against the control plot. The seed of these improved varieties were supplied by ICAR-DRMR to DAOs / PD ATMA of 15 selected APART mustard districts. The seed was made available to them timely. The seed of demonstrated variety along with required fertilizers and need based fungicides/pesticides were given to selected farmers for crop demonstration. Under minikit demonstrations, only one kg seed of improved varieties viz. NRCHB-101 (5435) and PM-28 (2465) of Indain mustard and one variety of toria, viz. TS-38 (1100) was supplied to the farmers. The details of components of demonstrated technology against the control plot or farmers practice is given in Table 3 and district wise details of varieties in mustard crop demonstrations and minikit demonstrations are given in Table 4.

Table 3: Components of demonstrated technology against the control plot

Components of demonstrated technology	Prevailing farmers practices against demonstrated technology
Improved varieties (NRCHB-101/PM-28/DRMR-150-35/TS-38)	Local varieties used by farmers
Proper seed rate	Higher seed rate
Balanced use of fertilizers	Imbalance use of fertilizers

Line sowing	Broadcasting
Proper spacing	No proper spacing
Thinning/Weeding	No thinning/Weeding
Proper plant protection measures	Generally not used plant protection measures

Table 4: Distribution of varieties in mustard crop demonstrations and minikit demonstrations.

SN	District (No. of clusters)	Total crop demo (CP)	Total minikit	Varietal distribution of crop and minikit demonstrations						
				DRMR-150-35	PM-28		NRCHB-101		TS-38	
				No. of Demo	No. of Demo		No. of Demo		No. of Demo	
					CP	Minikit	CP	Minikit	CP	Minikit
1.	Dhubri (5)	400	900	20	130	200	170	625	80	75
2.	Sonitpur (7)	500	1000	30	200	200	200	700	70	100
3.	Darrang (3)	300	500	20	60	200	140	225	80	75
4.	Morigaon (2)	200	500	20	--	200	100	250	80	50
5.	Golaghat (3)	200	400	30	100	200	--	100	70	100
6.	Jorhat (3)	300	500	30	100	200	100	250	70	50
7.	Sivsagar (2)	200	400	30	100	200	--	150	70	50
8.	Nagaon (4)	400	900	20	100	200	150	600	130	100
9.	Dhemaji (3)	400	600	20	100	125	150	425	130	50
10.	Lakhimpur (4)	500	700	20	200	150	150	450	130	100
11.	Barpeta (10)	300	600	20	100	100	100	400	80	100
12.	Nalbari (2)	200	200	20	60	40	70	110	50	50
13.	Kamrup (4)	500	600	30	200	100	170	400	100	100
14.	Kokrajhar (3)	300	600	20	100	150	100	400	80	50
15.	Bongaigaon (3)	300	600	20	140	200	100	350	40	50
	Total	**5000**	**9000**	**350**	**1690**	**2465**	**1700**	**5435**	**1260**	**1100**

The high temperature in the month of November and late harvesting of Sali rice caused delay in sowing of the crops at some places. Keeping in view of temperature, rainfall and land preparation in different clusters, the sowing was completed by 2nd half of December 2021.

The broadcasting method of sowing of mustard was prevailing in the Assam. The line sowing of mustard has several advantages, therefore, effort was done to adopt the line sowing method for conducting mustard crop demonstrations. Line sowing was adopted by many farmers with the efforts of ICAR-DRMR. However, majority of farmers adopted broadcasting method due to non-availability of proper seed drill in their locality.

Cluster wise information for crop demonstration: The demonstrations were laid out in 58 clusters in 15 selected districts, identified by APART for mustard cultivation (Table 5).

Table 5: The cluster wise details of varieties in mustard crop demonstrations

Districts	Cluster	Beneficiaries (No.)						Total no. of Demons	No. of demo on varieties			
		Gender		Social Category								
		M	F	Gen	OBC	SC	ST		NRCHB-101	PM-28	DRMR-150-35	TS-38
Dhubri	Gauripur	53	28	63	18	0	0	81	34	25	4	18
	Rupshi	79	6	38	47	0	0	85	34	30	4	17
	Agomani	73	5	54	3	20	1	78	34	25	4	15
	Chaper - Salkocha	68	10	78	0	0	0	78	34	25	4	15
	Mahamaya	68	10	78	0	0	0	78	34	25	4	15
	Total	**341**	**59**	**311**	**68**	**20**	**1**	**400**	**170**	**130**	**20**	**80**
Sonitpur	Dhekiajuli	40	39	0	36	28	15	79	33	26	6	14
	Bihaguri	48	31	2	41	31	5	79	30	29	6	14
	Gabharu	74	5	15	64	0	0	79	30	29	6	14
	Balipara	68	7	1	64	0	10	75	29	32	4	10
	Chaiduar	44	20	1	60	1	2	64	28	28	3	5
	Rangapara	60	0	11	28	0	21	60	22	28	2	8
	Biswanath	62	2	26	17	20	1	64	28	28	3	5
	Total	**396**	**104**	**56**	**310**	**80**	**54**	**500**	**200**	**200**	**30**	**70**
Darrang	Sipajhar	56	42	49	49	0	0	100	47	20	7	26
	Bachimari	95	5	36	33	26	5	100	46	20	7	27
	Pachim-mangaldai	77	25	53	47	2	0	100	47	20	6	27
	Total	**228**	**72**	**138**	**129**	**28**	**5**	**300**	**140**	**60**	**20**	**80**
Nalbari	Barkhetri	92	8	83	4	8	5	100	35	23	20	22
	Borigog-banbhag	83	17	58	35	7	0	100	35	37	0	28
	Total	**175**	**25**	**141**	**39**	**15**	**5**	**200**	**70**	**60**	**20**	**50**
Nagaon	Batadrava	107	8	98	0	17	0	115	35	25	5	50
	Koliabor	93	12	51	43	0	11	105	35	25	5	40
	Khagorijan	63	27	42	15	33	0	90	40	25	5	20
	Raha	32	58	35	32	20	3	90	40	25	5	20
	Total	295	105	226	90	70	14	400	150	100	20	130
Morigaon	Mayong	94	6	25	30	17	28	100	40	0	20	40
	Bhurbandha	76	24	34	33	9	24	100	60	0	0	40
	Total	**170**	**30**	**59**	**63**	**26**	**52**	**200**	**100**	**0**	**20**	**80**
Lakhimpur	Telahi	37	0	0	7	1	29	37	9	1	0	27
	Narayanpur	126	2	0	1	6	121	128	88	40	0	0
	Dhakuakhana	123	47	9	132	29	0	170	27	65	0	78
	Ghilamara	120	45	1	89	2	73	165	26	94	20	25
	Total	**406**	**94**	**10**	**229**	**38**	**223**	**500**	**150**	**200**	**20**	**130**

Kokrajhar	Kokrajhar	90	56	12	28	0	106	146	63	47	11	25
	Dotma	110	32	32	29	0	81	142	37	41	9	55
	Kachugaon	10	2	0	8	0	4	12	0	12	0	0
	Total	**210**	**90**	**44**	**65**	**0**	**191**	**300**	**100**	**100**	**20**	**80**
Golaghat	Podumoni	9	1	5	5	0	0	10	0	0	10	0
	Kakodonga	50	0	35	4	1	10	50	0	40	10	0
	Bokakhat	130	10	22	32	2	84	140	0	60	10	70
	Total	**189**	**11**	**62**	**41**	**3**	**94**	**200**	**0**	**100**	**30**	**70**
Kamrup	Kamalpur	48	52	40	60	0	0	100	0	0	0	100
	Bihdiya Jajikona	151	19	103	44	3	20	170	107	0	0	63
	Bongshor	27	3	16	12	2	0	30	0	0	30	0
	Chandrapur	156	44	20	69	111	0	200	0	200	0	0
	Total	**382**	**118**	**179**	**185**	**116**	**20**	**500**	**107**	**200**	**30**	**163**
Sivsagar	Demow	128	2	6	71	0	53	130	0	101	0	29
	Gaurisagar	64	6	7	55	2	6	70	0	21	30	19
	Total	192	8	13	126	2	59	200	0	122	30	48
Dhemaji	Machkhowa	117	16	0	53	7	73	133	50	33	7	43
	MSTD	118	16	0	3	0	131	134	50	34	6	44
	Sissiborgaon	73	60	0	3	5	125	133	50	33	7	43
	Total	**308**	**92**	**0**	**59**	**12**	**329**	**400**	**150**	**100**	**20**	**130**
Barpeta	Bajali	45	5	50	0	0	0	50	50	0	0	0
	Bhawanipur	43	7	50	0	0	0	50	50	0	0	0
	Barpeta	10	10	17	2	0	1	20	0	0	20	0
	Chenga	36	4	12	7	21	0	40	0	0	0	40
	Chakachaka	27	13	16	22	2	0	40	0	0	0	40
	Gumafulbari	13	7	20	0	0	0	20	0	20	0	0
	Mandia	14	6	20	0	0	0	20	0	20	0	0
	Pakabethbari	14	6	20	0	0	0	20	0	20	0	0
	Rupshi	16	4	20	0	0	0	20	0	20	0	0
	Sarukehetri	13	7	20	0	0	0	20	0	20	0	0
	Total	**231**	**69**	**245**	**31**	**23**	**1**	**300**	**100**	**100**	**20**	**80**
Jorhat	Kaliapani	36	4	2	26	1	2	40	12	14	8	6
	Majuli	116	14	23	35	21	51	130	44	46	11	29
	Ujani majuli	121	9	14	26	0	90	130	44	40	11	35
	Total	**273**	**27**	**39**	**87**	**22**	**143**	**300**	**100**	**100**	**30**	**70**
Bongaigaon	Manikpur	85	15	**72**	**16**	**4**	**8**	**100**	**42**	**45**	**0**	**15**
	Patiladoha	80	20	64	28	6	2	100	28	60	20	12
	Bidyapur	70	30	84	6	4	6	100	30	35	0	13
	Total	**235**	**65**	220	50	14	16	300	100	140	20	40
	Grand total	**4031**	**969**	**1743**	**1572**	**478**	**1207**	**5000**	**1637**	**1712**	**350**	**1301**

Regular visits and monitoring of the crop demonstrations and minikit demonstrations are being done by Research Associates, ATMA personnel to educate and motivate the farmers to adopt crop management practices like thinning, intercultural operations, weeding, applying irrigation, management of insects and diseases, etc. The monitoring and supervision of crop demonstrations and activities are also being done by Resident Consultant and experts of ICAR-DRMR.

Table 6: Summary of crop demonstrations organized by ICAR-DRMR during 2021-22

SN	Activity	Target (No.)	Achieved (No.)	Beneficiaries (No.)	Beneficiaries (No.)						
					Gender		Social Category				Total
					Male	Female	Gen	OBC	SC	ST	
1	**Crop Demonstrations**	**5000**	**5000**	**5000**	**4031**	**969**	**1743**	**1572**	**478**	**1207**	**5000**

Glimpses of crop demonstrations organized in different districts of Assam under ICAR-DRMR-OPIU (Agri)-APART Project

Darrang

Darrang

Dhubri

Dhubri

Dhemaji

Dhemaji

Glimpses of crop demonstrations organized in different districts of Assam under ICAR-DRMR- OPIU (Agri)-APART Project

Bongaigaon

Bongaigaon

Barpeta

Barpeta

Jorhat

Jorhat

Glimpses of crop demonstrations organized in different districts of Assam under ICAR-DRMR- OPIU (Agri)-APART Project

Kamrup

Kamrup

Kokrajhar

Kokrajhar

Lakhimpur

Lakhimpur

Glimpses of crop demonstrations organized in different districts of Assam under ICAR-DRMR- OPIU (Agri)-APART Project

Nagaon

Nagaon

Nalbari

Nalbari

Sivasagar

Sivasagar

Glimpses of crop demonstrations organized in different districts of Assam under ICAR-DRMR- OPIU (Agri)-APART Project

	
Sonitpur	Sonitpur
	
Golaghat	Golaghat
	
Morigaon	Morigaon

2.5 Activity 2 and 3: Master Training and Farmers Programme on "Best Management Practices for Rapeseed-Mustard Cultivation in Assam"

ICAR-Directorate of Rapeseed-mustard Research, Bharatpur, Rajasthan (DRMR) is working as a knowledge partner with Directorate of Agriculture, Government of Assam to provide the expertise on the mustard value chains under the project. In order 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, 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 Farmers Training programmes). For better impact, it was planned to organize training of Master trainers and farmers trainers simultaneously in two batches, one at Kamrup and other at Jorhat districts. The training programmes were organized on "Best Management Practices for Rapeseed-Mustard Cultivation in Assam". The objectives of these trainings were to 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 crop by the farmers and 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.

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

At the outset of the training programme, the Team Leader of ICAR-DRMR and Agri (APART) project & Principal Scientist, ICAR-DRMR, Dr. Ashok Kumar Sharma said that **r**apeseed and mustard is grown in substantial area in Assam but productivity is very low in comparison to national productivity. Low and unstable oilseed system productivity is major problem in these areas where cultivation is undertaken mostly through small and marginal agricultural holdings. He said that the capacity development of extension functionaries and farmers in Assam will amplify the rapeseed-mustard technology dissemination process and build strong institutional capacity for sustaining the cost-effective technology delivery system. The availability of these trained personnel will ensure sustainable dissemination of rapeseed-mustard technology to the large number of farmers.

The training programme at Kamrup was inaugurated by chief guest Dr. D.N. Kalita, Head, KVK, Kamrup who said that rapeseed-mustard crop has good production potential in Assam, where the cultivation is supported with suitable technology intervention and knowledge inputs.

The training programme AAU, Jorhat was inaugurated by chief guest Dr. P.K. Pathak, Director of Extension Education, AAU, Jorhat. He said that rapeseed-mustard is important crop for Assam. The vast availability of natural resources and fertile lands offering ample scope to promote oilseed cultivation in Assam.

The training programmes at both places were presided by Dr. GN Hazarika, former Director Research, AAU, Jorhat and presently Resident Consultant, ICAR-DRMR and Agri (APART) project. He said that expansion of the mustard crop in rice-fallow areas will help in increase production, because rapeseed-mustard is capable of growing under diverse agro-climatic zones. He elaborated the importance of the project and activities to be carried out to motivate the farmers for adoption of new technologies.

In the valedictory function at Kamrup, the chief guest, Sh. Madhurum Patiri, Nodal Officer-Agri (APART) said that ICAR-DRMR is working with the Directorate of Agriculture, Government of Assam on the mustard value chains for augmenting rapeseed-mustard production of farmers of Assam for sustainable livelihood security. ICAR-DRMR as a knowledge partner is providing the expertise on scientific cultivation of mustard in Assam. He urged the extension personnel to identify suitable technology of rapeseed-mustard for their districts and motivate the farmers to adopt scientific technology that will be a great step to contribute to economic growth through increasing production and productivity of rapeseed-mustard in Assam.

On the occasion, Sh. Raosaheb Bendre, Agriculture Specialist, Agri (APART) said that ICAR-DRMR is supporting to conduct the large scale demonstrations, technical trainings and capacity building of stakeholders to develop the confidence of the farmers so that they can adopt the crop in large area with scientific intervention and increase the productivity of mustard.

In the valedictory function at Jorhat on 30th Oct 2021, the chief guest, Dr. Mrinal Saikia, Associate Director (Research), AAU, Jorhat said that technical support and guidance from scientists of ICAR-DRMR to extension personnel and farmers will help in promotion of scientific cultivation of rapeseed-mustard in Assam. He said that a large number of improved varieties and suitable technologies of rapeseed-mustard were developed by ICAR and AAU, Jorhat. The organization of such training programmes will help in enhancing the knowledge and adoption of such newly developed varieties and scientific technologies.

The other experts namely Dr. Pankaj Sharma, Pr. Scientist; Dr. Arun Kumar, Pr. Scientist; and Dr, Harvir Singh, scientist from ICAR-DRMR, Bharatpur and Ashwini Peter from SKYMET delivered lectures as resource persons. The training programme at Jorhat was coordinated by Dr. Priyakshi Buragohain, Research Associate, ICAR-DRMR and Agri (APART) project.

Content of the training

The training of master trainers has covered all aspects of technology interventions that contribute for higher production of rapeseed-mustard. The subject matter training included improved varieties, agronomic practices of rapeseed-mustard, seed treatment, soil treatment, line sowing, plant geometry, irrigation management, balanced use of fertilizers through identification

of nutrient deficiency symptoms, identification of pest and diseases and their management, quality oil extraction, seed production techniques, harvesting, threshing and storage management, methodology of conducting demonstrations, Use of IT for accessing agriculture information, etc. Detailed training schedule is presented in Table 7 and 8.

Table 7: Schedule of Training Programme held at Krishi Vigyan Kendra, Kaikuchi, Kamrup, Assam during 25-26 Oct. 2021

Date	Time	Topics	Speakers
25-10-2021	9:30 AM-10:00 AM	Registration	Nodal Officer
	10:00 AM-10:15 AM	Introduction of the participants	All participants
	10:15 AM-10:30 AM	Welcome & Opening Remarks	Dr. G.N. Hazarika
	10:30 AM-11:00 AM	An overview of DRMR-APART programme	Dr. Ashok Kr. Sharma
	11:00 AM-12:00 Noon	Scope and challenges of rapeseed-mustard production in Assam	Dr. G.N. Hazarika
	12:00 N-1:00 PM	Rapeseed–mustard crop introduction and important varieties.	Dr. Arun Kumar
	1:00 PM-2:00 PM	**Lunch break**	-
	2:00 PM-3:00 PM	Integrated agro production technology of rapeseed-mustard.	Dr. Harvir Singh
	3:00 PM-4:00 PM	Integrated nutrient management in rapeseed-mustard	Dr. Ashok Kr. Sharma
	4:00 PM-5:00 PM	Integrated disease management in rapeseed-mustard	Dr. Pankaj Sharma
26-10-2021	10:00 AM-11:30 AM	Integrated pest management in rapeseed-mustard	Dr. Pankaj Sharma
	11:30 AM-1:00 PM	Post-harvest management and Important farm Implements for rapeseed-mustard cultivation	Dr. Harvir Singh
	1:00 PM-2:00 PM	**Lunch break**	-
	2:00 PM-3:30 PM	Crop Demonstrations: Importance and Principles	Dr. Ashok Sharma
	3:30 PM-4:30 PM	Question-Answer and Discussion Session	All experts
	4:30 PM-4:50 PM	Suggestions	Nodal Officer, APART; Mr. Raosahab Bendre
	4:50 PM-5:00 PM	Concluding Remarks	Dr. G.N. Hazarika

Table 8: Schedule of Training Programme held at AAU, Jorhat, Assam during 29-30 Oct. 2021

Date	Time	Topics	Speakers
29-10-2021	9:30 AM-10:00 AM	Registration	Nodal Officer
	10:00 AM-10:15 AM	Introduction of the participants	All participants
	10:15 AM-10:30 AM	Welcome & Opening Remarks	Dr. G.N. Hazarika
	10:30 AM-11:00 AM	An overview of DRMR-APART programme	Dr. Ashok Kumar Sharma
	11:00 AM-12:00 Noon	Scope and challenges of rapeseed-mustard production in Assam	Dr. G.N. Hazarika
	12:00 N-1:00 PM	Rapeseed–mustard crop introduction and important varieties.	Dr. Arun Kumar
	1:00 PM-2:00 PM	**Lunch break**	-
	2:00 PM-3:00 PM	Integrated agro production technology of rapeseed-mustard.	Dr. Harvir Singh
	3:00 PM-4:00 PM	Integrated nutrient management in rapeseed-mustard	Dr. Ashok Kumar Sharma
	4:00 PM-5:00 PM	Integrated disease management in rapeseed-mustard	Dr. Pankaj Sharma
30-10-2021	10:00 AM-11:30 AM	Integrated pest management in rapeseed-mustard	Dr. Pankaj Sharma
	11:30 AM-1:00 PM	Post-harvest management and Important farm Implements for rapeseed-mustard cultivation	Dr. Harvir Singh
	1:00 PM-2:00 PM	**Lunch break**	-
	2:00 PM-3:30 PM	Crop Demonstrations: Importance and Principles	Dr. Ashok Sharma
	3:30 PM-4:30 PM	Question-Answer and Discussion Session	All experts
	4:30 PM-4:50 PM	Suggestions	Nodal Officer, APART; Mr. Raosahab Bendre
	4:50 PM-5:00 PM	Concluding Remarks	Dr. G.N. Hazarika

Participants of the training

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, Bongaigaom, Morigaom, Kokrajhar and Nagoan 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 34 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 64 farmers participated in these training programmes. Certificates were also distributed to farmer participants. Table 9 shows the detailed list of the participants

Table 9a: List of Master Trainers participaed in training programme organized at Krishi Vigyan Kendra, Kaikuchi, Kamrup, Assam during 25-26 Oct. 2021

SN	Name of Participants	Designation & Block	E-Mail ID	Mobile
1.	Nitumoni Mahanta	ADO, Jute, Dhubni	nitumon154@gmail.com	8812092221
2.	Dr. Hadi Husain Khan	RA, ICAR-DRMR, Dhubri	hhkhan.amu.786@gmail.com	9140850518
3.	Subhasree Borthakur	BTM, Morigaon	subhaseeborthakur@gmail.com	9706065518
4.	Pabitra Deuri	BTM, Mayong	prabitradeuri1974@gmail.com	9954031402
5.	Makibar Rahman	DHC, Kokrajhar	mrapart100.@gamil.com	8310473704
6.	Dwimalu Moshahary	ATM, Kokrajhar	dveimahemushahawy10@gmail.com	9954727725
7.	Mritunjoy Basumatary	ATM, Kokrajhar	mritunbasu153@gmail.com	7002095843
8.	Md. Abdus Salam	ATM, Darrang	abdusslam3188@gmail.com	8011665304
9.	Dr. Vipin Kumar Sharma	RA, ICAR-DRMR, Darang	mr.vipinkumar07@gmail.com	9821865261
10.	Emdadul Ahmed	ATM, Mandia, Barpeta	emdadulahmad888@gmail.com	8812899180
11.	Meriza Begum	BTM, Kamrup	bemeri2013@gmail.com	7002803475
12.	Rosy Dutta	BTM, Chandrapur, Kamrup	rouji.aav11@gmail.com	8638717877
13.	Ms. Babita Choudhary	ATM, Sameti, Kamrup	choudharybabita08@gmail.com	9127059769
14.	Krishna Bhusan Sharma	BTM, Kaliabon, Nagaon	krishnabushan@yahoo.com	9365509401
15.	Hitesh Deka	ATM, Raha, Nagaon	hiteshdeka95@gmail.com	9508036314
16.	Arup Kumar Nath	BTM, Batadrava, Nagaon,	arup.assamese@gmail.com	7576945176
17.	Abdul Aziz	ATM, Nalbari	azizabdul7099@gmail.com	9101036714
18.	Dr. Kabir Humayun	ATM, Barkatri,Nalbari	iamkabir238@gmail.com	7002264330
19.	Dr, Ranadip Roy	BTM, Srijangnaon, Bongaigaon	roy2ranadip76@gmail.com	8876995294
20.	Dr. Pranay Talukoar	ATM, Boitamari, Bongaigaon	pranaytalukoar1990@gmail.com	7002933439

Table 9b: List of farmers participaed in training programme organized at Krishi Vigyan Kendra, Kaikuchi, Kamrup, Assam during 25-26 Oct. 2021

SN	Name of Participants/ father's Name	Address	Gender	Category	Mobile
1.	Md. Jiarul Hoque / Nijam Uddin Ahmed	Niz. Dalgaon, Bachimari, Darrang	M	Gen	8724861062
2.	Md. Hanif Ali / Hassan Ali	Sanowa Tari, Sipajhar, Darrang	M	Gen	7002332836
3.	Md. Nabab Ali / Taleb Ali	Badiasisha,Sipajhar, Darrang	M	Gen	9085062847
4.	Bireswar Kalita / Lt. Patiram Kalita	Barthekerabari,Pachim Mangaldai, Darrang	M	Gen	8404065484
5.	Jitendra Mazumdar / Lt. Pani Ram Mazumdar	Palarm, Kamrup	M	SC	9101804920
6.	Ramjan Ali Mandal / Abdul Hoque	Kaliabhasa, Kokrajhar	M	Gen	9954020290
7.	Tufaiff ul Md. / Lt. Abdul Hamed Md.	Chedamari,Titaguri, Kokarajhar	M	Gen	9365182773
8.	Sceihakshi Narayan Deouri / Lt. Topram Deouri	Manaha Konworgaon Morigaon	M	ST	9957241548
9.	Jayonta Kr. Bordalai / Uban Ch. Bordalai	Batabori (Chikabori) Morigaon	M	ST	9365065946
10.	Joya Deka / Atul deka	Huknagukh, Morigaon	F	Gen	6003411822
11.	Lal Chand / Abdul mozid	Patakata Pt. II, Mahamaya, Dhubri	M	Gen	6001038938
12.	Gazirul Hoque / Lt. Goytallah SK.	Boal Kamury pt. II, Mahamaya, Dhubri	M	Gen	8812892930
13.	Joydip Das / Lt. Harendra Nr. Das	Kashgopura,Boitmori Bongaigaon	M	Gen	8399951996
14.	Asad Ali / Romjan Ali	Patakaata II, Dhubri	M	Gen	6001944860
15.	Moizal Hoque / Ranjan Ali	Kharuqpara, Barepta	M	Gen	7896359072
16.	Yakib Ali / Sadam Ali	Radha Sevhai, Barepta	M	Gen	7002360719
17.	Prasanna Nath / Farma	Raha, Nagaon	M	OBC	9665766974
18.	Purnima Deka / Lt. Titi Deka	Kohagaon,Raha, Nagaon	M	Gen	8011139979
19.	Bikram Baruah / Sujit Kumar Baruah	Sinarigaon Silghat, Koliabor, Nagaon	M	Gen	8486540369
20.	Bhaskar Das / Lt. Rajen Das	Lahkar Ghat, Moirabari, Nagaon	M	SC	9864321639
21.	Nayanjyoti Borkakati / Guneswar Borkakati	Senchowa, Khagarijan, Nagaon	M	Gen	8638379281
22.	Pallabi Goswami / Anjan jyoti Gowami	Chengni kotore Nalbari	F	Gen	8011446614
23.	Arpana Mazumdar / Durgiwar Deku	Chengni kotore Nalbari	F	Gen	9854429052
24.	Ms. Rupa kalita / Radha Kalita	Chengni kotore Nalbari	F	Gen	7002258048
25.	Manowar Hussain / Minzan Ali	Loharkatha Nalbari	M	Gen	8638941549

26.	Shahnowaz Saikia / Saifuddin Saikia	Loharkatha Nalbari	M	Gen	9864160611
27.	Muslemuddin / Zahidul	Mukalmuva, Nalbari	M	Gen	7635996176
28.	Bandita deka / Pradip Deka	Jagara, Nalbari	F	Gen	8011148894
29.	Nagen Baishya / Bhali Baishya	Neherbani, Nalbari	M	Gen	8876291341
30.	Sushil Baishya / Amor Baishya	Neherbani, Nalbari	M	Gen	6001598636

Table 9c: List of Master Trainers participaed in training programme organized at AAU, Jorhat, Assam during 29-30 Oct. 2021

SN	Name of participants	Designation & Block	E-mail id	Contact No
1.	Pranjit Bhuyan	BTM, Majuli, Jorhat	pbhuyan.karaaau@gmail.com	7896261184
2.	Suman Parasar	ATM, Jorhat	sumanparasar99@gmail.com	8133072149
3.	Saranga Dev Goswami	BTM, Jorhat	saranga947770@gmail.com	9401297770
4.	Prodyumna Borah	BTM, Titabar, Jorhat	produmna.borah@gmail.com	9706670203
5.	Pranjal Das	ATM, Titabar, Jorhat	pranjaldas9385@gmail.com	8638814559
6.	Dibyajyoti Sharma	BTM, Sipakhula, Jorhat	dibyasharma15@gmail.com	9706585864
7.	Jyotirmoi Baruah	BTM, Selenghat, Jorhat	baruahjyotirmoy@gmail.com	9957632583
8.	Madhav Jyoti Pegu	ATM, UjaniMajuli, Jorhat	madzpegu@gmail.com	8638688071
9.	Dr. Bijoy Kumar Dutta	BTM, Dhakuakhana, Lakhimpur	dr.bkdutta@gmail.com	6001602936
10.	Dr. Bhaswati Bhattacharyya	DPD-II, ATMA, Lakhimpur	bhaswatinlp@gmail.com	7002007263
11.	Parama Kakaty	BTM, Narayanpur, Lakhimpur	paramakakaty82@gmail.com	6900576159
12.	Pallabi Borah	ATM, Gaurisagar, Sivasagar	pallabibrh@gmail.com	9954883479
13.	Priyanka Saikia	BTM, Demow, Sivasagar	priyankasbora@gmail.com	8474052005
14.	Haripriya Borah	ATM, Golaghat	haripriya777@gmail.com	6000921692
15.	Mahmuda Begum	ATM, Golaghat	mahmudabegum714@gmail.com	7002382554
16.	Dr. Priyanka Sharma	RA, Sonitpur	sprianca133@gmail.com	7060559326
17.	Padmanath Doley	BTM, Sonitpur	padmanathdoley@gmail.com	7002213734
18.	Dr. Bandhan Subba	RA, Golaghat	bandhan.subba@rediffmail.com	8101455138
19.	Dr. Priyakshi Buragohain	RA, Sivasagar	pburagohain131@gmail.com	9508344918
20.	Deepsikha Sonowal	ATM, Dhemaji	deepsikha10101@gmail.com	8486780963

Table 9d: List of farmers participaed in training programme organized at AAU, Jorhat, Assam during 29-30 Oct. 2021

SN	Name of Participants/ father's Name	Address	M/F	Category	Mobile
1.	Robin Hazarika / Rupeshwar Hazarika	Notun Bokora Majuli, Jorhat	Male	OBC	8402020892
2.	ChandanBharali / Bhola Bharali	Jamuguri Majuli, Jorhat	Male	OBC	9394844821
3.	Ranjit Bora / Dimbeswar Bora	Sensuwa Gaon Kaliapani, Jorhat	Male	OBC	9834787120
4.	Ritumoni Bora / Lt. Bituram Bora	Dhemaji Gaon, Jorhat	Male	OBC	6001483607
5.	SaratBaruah / Ghanakanta Baruah	Maskuri, Jorhat	Male	OBC	8822949748
6.	Manik Chandra Gogoi / Khagshwa Gogoi	Palasbari, Jorhat	Male	OBC	9101534329
7.	Arnab Jan Chutia / Chandra Chutia	Notunlahima, Jorhat	Male	OBC	9365051005
8.	Rahul Borah / Purna Kanta Borah	Notunlahima, Jorhat	Male	OBC	9531135952
9.	Narayan Saikia / Rosho Saikia	Mudoibil, UjaniMajuli, Jorhat	Male	OBC	9401418840
10.	Nabin Pegu / Kamalson Pegu	Jengerai Chapori, Ujani Majuli Jorhat	Male	ST	9365459884
11.	Nripen Chandra Nath / Lt. AmbikaNath	Rongamati, Sonitpur	Male	OBC	8812877281
12.	Abdul Ali / Monta Ali	Gurgor, Sonitpur	Male	Gen	9678842921
13.	Khairul Islam / Mofizul Islam	Gurgor, Sonitpur	Male	Gen	7577809667
14.	Nurul Islam / Lt. Mofiz Uddin	Gurgor, Sonitpur	Male	Gen	8638538603
15.	TurunJyoti Borah / Indeshwar Borah	Bapubheti, Sonitpur	Male	OBC	8474066318
16.	Mokbul Hussain / Alauddin	Gurgor, Sonitpur	Male	Gen	6001631899
17.	ThirangthaNarzary / Halaram Narzary	Magurmarise, Dhemaji	Male	ST	8753937697
18.	Nibaram Modak / Tarun Modak	Silapathar, Dhemaji	Male	ST	7002783892
19.	Rijom Pegu / Sandiram Pegu	Jonai, Dhemaji	Male	ST	8471880806
20.	Utpa lMedok / Rajkumar Medok	Jonai, Dhemaji	Male	ST	8099955734
21.	Tikendrajit Pegu / Gondeshwar Pegu	Grajing, Dhemaji	Male	ST	6001871149
22.	UkiramKapta / Lakhinath Kapta	Demow, Sivasagar	Male	ST	9365646573
23.	GautamMilli / Ganesh Milli	Demow, Sivasagar	Male	ST	8011641004
24.	Nayanmoni Borah / Arun Borah	Chintamoni Garh, Sivasagar	Male	Gen	8638253548

25.	Nayanmoni Saikia / Ambeshwar Saikia	Chintamoni Garh, Sivasagar	Male	Gen	6002734660
26.	Karko Doley / Chanda Doley	Acherakata Maharichuk, Telahi, Lakhimpur	Male	ST	9957062842
27.	Ananta Das / Diben Das	Tamar Gaon, Lakhimpur	Male	SC	7099435405
28.	Abhijeet Chutia / Dishember Chutia	Moinapara, Ghilamora Lakhimpur	Male	OBC	9101601289
29.	Dudu Dutta / Lt. Bhoram Dutta	Moinapara, Ghilamora Lakhimpur	Male	General	6003932300
30.	AsharuUrang / Lt. DularamUrang	Kurwabahi, Bokakhat Golaghat	Male	TGL(OBC)	9859243127
31.	Jatin Saikia / Lt. Giridhar Saikia	Borpak, Bokakhat, Golaghat	Male	MOBC	9101976925
32.	Mukunda Madhab Hazarika / Lt. RajniKanta Hazarika	Kamaugaon, Bokakhat, Golaghat	Male	ST	9854845050
33.	Bipul Gogoi / Debakanta Gogoi	SumoniGaon, Kakodonga Golaghat	Male	OBC	6000262051
34.	Manoj Saikia / Chandra Kanta Saikia	LokhaiGaon, Kakodonga Golaghat	Male	OBC	7896805996

Output of the training

The capacity development of extension functionaries in Assam will amplify the rapeseed-mustard technology dissemination process and builds strong institutional capacity for sustaining the cost-effective technology delivery system. The capacity development of farmers in Assam will augment the rapeseed-mustard technology dissemination process among farmers. The availability of these trained extension personnel and farmers will ensure that the sustainable dissemination of rapeseed-mustard technology to the large number of farmers even after the exit of the project.

Table 10: Summary of Master Training Programme organized by ICAR-DRMR

SN	Activity	Target (No.)	Achieved (No.)	Beneficiaries (No.)	Districts covered (No.)
1	Masters' Training Pogramme	02	02	40	15 (Darrang, Dhubri, Barpeta, Nalbari, Kamrup, Bongaigaom, Morigaom, Kokrajhar, Nagoan, Sonitpur, Golaghat, Lakhimpur, Jorhat, Sivasagar and Dhemaji districts of Assam

Table 11: Summary of farmers training programme organized by ICAR-DRMR

SN	Activity	Target (No.)	Achieved (No.)	Beneficiaries (No.)	Beneficiaries (No.)						
					Gender		Social Category				Total
					Male	Female	Gen	OBC	SC	ST	

1	Progressive farmers training	02	02	64	59	5	32	17	3	12	64

The training brouchures is given in Annexure

Glimpses training programme organized at Krishi Vigyan Kendra, Kaikuchi, Kamrup, Assam during 25-26 Oct. 2021

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Glimpses training programme organized at Krishi Vigyan Kendra, Kaikuchi, Kamrup, Assam during 25-26 Oct. 2021

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Glimpses training programme organized at at AAU, Jorhat, Assam during 29-30 Oct. 2021

Glimpses training programme organized at at AAU, Jorhat, Assam during 29-30 Oct. 2021

2.6 Activity 4: Technical Training programmes organized in different districts.

There were 250 technical trainings sessions linked with crop demonstration for 2021-22. One technical training is linked to 20 demonstration for 30 farmers.

These technical training programmes were planned to organize in four phases at different stages of crop growth during the crop season so that farmers can be advised properly by experts of ICAR-DRMR about technological interventions at different stages. A timely advice to the farmers is very crucial and effective for adoption of scientific cultivation practices. To provide practical exposure and technical advice to the farmers, 250 technical trainings on different aspects of rapeseed-mustard cultivation for farmers were organized in three phases at different places/villages of the selected 15 districts of Assam from 6th October 2021 to 29th January 2022.

The first phase of technical training on "Scientific production technology of rapeseed-mustard" was conducted cluster wise at Department of Agriculture/ATMA office/ block office/villages of respective districts before/at the sowing during November 2021. During the training, all participating farmers were distributed seeds and fertilizers for conducting crop demonstrations. The technical knowledge and skill about land preparation, seed treatment, fertilizer application, seed rate, sowing method, sowing time, spacing, etc. were provided to the participants by ICAR-DRMR. A total of 2376 farmers and farm women participated in 95 technical trainings of first phase.

The second phase of technical training was conducted on "Improved agronomic practices of rapeseed-mustard for higher production" during December 2021 at the time of vegetative growth of the crop at farmers' field in each of the selected clusters. The technical knowledge and skill about weeding, hoeing, thinning, irrigation management, top dressing, etc. were provided to the participants by ICAR-DRMR during second phase of technical training. A total of 2267 farmers and farm women participated in 86 technical trainings of second phase.

The third phase of technical training was conducted on "Integrated pest and disease management in rapeseed-mustard" during January 2022 at the time of flowering stage of the crop at farmers field in each of the selected clusters. The technical knowledge and skill about identification of insect-pests, diseases, their management, types of pesticides, fungicides, precautions in spraying, etc. were provided to the participants by ICAR-DRMR during third phase of technical training. A total of 1722 farmers and farm women participated in 69 technical trainings of third phase.

Thus a total of 250 technical trainings were organized during the period wherein 6365 farmers and farm women participated. These technical trainings were organized at farmers' field by the District ATMAs with the technical backstopping of ICAR-DRMR. The district wise detailed information of first, second and third phase technical trainings is shown in Table 11, 12 and 13 respectively.The number of training beneficiaries of different social categories are given in Table 14.

These technical trainings will help in increasing the production and productivity of rapeseed-mustard crop through adoption of scientific intervention and promote the efficient use

of energy resources, natural resources such as land, water etc. and other inputs like chemicals, fertilizers, seeds etc.

Table 12: List of First Phase Technical Trainings conducted on "Scientific Production Technology of Rapeseed-Mustard" under the project.

SN	District (No. of TT Completed)	Cluster	Name of Cluster	Place / Village	Date	Beneficiaries (No.)
1.	Lakhimpur (5)	1	Telahi	Khoga-Salmora	17.11.2021	26
		2	Dhakuakhana	SDO Office	19.11.2021	20
		3	Dhakuakhana	SDO Office	23.11.2021	20
		4	Ghilamora	Ghilamora	20.11.2021	20
		5	Narayanpur	Tikirai Aaonibari	22.11.2021	20
2.	Sonitpur (11)	1	Bihaguri	Bihaguri	25.10.2021	35
		2	Dhekiajuli	Bengenajuli	03.11.2021	24
				Maz Roumari	09.11.2021	20
		3	Balipara	Balipara	27.10.2021	24
				Balipara	04.11.2021	25
				Roumari	29.10.2021	15
		4	Rangapara	Dhulapadung gaon	01.11.2021	24
				Pakhiajhar gaon	02.11.2021	23
		5	Chaiduar	Tetunbari	11.11.2021	23
		6	Biswanath	Bhirgaon	08.11.2021	31
		7	Gabhoru	Besseria	24.11.2021	26
3.	Morigaon (4)	1	Mayong	DAO.Office	02.11.2021	20
				Kamarkuchi	12.11.2021	20
				Jagi gaon	17.11.2021	20
		2	Bhurbandha	Manipur	18.11.2021	20
4.	Nagaon (5)	1	Batadrava	Saharia	21.11.2021	25
			Batadrava	Batadraba	29.11.2021	25
		2	Koliabor	Koliabor	24.11.2021	30
		3	Raha	Raha	25.11.2021	25
		4	Khagorijan	Khagorijan	01.12.2021	20
5.	Golaghat (3)	1	Bokakhat	Missimiati	03.11.2021	34
		2	Kakodonga	Shristika	11.11.2021	44
		3	Podumoni	Benganakhowa	17.11.2021	21
6.	Darrang (5)	1	Sipajhar	Sipajhar	01.11.2021	33
		2	Bachimari	Dalgaon	11.11.2021	35
				Barjhar	27.11.2021	31
		3	Pachim Mangaldai	Pachim Mangaldi	01.11.2021	32
				Gariapara	10.11.2021	30
7.	Kamrup (7)	1	Kamalpur	Baruajani	11.11.2021	31
		2	Bihdiya ajikona	Borgaon	10.11.2021	28
				Aapuhpar Jatiobhangara	13.11.2021	20
				Jaykuchi	15.11.2021	24
		3	Bongshor	Bongshor	24.11.2021	33
		4	Chandrapur	Ghoramarjanpam	18.11.2021	20
				Thakurkuchi	30.11.2021	20

8.	Dhemaji (5)	1	Sissiborgaon	Botuamiri Amguri	11.11.2021	20
			Sissiborgaon	Digolichapori	01.12.2021	20
		2	MSTD	Borimuri	12.11.2021	23
		3	Machkhowa	Grazing	13.11.2021	20
			Machkhowa	Begenagarh	03.12.2021	30
9.	Sivasagar (2)	1	Gaurisagar	Deogharia	22.11.2021	30
		2	Demow	Laibil village	15.11.2021	20
10.	Nalbari (10)	1	Borigog Banbhag	Borajol, Bongaon, Bistapur, Bihdia, Katara	06.10.2021	20
				Dihjari, Burburi, Borajol Keherua, Naherbari	07.10.2021	20
				Nilpur, Mugdi, Borajol Borghopa, Sagarkuchi	20.10.2021	20
				Bihdia, Burburi, Borajol Namdia, Katara, Guwakuchi, Chatama	21.10.2021	20
				Basala, Bangaon Nilpur, Vitha, Dihjari Guwakuchi, Chatama	23.10.2021	21
				Naherbari	30.11.2021	20
		2	Barkhetri	Sungarbari, Goldigha Lohatkatha, Satemari Adabari, Narua	25.10.2021	20
				Bartala, Narua, Kalikuchi Kalaidia, Loharkatha	26.10.2021	20
				Amrattary, Mugdi Khudra Chinadi Larkuchi, Kolfoli	29.10.2021	20
				Kaldi, Dirua Khudra Chinadi Amrattary, Larkuchi	30.10.2021	20
11.	Barpeta (4)	1	Chakchaka	Chakchaka	15.11.2021	20
		2	Chenga	Niz Chenga	18/11/2021	21
		3	Barpeta	Radhakhusi	21.11.2021	20
		4	Gumafulbari	Palhazi	30.11.2021	20
12.	Dhubri (20)	1	Mahamaya	Patakata-PT-I	26.11.2021	30
				Nayeralga	28.10.2021	32
				Nayeralga	28.10.2021	29
				Nayeralga	29.10.2021	30
		2	Agomani	Ghorialdanga-PT-II	17.11.2021	31
				Kaimari-PT-V	18.11.2021	24
				Digholtari	19.11.2021	30

				Kharbari-PT-I	21.11.2021	25
		3	Chapar Salkocha	Nayeralga	27.10.2021	30
				Nayeralga	29.10.2021	28
				Lalkura	30.10.2021	23
				Simlabari	30.10.2021	20
		4	Rupshi	Sukhatikhata	01.12.2021	24
				Palpara	02.12.2021	26
				East Gaikhowa	03.12.2021	24
				Akhtar House	03.12.2021	25
		5	Gauripur	Madhusoulmari-Part-I	01.11.2021	23
				Dubirpar	03.11.2021	27
				Kismat Hasdaha	05.11.2021	21
				Madhusoulmari-Part-I	09.11.2021	30
13.	Jorhat & Majuli (5)	1	Ujani Majuli	Ujani Majuli	02.11.2021	30
				Mudoibil	09.11.2021	36
		2	Majuli	Kamalabari	05.11.2021	29
				Mohorichuk	10.11.2021	39
		3	Kaliapani	Urhakuri	22.11.2021	20
14.	Kokrajhar (5)	1	Kokrajhar	Deajhijari	09.12.2021	25
				East Mauriagaon	09.12.2021	25
		2	Dotma	Pratapkata Part-II	10.12.2021	25
				Bhutiapara	10.12.2021	32
		3	Kachugaon	Panbari	17.12.2021	25
15.	Bongaigaon (4)	1	Manikpur	Bashbari No 3	29.11.2021	20
				Bechmari	29.11.2021	26
		2	Patiladoha	Lungihar	29.11.2021	20
		3	Bidyapur	Hallaguri	30.11.2021	30
	Total trainings (95)					**2376**

Table 13: List of Second Phase Technical Trainings conducted on "Improved agronomic practices of Rapeseed- Mustard for higher production" under the project.

SN	District (No. of TT Completed)	Cluster	Name of Cluster	Place/Village	Date	Beneficiaries (No.)
1.	Lakhimpur (7)	1	Telahi	CSC, Khaga Tiniali	09.12.2021	28
		2	Dhakuakhana	Harhighat	19.12.2021	23
				Murtia	22.12.2021	25
				Gohain gaon	24.12.2021	23
		3	Ghilamora	Moinapara	18.12.2021	24
				Dakhin	27.12.2021	30
				Chowkham ghat	28.12.2021	16
2.	Sonitpur (7)	1	Bihaguri	No:2 Puthimari	09.12.2021	36
		2	Dhekiajuli	Batachipur	23-12-2021	22
		3	Balipara	Nalghagori	15.12.2021	29
		4	Rangapara	Jugloni	22.12.2021	22
		5	Chaiduar	Karibil	10.12.2021	24
		6	Biswanath	Bhirgaon	21.12.2021	23

		7	Gabhoru	Besseria	30.12.2021	24
3.	Morigaon (3)	1	Mayong	Konwargaon	30.12.2021	20
		2	Bhurbandha	Garmari	2.12.2021	25
				Dandua	29.12.2021	20
4.	Nagaon (7)	1	Koliabor	Karybakori	03.12.2021	27
		2	Khagorijan	Haldhiati	15.12.2021	29
				Chota Rupahi	16.12.2021	30
				Kendugiri	24.12.2021	29
		3	Raha	Kahargaon	18.12.2021	30
			Batadraba	Rampur satra	19.12.2021	25
				Bilotia	23.12.2021	27
5.	Golaghat (3)	1	Bokakhat	Afala Gaon	06.12.2021	28
				Alami Regdia	09.12.2021	22
		2	Kakodonga	Natun Chapori	17.12.2021	26
6.	Darrang (4)	1	Sipajhar	Devananda	22.12.2021	31
				Badiasisha	23.12.2021	34
		2	Bachimari	Dalgaon	09.12.2021	40
		3	Pachim Mangaldai	Konwarpara	17.12.2021	38
7.	Kamrup (7)	1	Kamalpur	Bordekpar	08.12.2021	25
				Sonapur	30.12.2021	36
		2	Bihdiya ajikona	Saledol	19.12.2021	20
		3	Chandrapur	Dhamkhunda	09.12.2021	20
				Tatimara	16.12.2021	20
				Ramsing Chapori	17.12.2021	20
				Panikhaity	18.12.2021	20
8.	Dhemaji (5)	1	Sissiborgaon	Nepali Basti	29.12.2021	23
		2	MSTD	2 No. Naokota	30.12.2021	20
				2 No. Amorpur	27.12.2021	27
		3	Machkhowa	Borpak Konch Gaon	28.12.2021	20
				2 No. Patia	31.12.2021	20
9.	Sivasagar (3)	1	Gaurisagar	Bhorolua	07.12.2021	30
		2	Demow	Kalita Gaon	06.12.2021	29
				Japihajia	15.12.2021	26
10.	Nalbari (2)	1	Barkhetri	Goldighla	15.12.2021	20
		2	Borigog-Banbhag	Borajol	19.12.2021	22
11.	Barpeta (6)	1	Mandia	Dakshinsito	03.12.2021	22
		2	Pakabethbari	Kayakuchip	10.12.2021	50
		3	Bajali	Rupdiga	23.12.2021	30
		4	Surakehti	Khudragomura	25.12.2021	21
		5	Rupshi	Titapani	27.12.2021	30
		6	Bhawanipur	Bhawanipur	29.12.021	21
12.	Dhubri (20)	1	Mahamaya	Patakata -II	12-12-2021	27
				Boalkamuri -II	12.12.2021	25
				Patakata -I	13.12.2021	31
				Patakata -II	14.12.2021	33
		2	Agomani	Kharbari-I	25.12.2021	30
				Kaimari -V	26.12.2021	26
				Digholtari	26.12.2021	24

				Kaimari -II	27.12.2021	32
		3	Chapar- Salkocha	Simlabari	18.12.2021	30
				Fauzdarchar	19.12.2021	28
				Fauzdarchar	30.12.2021	27
				Lalkura	31.12.2021	25
		4	Rupshi	Palpara	24.12.2021	26
				Sukhatikhata	25.12.2021	28
				East Gaikhowa	27.12.2021	25
				Sukhatikhata	28.12.2021	29
		5	Gauripur	Kismat Hasdaha	13.12.2021	28
				Tisterpar	14.12.2021	30
				Madhusoulmari -I	21.12.2021	23
				Dubirpar	22.12.2021	30
13.	Jorhat & Majuli (3)	1	Majuli	Bokora	14.12.2021	25
				Bormukoli	14-12.2021	29
			Ujani Majuli	Ujani Serepai	15.12.2021	21
14.	Kokrajhar (5)	2	Kokrajhar	Kauniabhasa	31.12.2021	20
				Ujanpara-II	01.01.2022	22
				Kakaoramari	05.01.2022	22
				Bishmuri	06.01.2022	25
		3	Dotma	Pratapkata Part-II	28.12.2021	27
15.	Bongaigaon (4)	1	Manikpur	Kahibari	18.12.2021	26
				Lunjhar	13.12.2021	24
		2	Patiladoha	Salabila no 2	14.12.2021	26
		3	Bidyapur	Durgamari	15.12.2021	21
				Hallaguri	15.12.2021	20
	Total trainings (86)					**2267**

Table 14: List of Third Phase Technical Trainings conducted on "Integrated pest and disease management in Rapeseed- Mustard" under the project.

SN	District (No. of TT Completed)	Cluster	Name of Cluster	Place/Village	Date	Beneficiaries (No.)
1.	Lakhimpur (6)	1	Telahi	Salmora Village	10.01.2022	24
		2	Narayanpur	Aunibori Village	11.01.2022	22
				Tikirai Village	12.01.2022	20
		3	Dhakuakhana	Manikachuk	17.01.2022	24
				Dighala Gaon	19.01.2022	28
		4	Ghilamara	Chowkham Ghat	18.01.2022	21
2.	Sonitpur (7)	1	Bihaguri Dev. Block	No:2 Potiapukhuri gaon	07.01.2022	24
		2	Dhekiajuli Dev. Block	Maz Roumari gaon	27.01.2022	23
		3	Balipara Dev.Block	Akabasti miri gaon	11.01.2022	21

		4	Rangapara Dev.Block	Jugloni gaon	22.01.2022	14
		5	Chaiduar Dev.Block	Tetunbari gaon	29.01.2022	22
		6	Biswanath Dev.Block	Dakhin Bhirgaon	24.01.2022	20
		7	Gabhoru Dev.Block	Pukhuria	04.01.2022	26
3.	Morigaon (1)	1	Bhurbandha	Mazgaon	23.01.2022	20
4.	Nagaon (4)	1	Batadraba	Lahkargaon	08.01.2022	28
		2	Raha	Khaigarh	09.01.2022	20
		3	Koliabor	Vihorigaon pubthoria	10.01.2022	26
		4	Khagorijan	Kumargaon senchowa	12.01.2022	23
5.	Golaghat (2)	1	Bokakhat	Namtemera	10.01.2022	23
		2	Kakodonga	Lam Chapori Chamua Gaon	05.01.2022	22
6.	Darrang (3)	1	Sipajhar	GharowaSonapur	21.01.2022	37
		2	Bachimari	Niz Dalgaon	20.01.2022	29
		3	Pachim Mangaldai	Barthekerabari	04.01.2022	31
7.	Kamrup (5)	1	Chandrapur	Sunsali Chapori	04.01.2022	20
				Dhipujijanpam	07.01.2022	20
		2	Bihdiya ajikona	Borgaon	05.01.2022	22
				Pubpar jatio bhangara	08.01.2022	21
		3	Kamalpur	Dwigunpar	15.01.2022	22
8.	Dhemaji (5)	1	Machkhowa	Sissimukh	06.01.2022	21
		2	Sissiborgaon	DigholiChapori	08.01.2022	30
				Amguri Ayengia	10.01.2022	36
		3	MSTD	Galighat Machkhowa	11.01.2022	21
				Handique Village	12.01.2022	23
9.	Sivasagar (3)	1	Gaurisagar	Nakantani Teliadunga	07.1.2022	30
		2	Demow	Sesamukh	07.1.2022	26
				Khanikar Gaon	12.1.2022	27
10.	Nalbari (2)	1	Borigog-Banbhag	Guwakuchi	10.01.2022	30
		2	Barkhetri	Mugdi	24.01.2022	22
11.	Barpeta (3)	1	Chenga	Niz chenga	06.01.2022	20
		2	Bhawanipur	Bhawanipur	10.01.2022	20
		3	Chakchaka	Balbhita	13.01.2022	20
12.	Dhubri (20)	1	Mahamaya	Patakata-PT-II	03.01.2022	27
				Boalkamuri PT-II	03.01.2022	29
				Patakata-PT-I	08.01.2022	24
				Patakata-PT-II	08.01.2022	30
		2	Agomani	Kaimari-PT-II	16.01.2022	29
				Kaimari-PT-V	17.01.2022	31
				Digholtari	18.01.2022	28
				Kharbari-PT-I	18.01.2022	30
		3	Chapar- Salkocha	Lalkura	09.01.2022	30

				Simlabari	10.01.2022	31
				Fauzdarchar	11.01.2022	27
				Lalkura	12.01.2022	29
		4	Rupshi	Sukhatikhata	13.01.2022	29
				Akhtar House	14.01.2022	26
				Palpara LP School	15.01.2022	28
				East Gaikhowa PT-1	15.01.2022	25
		5	Gauripur	Dubirpar	04.01.2022	29
				Tisterpar	04.01.2022	27
				Madhusoulmari-Part-I	05.01.2022	25
				Kismat Hasdaha	06.01.2022	27
13.	Jorhat & Majuli (4)	1	Ujani Majuli	Mudoibil	04.01.2022	18
				Borpomuah	04.01.2022	32
		2	Majuli	Jamuguri	05.01.2022	22
		3	Kaliapani	Chintamonigarh	06.01.2022	24
14.	Kokrajhar (2)	1	Kokrajhar	Haloadol	29.01.2022	22
		2	Dotma	Pratapkata Pt II	02.02.2022	21
15.	Bongaigaon (2)	1	Patiladoha	Salabila no 3	12.01.2022	23
		2	Manikpur	Bshimari	13.01.2022	20
	Total (69)					**1722**

Table 15: Summary of technical trainings organized by ICAR-DRMR

SN	Technical Training Activity	Target (No.)	Achieved (No.)	Beneficiaries (No.)	Beneficiaries (No.)						
					Gender		Social Category				Total
					Male	Female	Gen	OBC	SC	ST	
1	I Phase	95	95	2376	1833	543	1012	751	154	459	2376
2	II Phase	85	86	2267	1701	566	1174	690	105	298	2267
3	III Phase	70	69	1722	1227	495	766	472	175	309	1722
	Total	**250**	**250**	**6365**	**4761**	**1604**	**2952**	**1913**	**434**	**1066**	**6365**

Glimpses of Technical Trainings organized in Dhubri district of Assam under ICAR-DRMR-OPIU (Agri)-APART Project

Glimpses of Technical Trainings organized in Darrang district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Dhemaji district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Barpeta district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Bongaigaon district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Golaghat district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Jorhat (Majuli) district of Assam under ICAR-DRMR APART programme

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Glimpses of Technical Trainings organized in Kamrup district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Kokrajhar district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Lakhimpur district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Morigaon district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Nagaon district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Nalbari district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Shivsagar district of Assam under ICAR-DRMR APART programme

Glimpses of Technical Trainings organized in Sonitpur district of Assam under ICAR-DRMR APART programme

3. Workforce involved in the assignment:

In APART, ICAR-DRMR has appointed the key and non-key experts to take care of the project activities. The list of ICAR-DRMR staff engaged in the project and locally appointed staff are given in Tables 15 and 16.

Table 16: Client's ICAR-DRMR staff engaged

SN	Name of Experts	Key or Non-Key	Designation in ICAR-DRMR	Designation in APART	Place of deployment	Date of availability for work in the assignment
1	Dr. P.K. Rai	Key	Director	Chief Advisor	Bharatpur	In place
2	Dr. Ashok Kumar Sharma	Key	Principal Scientist (Ag. Extension)	Team Leader	Bharatpur	In place
3	Dr. Harvir Singh	Key	Scientist (Agronomy)	Expert	Bharatpur	In place
4	Dr. Pankaj Sharma/	Non-key	Pr. Scientist (Plant Pathology)	Expert	Bharatpur	In place
5	Dr. Vinod Kumar/	Non-key	Pr. Scientist (Comp. Appl.)	Expert	Bharatpur	In place
6	Dr. Arun Kumar	Non-key	Pr. Scientist, (Plant Breeding)	Expert	Bharatpur	In place
7	Dr. Narpat Singh	Non-key	Research Associate	Research Associate	Bharatpur	In place
8	Ms. Anita	Non-key	Data entry Operator	Data entry Operator	Bharatpur	In place

Table 17: Client's local staff engaged

SN	Name of Experts	Key or Non-Key	Designation in ICAR-DRMR	Designation in APART	Place of deployment	Date of availability for work in the assignment
1.	Dr. G.N. Hazarika	Key	Resident Consultant	Resident Consultant	Guwahati	In place

2.	Dr. Vipin Kumar	Non-key	Research Associate	Research Associate	Darrang	In place
3.	Dr. Priyakshi Buragohain	Non-key	Research Associate	Research Associate	Sivsagar	In place
4.	Dr. Bandhan Subha	Non-key	Research Associate	Research Associate	Golaghat	In place
5.	Dr.Hadi Hussain	Non-key	Research Associate	Research Associate	Dhubri	In place
6.	Dr. Priyanka Sharma	Non-key	Research Associate	Research Associate	Sonitpur	In place
7.	Dr. Joli Dutta	Non-key	Research Associate	Research Associate	Lakhimpur	In place
8.	Dr. Vijay Kumar	Non-key	Research Associate	Research Associate	Barpeta & Bongaigaon	In place
9.	Mr. Himangshu Deka	Non-key	Sr. Research Fellow	Sr. Research Fellow	Kokrjhar	In place
10.	Ms. Manisha Barman	Non-key	Sr. Research Fellow	Sr. Research Fellow	Nalbari	In place
11.	Mr.Trilochan Karki Chetri	Non-key	Sr. Research Fellow	Sr. Research Fellow	Kamrup	In place
12.	Ms. Moukham Wakhet	Non-key	Sr. Research Fellow	Sr. Research Fellow	Morigaon	In place
13.	Ms. Komedity Chamua	Non-key	Sr. Research Fellow	Sr. Research Fellow	Nagaon	In place
14.	Mr. Dipankar Saikia	Non-key	Sr. Research Fellow	Sr. Research Fellow	Jorhat	In place
15.	Mr. Bidyut Pritom Gogoi	Non-key	Sr. Research Fellow	Sr. Research Fellow	Dhemaji	In place
16.	Ms. Seema Vishnu Bhand	Non-key	Accountant	Accountant	Guwahati	In place
17.	Mr. Banikanto Patri	Non-key	Office Assistant cum comp. Operator	Office Assistant cum comp. Operator	Guwahati	In place

4. Consultant invoice

Table 18 Invoice details

SN	Invoice No. and Date	Date of submission of invoice to OPIU	Date of clarification sought by OPIU, If any	Date of replies given by the consultant, if any	Date of payment by OPIU
1	DRMR/APART/2021-22/171 (Rs. 52.03)	02-12-2021	Nil	Nil	28-12-2021

5. Contractual issues (if any) and changes desired: NA

6. Work plan for the next six months

Table 19: Month-wise work-plan

SN	Month wise activities	No.
January 2021		
1	Organization of Technical trainings	44
2	Publication of extension literatures	2
3	Field monitoring	
February 2021		
1	Organization of Field days	22
2	Organization of exposure visit of extension personnel	01
3	Organization of exposure visit of farmers	01
4	Organization of Farmer fair	01
5	Field monitoring	-
March 2021		
1	Crop cutting and data collection	
2	PHT demonstrations	22
April 2021		
1	Feedback collection	-
2	Data analysis	
May 2021		
1	Awareness meetings	44
2	Base line survey	-
June 2021		
1	Awareness meetings	22
2	Development of website/mobile app	-
3	Workshop of stakeholders	-

7. Summary of the overall progress

The achievements and results of the period under report are summarised in the table 19, below.

Table 20. Summary of the progress

SN	Deliverables/ Activity	Unit	Target vis-a-vis Achievement (physical & financial) (Target as given in the Payment Schedule provided in the contract agreement)				Total	
			Physical (Number) 2021-22		Financial (Rs. in lakh) 2021-22		Physical (No.)	Financial (Rs. in lakh)
			Target II half	Achievement II Half	Target II Half	Achievement II Half		
1	Submission of Inception report of contract variation	No.	01	01	52.03	52.03	01	52.03
2	Crop Demonstration	No.	5000	5000	500.00	500.0	500.0	500.00
3	Technical trainings	No.	250	250	10.25	10.25	10.25	10.25
4	Master training programme	No.	02	02	0.72	0.72	0.72	0.72
5	Farmers training programme	No.	02	02	0.48	0.48	02	0.48