



Fifth Progress Report JULY 2022 - JAN 2023

ICAR-DRMR-OPIU(Agri.)-APART Project



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

ASSAM AGRIBUSINESS & RURAL TRANSFORMATION PROJECT (APART) Fifth Progress Report (July 2022-Jan 2023)

July 2022- January 2023

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

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

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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					
АТМА	Agriculture Technology Management Agency					
AWP	Annual Work-Plan					
ВТМ	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					
На	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					
ТоТ	Training of Trainers					
ТТ	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 small holder 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.

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).

The activities under the project were carried out in fifteen undivided districts namely; Barpeta, Bongaigaon, Darrang, Dhemaji, Dhubri, Golaghat, Jorhat, Kamrup, Kokrajhar, Lakhimpur, Morigaon, Nagaon, Nalbari, Sivasagar and Sonitpur of Assam during 2022-23.

Executive summary

Under the ICAR-DRMR OPIU (Agri)-APART project, 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 2022-23. 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 accessability to farmers of neighboring villages and extension workers coming from different parts of the district. During 2022-23, organization of 5000 mustard crop demonstrations and 18000 minikit demonstrations in selected 15 districts were approved. Accordingly, a total of 5000 mustard crop demonstrations in 68 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 (550), PM-28 (1380) and DRMR-150-35 (1070) and one variety of toria, i.e. TS-38 (2000) 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 18000 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. 2022.

Regular visits and monitoring of the crop demonstrations and minikit demonstrations were done by Research Associates, SRF, DRMR Experts, Resident Consultant 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 " Enhancement of Rapeseed-Mustard Production in Assam ". First batch of two days Masters Trainers and farmers training programme was organized during 13-14 October, 2022 at Krishi Niwas, DoA, Khanapara Guwahati and Second batch was organized during 17-18

October, 2022 at AAU, Jorhat. Thus, a total of 50 extension personnel, BTM, ATM of the State Department of Agriculture, Govt. of Assam and 60 farmers from Darrang, Dhubri, Barpeta, Nalbari, Kamrup, Bongaigaom, Morigaom, Kokrajhar, Nagaon, 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 four phases upto last week of January 2023. 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. 2022-Dec. 2022 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. 2022 to Jan 2023 at the time of flowering stage of the crop at farmers filed in each of the selected clusters.

The fourth phase of technical training was conducted on "Harvesting, threshing and storage management in rapeseed –mustard"during January 2023 at the time of maturity stage of the crop at farmers field in each of the selected clusters. The technical knowledge and skill about harvesting time, threshing, moisture percentage and storge management etc.

Thus a total of 250 technical trainings were organized during the period wherein 6674 farmers and farm women participated. These technical trainings were organized at farmers' field by the District ATMAs with the technical support of ICAR-DRMR.

During 29-31 January 2023, ICAR-DRMR organized one Exposure visit-cum-training of progressive farmers and one exposure visit-cum-training of Master trainiers/ extension personnel to ICAR-DRMR. A total of 26 master trainers/extension personnel/esearch associates/farmers from fifteen selected districts participated in the exposure visit-cum-training programme.

ICAR-DRMR developed and published a training manual on "Seed Production Technology of Rapeseed-Mustard" that will help the agricultural officials and farmers of the state for better understanding and to focus on the specific requirements, principles and activities needed to produce the quality seed of rapeseed mustard.

ICAR-DRMR has also developed a simple and actionable farmer-friendly extension material in the form of technical folder on "Rapeseed-Mustard Cultivation in Assam: Frequently Asked Questions (FAQ)" that will help the extension personnel and farmers of the state to understand the different aspects of scientific cultivation of rapeseed-mustard in Assam. The details of the targets and achievements of the activities are presented in Table 1.

Activities	Unit	Target	Achievement	Remarks
Crop Demonstrations	No.	5000	5000	All demonstrations were laid out
				successfully
Minikit ATMA	No.	18000	18000	All minikit demonstrations were
				laid out successfully
Technical trainings	No.	250	250	Completed
Training for Master	No.	2	2	Completed
Trainers				
Training for progressive	No.	2	2	Completed
farmers				
Exposure visit of MT	No.	01	01	Completed
Exposure visit of	No.	01	01	Completed
progressive farmers				
Training manual folder	No.	01	01	Completed
published				
Technical Extension	No.	01	01	Completed
Folder				

Table 1: Executive summary of physical targets and achievements during July-2022- Jan 2023



	Acronyms
AAU	Assam Agricultural University
AEA	Agricultural Extension Agent
ANLD	Anisotropic Non-Linear Diffusion
ANMR	Additional Net Monetary Return
APART	Assam Agribusiness & Rural Transformation Project
ARIASS	Assam Rural Infrastructure and Agricultural Services Society
ATM	Assistant Technology Manager
АТМА	Agriculture Technology Management Agency
AWP	Annual Work-Plan
B [·] C Ratio	Benefit: Cost Ratio
BTM	Block Technology Manager
BVZ	Barak Valley Zone
CBVZ	Central Brahmanutra Valley Zone
CoC	Cost of Cultivation
CD	Crop Demonstrations
DRMR	Directorate of Rapeseed-Mustard Research
	Department of Agriculture
FP	Farmers' practices
GDP	Gross Domestic Product
GMR	Gross Monetary Return
Ha	Hectare
	High Vielding Variety
H7	Hills Zope
	Indian Council of Agricultural Research
	Information and Communication Technology
	Vield Increase over Farmers' Practice
	Improved practices/technologies
	India Meteorological Department
	Integrated Nutrient Management
	Integrated Post-Management
	Integrated Fest-Management
	Integrated Wood Management
	Krishi Vigyan Kondra
	Kiisiii vigyali Keliula Lowar Brahmanutra Vallov Zana
MSD	Minimum Support Price
MT	Menter Treiner
	Master Haller National Agricultural Passarch and Extension System
NARES NBD7	North Bank Plain Zana
	North East Hills
	North Eastern Region
	Non Covernment Organization
	Restbergest Mechanization
 D\/7	Lechnical Haining
	Upper Dialillapula valley 2016
VVUE	Waler-Use Emolency



1.1 About ASSAM

Assam, a state with a geographical area of 78,438 km², 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 as shown in fig 1. 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° C and 40° 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° 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 20212-23 onward, fifteen districts of Assam namely; 15 districts of Assam namely; Barpeta, Bongaigaon, Darrang, Dhemaji, Dhubri Golaghat, undivided Jorhat including Majuli, Kamrup, Kokrajhar, Lakhimpur, Morigaon, Nagaon, Nalbari, Sivasagar and Sonitpur 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	Lower Brahmaputra Valley Zone
and Dhubri	

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.

Barpeta: This district comprises of 264500 ha area, having 11 blocks/ clusters. 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 clusters/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 clusters/blocks 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/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, Bordoloni and Machkhowa clusters/blocks 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/blocks of district have been selected for project activities.

Golaghat: This district comprises of 3,50,200 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 ricesummer 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, Morangi and Sarupathar clusters/blocks of district have been selected for project activities.

Jorhat: This district comprises of 192862 ha area, having 8 blocks/ clusters.. 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, Dhekorgoarh and Ujani clusters/blocks of district were selected for project activities.

Kamrup: This district comprises of 4,34,500 ha area, having 22 blocks/ clusters. 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-jajikona, Hajo, Sualkuchi and Chandrapur clusters/blocks of district have been selected for project activities.

Kokrajhar: This district comprises of 3,16,900 ha area, having 11 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 Kochugaon clusters/blocks of district have been selected for project activities.

Lakhimpur: This district comprises of 2,27700 ha. area, having 9 blocks/ clusters. 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, einter 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, Lakhimpur, Karunabari, and Bihpuria clusters/blocks of district have been selected for project activities.

Morigaon: This district comprises of 155100 ha area, having 6 blocks/ clusters.. 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, Kapili and Bhurbandha clusters/blocks of district have been selected for project activities.

Nagaon: This district comprises of 260879 ha area, having 13 blocks/ clusters.. 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, Kaliabor, Batadrava and Pachim Kaliabor clusters/blocks of district have been selected for project activities.

Nalbari: This district comprises of 100957 ha area, having 7 blocks/ clusters.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 clusters/blocks 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, Sivasagar and Gaurisagar clusters/blocks of district have been 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/blocks of district have been selected for project activities.

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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. The climate varies slightly from region to region within the state. While the plains of Assam have tropical climate with high humidity, the hills have a sub-alpine type climate. In the state, the average maximum and minimum temperature were recorded 31 and 20 in the month of July and December 2022 respectively. 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 rapeseedmustard, 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 (27-35°C), the germination of the seed is not affected. The average maximum and minimum temperature in the state varies from 26 °C to 33°C and 26°C to 11°C during the month of July to December 2022 (Fig. 2).



Fig. 2: Average maximum, minimum temperature and rainfall during July to December 2022 in Assam

1.4.1. Upper Brahmaputra Valley Zone (UBVZ).

Figure 3 shows the monthly maximum minimum temperature, rainfall and number of rainy days in the Upper Brahmaputra Valley Zone (UBVZ). The analysis of the temperature profile during July to December 2022 in the zone shows that the maximum temperature ranged from 25.8 to 33.8 °C and minimum temperature from 11.4 to 25.7 °C. The minimum almost no rain in month November and maximum rainfall 300.1 mm in the months September were recorded.





Fig 3: Maximum & Minimum temperature and rainfall in UBVZ

1.4.2. Central Brahmaputra Valley Zone (CBVZ).

Figure 4 shows the monthly maximum, minimum temperature and rainfall in the Central Brahmaputra Valley Zone (CBVZ). The temperature profile in the zone shows that the maximum temperature ranged from 26.7 to 33.7 °C and minimum from 13.3 to 26.5 °C. The Zone received minimum almost no rainfall in month of November and maximum 223.9 mm in the months July 2022.





Fig 4: Maximum & Minimum temperature and rainfall in CBVZ

1.4.3. Lower Brahmaputra Valley Zone (LBVZ).

Figure 5 shows the monthly maximum, minimum temperature and rainfall in the Lower Brahmaputra Valley Zone (LBVZ). The temperature profile in the zone shows that the maximum temperature ranged from 26.9 to 33.9 °C and minimum from 10.7 to 26.7 °C during July to December 2022. The Zone received minimum almost no rain in rainfall in month of November and December, maximum rainfall 535.1 mm in the months July 2022.





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

1.4.4. North Bank Plain Zone (NBPZ).

Figure 6 shows the monthly maximum minimum temperature and rain fall in the North Bank Plain Zone (NBPZ). The temperature profile in the zone shows that the maximum temperature ranged from 26 to 33.9 °C and minimum temperature from 12.1 to 25.7 °C. It can be seen that the NBPZ gets highest rainfall 305.2 mm in the month of July 2022. The minimum almost no rainfall received in month of November.





Fig 6: Maximum & Minimum Temperature and Rain fall in NBPZ

The average minimum and maximum temperature in all zones were about 20 °C and 31 °C respectively. Lower Brahmaputra Valley Zone (LBVZ) received maximum rainfall 535.1mm in the month of July. Weather condition was favorable for rapeseed-mustard production in almost all zones which may lead to increase the area and production in the Assam state.



Technical Report

(Progress of the Period: July 2022-January 2023)



2. PROGRESS OF THE PERIOD: JULY 2022- JANUARY 2023

2.1. Activity 1: Crop demonstrations on rapeseed-mustard organized: 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.

During 2022-23, a total of 5000 rapeseed-mustard crop demonstrations in different clusters of 15 districts were laid out successfully. Along with mustard crop demonstrations, 18000 minikit demonstrations in the selected clusters were also 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 (550), PM-28 (1380) and DRMR-150-35 (1070) and one variety of toria, viz. TS-38 (2000) 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. DRMR-150-35, (7170) and PM-28 (6930) of Indian mustard and one variety of toria, viz. TS-38 (3000) was supplied to the farmers. The details of components of demonstrated technology against the control plot or farmers practice is given in Table 2 and district wise details of varieties in mustard crop demonstrations and minikit demonstrations are given in Table 3.

Components of demonstrated technology	Prevailing farmers practices against			
	demonstrated technology			
Improved varieties	Local varieties used by farmers			
(NRCHB-101,PM-28,DRMR-150-35,TS-38)				
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			

	District (No. of	Total		Varietal distribution of crop and minikit demonstrations							
SN		crop Tota		NRCH B-101	NRCH DRMR-150-35 B-101		PM-28		TS-38		
	clusters)	(CP)		No. of	No. o	f Demo	No. of Demo		No. of Demo		
				Demo	СР	Minikit	СР	Minikit	СР	Minikit	
1.	Barpeta (10)	400	1200	00	130	500	150	500	120	200	
2.	Bongaigaon (3)	300	1200	50	50	500	80	500	120	200	
3.	Darrang (3)	300	1000	50	80	350	70	450	100	200	
4.	Dhemaji (4)	400	1200	50	100	500	70	500	180	200	
5.	Dhubri (5)	400	1800	80	80	800	120	800	120	200	
6.	Golaghat (4)	200	800	00	30	300	50	300	120	200	
7.	Jorhat (4)	300	1000	50	50	400	100	400	100	200	
8.	Kamrup (5)	400	1200	00	80	700	100	300	220	200	
9.	Kokrajhar (3)	300	1200	50	50	500	80	500	120	200	
10.	Lakhimpur (7)	500	1400	50	100	600	150	600	200	200	
11.	Morigaon (3)	200	1000	00	50	350	50	450	100	200	
12.	Nagaon (5)	400	1800	70	100	100	100	600	130	200	
13.	Nalbari (2)	200	400	00	40	100	60	100	100	200	
14.	Sivsagar (3)	200	800	00	50	300	50	300	100	200	
15.	Sonitpur (7)	500	2000	100	80	1170	150	630	170	200	
	Total	5000	18000	550	1070	7170	1380	6930	2000	3000	

 Table 3: District wise details of varieties varieties of rapeseed-mustard in crop demonstrations

 and minikit demonstrations during 2022-23

Regular visits and monitoring of the crop demonstrations and minikit demonstrations have been 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 have also been done by Resident Consultant and experts of ICAR-DRMR. The details of different categories of beneficiaries of crop demonstrations are in Table 4.

Table 4: Summary of crop	demonstrations or	ganized by ICAR-	DRMR during 2022-23
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SN	Activity	Target	t Achieved B	Benefi	Beneficiaries (No.)						
		(No.)	(No.)	ciaries	Gender		Social Category				Total
				(No.)	Male	Female	Gen	OBC	SC	ST	
1	Crop Demonstrat ions	5000	5000	5000	4045	947	1520	1630	327	1123	5000

Glimpses of crop demonstration on rapeseed-mustard organized in different districts of Assam under ICAR-DRMR- OPIU (Agri)-APART project during 2022-23



Glimpses of crop demonstration on rapeseed-mustard organized in different districts of Assam under ICAR-DRMR- OPIU (Agri)-APART project during 2022-23



Glimpses of crop demonstration on rapeseed-mustard organized in different districts of Assam under ICAR-DRMR- OPIU (Agri)-APART project during 2022-23



2.2. Activity 2 and 3: Master Trainers Training and 2 Farmers Training programmes "Enhancement of Rapeseed-Mustard Production in Assam".

In order to maximize the mustard production in Assam, there is a need that extension personnel and ultimately farmers must know what is happening in the research fields at all times.

The OPIU-Agriculture, Directorate of Agriculture, Assam in collaboration with ICAR-Directorate of Rapeseed-Mustard Research, Bharatpur, Rajasthan organized four training programmes of 2 days each (2 Master Trainers Training and 2 Farmers Training programmes) under ICAR-DRMR-APART project of mustard value chain programme. These trainings were Master trainers and farmers were organized simultaneously in two batches, one at Guwahati and other at Jorhat districts for better understanding of farmers with Master Trainers. The training programmes were organized on **"Enhancement of Rapeseed-Mustard Production in Assam"**.

First batch of two days Masters Trainers and farmers training programme was organized during 13-14 October, 2022 at Krishi Niwas, DoA, Khanapara, Guwahati and Second batch was organized during 17-18 October, 2022 at Dhansiri Farmers Hostel, AAU, Jorhat.

At the outset of the training programme, 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. 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.

Team Leader of ICAR-DRMR and Agri (APART) project & Principal Scientist, ICAR-DRMR, Dr. Ashok Kumar Sharma said that the capacity development of extension functionaries and farmers of Assam in scientific technology of rapeseed-mustard will amplify the rapeseed-mustard technology dissemination process and ultimately will lead to enhancement of area and production of rapeseed-mustard in the state. He said that Govt of Assam is emphasizing for expansion of mustard area in Assam in a big way to make the state self-sufficient in oilseed production. There is a need for better coordination among all agencies working for this mission to make the programme successful.

Dr. G.N. Hazarika, Resident Consultant, ICAR-DRMR-APART project said 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. He said that seeds of suitable varieties of toria and mustard has been sent to all respective districts. Department personnel should ensure for timely distribution of all inputs to the beneficiary farmers. He elaborated the importance of the project and activities to be carried out to motivate the farmers for adoption of new technologies.

Dr. P. K. Mohanta, Agri Advisor, APART 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. He said that selection of right beneficiary farmers is the most important aspect for success of the crop demonstrations.

The other experts namely Dr. Pankaj Sharma, Pr. Scientist; Dr. Arun Kumar, Pr. Scientist and Dr. Harvir Singh, scientist from ICAR-DRMR, Bharatpur delivered lectures as resource persons. The training programme covered all aspects of technology interventions that contribute for higher production of rapeseed-mustard like improved varieties, agronomic practices of rapeseedmustard, seed treatment, soil treatment, line sowing, plant geometry, irrigation management, balanced use of fertilizers, identification of pest and diseases and their management, quality oil extraction, seed production techniques, harvesting, threshing and storage management, methodology of conducting demonstrations, importance of weather parameters, etc.

On the occasion, two technical folders on "Integrated nutrient management of rapeseedmustard in Assam" and "Post-harvest management in rapeseed-mustard cultivation" were also released by chief guests and other dignitaries.

A total of 23 field level extension personnel /BTM/ATM of the State Department of Agriculture, Govt. of Assam/RAs/SRF and 30 farmers from Darrang, Dhubri, Barpeta, Nalbari, Kamrup, Bongaigaom, Morigaom, Kokrajhar districts prticipated in Guwahati training programme. While 26 field level extension personnel /BTM/ATM of the State Department of Agriculture, Govt. of Assam/RAs/SRF and 30 farmers from Nagaon, Sonitpur, Golaghat, Lakhimpur, Jorhat, Sivasagar and Dhemaji districts of Assam participated in Jorhat training programme. Thus, a total of 49 extension personnel and 60 farmers participated in these training programmes.

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 held at Guwahati and Jorhat is presented in Table 5 and 6.

Table 5: Schedule of Training Programme held at Krishi Niwas, DoA, Khanapara, Guwahati Kamrup, Assam during 13-14 Oct. 2022.

Date	Time	Торіс	Speaker
	09:30 AM-09:45 AM	Registration of the participants	ATMA Personnel
	09:45 AM-10:00 AM	Introduction of the participants	All Participants
	10:00 AM-10:15 AM	Opening Remarks Dr. G. N Hazarika	All Participants
	10:15 AM-10:30 AM	Welcome address	Sh. Madhuram Patiri, OPIU- Ag.
	10:30 AM-11:30AM	Role of State govt. and APART for promotion of r-m crop in Assam	Dr P.K Mohanta, Agri Advisor, APART
	11:30 AM-12:30 AM	An overview of ICAR-DRMR- APART programme	Dr. Ashok Kumar Sharma
13.10.2022	12:00 N-1:30 PM	Scope and challenges of rapeseed-mustard production in Assam	Dr. G. N. Hazarika
	1:30 PM-2:30 PM	Lunch break	
	2:30 PM-3:30 PM	Rapeseed-mustard crop introduction and important varieties	Dr. Arun Kumar
	3:30 PM-4:30 PM	Integrated agro production technology of rapeseed- mustard	Dr. Harvir Singh
	4:30 PM-5:30 PM	Integrated disease management in rapeseed- mustard	Dr. Pankaj Sharma
	10:00 AM-11:00 AM	Integrated nutrient management in rapeseed- mustard	Dr. Ashok Kumar Sharma
	11:00 AM-12:00 Noon	Post.harvest management and Important farm Implements for rapeseed-mustard cultivation	Dr. Harvir Singh
14.10.2022	12:00 N-1:00 PM	Integrated pest management in rapeseed-mustard	Dr. Pankaj Sharma
	01:00 PM-2:00 PM	Lunch break	
	2:00 PM-3.00 PM	Crop Demonstrations: Importance and Principles	Dr. Ashok Kumar Sharma
	3:00 PM-4:00 PM	Question-Answer and Discussion Session	All Participants
	4:00 PM-5:00 PM	Valedictory Function	All Participants

Table 6: Schedule of Training Programme held at Dhansiri Farmers Hostel AAU, Jorhat,Assam during 17-18 Oct. 2022

Date	Time	Торіс	Speaker
	09:30 AM-09:45 AM	Registration of the participants	ATMA Personnel
	09:45 AM-10:00 AM	Introduction of the participants	All Participants
	10:00 AM-10:15 AM	Opening Remarks Dr. G. N	All Participants
	10:15 AM-10:30 AM	Welcome address	Sh. Madhuram Patiri, OPIU-Ag.
	10:30 AM-11:30AM	Role of APART for promotion of r-m crop in Assam	Sh. Madhuram Patiri, OPIU-Ag.
	11:30 AM-12:30 AM	An overview of ICAR-DRMR- APART programme	Dr. Ashok Kumar Sharma
17.10.2022	12:00 N-1:30 PM	Scope and challenges of rapeseed-mustard production in Assam	Dr. G. N. Hazarika
	1:30 PM-2:30 PM	Lunch break	
	2:30 PM-3:30 PM	Rapeseed-mustard crop introduction and important varieties	Dr. Arun Kumar
	3:30 PM-4:30 PM	Integrated agro production technology of rapeseed- mustard	Dr. Harvir Singh
	4:30 PM-5:30 PM	Integrated disease management in rapeseed- mustard	Dr. Pankaj Sharma
	10:00 AM-11:00 AM	Integrated nutrient management in rapeseed- mustard	Dr. Ashok Kumar Sharma
	11:00 AM-12:00 Noon	Post.harvest management and Important farm Implements for rapeseed-mustard cultivation	Dr. Harvir Singh
18.10.2022	12:00 N-1:00 PM	Integrated pest management in rapeseed-mustard	Dr. Pankaj Sharma
	01:00 PM-2:00 PM	Lunch break	
	2:00 PM-3.00 PM	Crop Demonstrations: Importance and Principles	Dr. Ashok Kumar Sharma
	3:00 PM-4:00 PM	Question-Answer and Discussion Session	All Participants
	4:00 PM-5:00 PM	Valedictory Function	All Participants

Participants of the training

A total of 23 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, Morigaon, and Kokrajhar districts and Research Associates of DRMR-APART Project participated in Kamrup training programme. While 23 field level extension personnel /BTM/ATM of the State Department of Agriculture, Govt. of Assam and 30 farmers from Sonitpur, Golaghat, Lakhimpur, Jorhat, Sivasagar, Nagaon and Dhemaji districts of Assam and Research Associates of DRMR-APART Project participated in Jorhat training programme. Thus, a total of 50 extension personnel and 60 farmers participated in these training programmes. Certificates were also distributed to farmer participants. Table 7 shows the detailed list of the participants.

Table 7a: List of Master Trainers participated in training programme organized at Krishi Vigyan Kendra, Kaikuchi, Kamrup, Assam during 13-14 Oct. 2022.

SN	Name Of Participants	Designation & Block	E.Mail ID	Contact No
1.	Dr. Lalita Das	BTM, Kamalpur	devilalita1979@gmail.com	9707826127
2.	Mritunjoy Basumatary	ATM, Kokrajhar	mritunbasut53@gmail.com	7002095843
3.	Dr. Tarun Kumar Saikia	BTM,Pachim Mangaldoi	drtarunsaikia@gmail.com	9365226653
4.	Anil Ch. Medhi	BTM, Pachim Mangaldoi	anilmedhi6664@ gmail.com	9706213255
5.	Ratul Deka	BTM , Barpeta	Ratuld75@gmail.com	9365260344
6.	Dr. Vijay kumar	R A, ICAR-DRMR, Barpeta	vku9077@gmail.com	8435345597
7.	Mohd Danish	SRF, ICAR-DRMR, Dhubri	mdentomogy101@gmail.com	9954875162
8.	Trilochan Karki Chetri	SRF, ICAR-DRMR, Kamrup	trilochan.karki@gmail.com	7002292150
9.	Abhijit Bordoloi	BTM,Bhurbandha	bordoliabhijit4@gmail.com	8638154727
10.	Rekha Rani Nath	ATM, Sipajhar	rekkharani161@gmail.com	9864805388
11.	Sanjana Bora	SRF, ICAR-DRMR, Darrang	sanjanabora.37@gmail.com	9101035534
12.	Moukham Wakhet	SRF, ICAR-DRMR, Morigaon	moukhamwakhet55@gmail.com	8876426959
13.	Manisha Barman	SRF, ICAR-DRMR, Nalbari	manishabarman234@gmail.com	9957275229
14.	Mehtub Uddin Ahmed	ATM Chapar Saikocha	mehtubuddinahmed1975@gmail.c om	9864571276
15.	Nur Alom Sarkar	ATM, Bilashipara	nuralomsarkar783371@gmail.com	7896414386
16.	Utpal Kumar Das	Sr. AFDO (PP)	Utpaldas15dec@gmail.com	9435369225
17.	Anisul Mostafa	ADO, Abhayapuri-1	anisulagri@gmail.com	9864668794
18.	Abdul Awal Ahmed	ADO Srijangram	Aawal4616@gmail.com	9954296743
19.	Siddiki Shajon Ahmed	Sr. ADO(Agri) DAO, Bongaigaon	siddikishajonahmed@gmail.com	9854657079
20.	Himangshu Deka	SRF, ICAR-DRMR, Kokrajhar	dekahimangshu110@gmail.com	9706560765
21.	Mrinmoy Jyoti Nath	SRF, ICAR-DRMR, Bongaigaon	mrinmoyjnath96@gmail.com	8474092098
22.	Dr Kabir Humayun ATM iar		iamkabir238@gmail.com	7002264330
23.	Mokshedur Rahman	BTM	mokshedur.rahman87@gmail.com	9864741435

Table DoA,	e 7b: List of farmers participat Khanapara, Guwahati Kamrup,	ed in training pro Assam during 13-	gramme or 14 Oct. 202	ganized at a 2.	t Krishi Niwas,
SN	Name of Participants.	Address	Gender	Category	Mobile

SN	father's Name	Address	Gender	Category	Mobile
1.	Bireswar Kalita	Darrang	Male	Gen	8404065484
2.	Sirajul Islam	Barpeta	Male	Gen	6002994523
3.	Kusumbar Deka	Darrang	Male	OBC	9577449420
4.	Nagar Ali	Barpeta	Male	Gen	8473968840
5.	Biplab Talukdar	Nalbari	Male	Gen	8822655288
6.	Ramen Kakati	Darrang	Male	OBC	9365249860
7.	Anjan Nath	Morigaon	Male	OBC	6000067425
8.	Dipjyoti Talukdar	Nalbari	Male	OBC	9101527940
9.	Dulumoni Nath	Morigaon	Male	OBC	6901757372
10.	Parthasarathi Basumatary	Kokrajhar	Male	ST	9365290659
11.	Birdao Basumatary	Kokrajhar	Male	ST	9365975613
12.	Pranay Kumar Narzary	Kokrajhar	Male	ST	9957039863
13.	Tapash Das	Darrang	Male	SC	9954106355
14.	Dipak Das	Barpeta	Male	Gen	9854245038
15.	Bhulandra Das	Barpeta	Male	Gen	7675804130
16.	Aswin Ray	Bongaigaon	Male	OBC	6003842213
17.	Mohammad Ali	Bongaigaon	Male	Gen	9085424075
18.	Ananda Nama Das	Bongaigaon	Male	SC	9101907793
19.	Sujit Biswas	Morigaon	Male	Gen	6901799697
20.	Elias Ahmed	Dhubri	Male	Gen	9954282848
21.	Kobaz Ali Sheikh	Dhubri	Male	Gen	9954552188
22.	Amzad Hussain	Dhubri	Male	Gen	9365598416
23.	Rahul Amin Ahmed	Dhubri	Male	Gen	9101825942
24.	Hitesh Kumar Das	Kamrup	Male	Gen	9954006953
25.	Dipjyoti Mozumkdar	Kamrup	Male	SC	8134031986
26.	Ajay Paul	Kamrup(M)	Male	OBC	7086750328
27.	Sujan Sarkar	Kamrup(M)	Male	SC	7636046570
28.	Ajgar ali Ahmed	Barpeta	Male	Gen	6001281191
29.	Mahibul Haque Ahmed	Barpeta	Male	Gen	7002044588
30.	Abdul Mazid Ahmed	Barpeta	Male	Gen	9085415322

TGL*=Tea Garden Labourer, MOBC*=More Other Backward Class
Table 7c: List of Master Trainers participated in training programme organized at AAU, Jorhat, Assam during 17-18 Oct. 2022.

S N	Name of participants	Designation & Block	E.mail id	Contact No
1.	Kongkana Gogoi	ATM, Dhakuakhana, Lakhimpur	kongkanagogoi1993@gmail.com	8399969490
2.	Dr. Numal Deori	BTM, Machkhowa, Dhemaji	drndeori@gmail.com	9678432587
3.	Rijom Pegu	BTM, Sissiborgaon, Dhemaji	rijompegu365@gmail.com	8471880806
4.	Nibaran Medok	BTM, MSTD block, Dhemaji	nibaranmedok@gmail.com	7002783892
5.	Dr. Chow Thamika Namchoom	BTM, Telahi, Lakhimpur	nthamika@gmail.com	7896516886
6.	Osman Hazarika	BTM, Lakhimpur	osmanhazarika44@gmail.com	8638870322
7.	Horipriya Borah	ATM, Kakodonga, Golaghat	horipriya777@gmail.com	6000921692
8.	Romen Basumatary	BTM, Bokakhat, Golaghat	romen.basumatary@gmail.com	9401355161
9.	Diganta Gohain	BTM, Morongi, Golaghat	digantagohain.glt@gmail.com	8638720980
10.	Phiranjit Pegu	ATM, Rangapara, Sonitpur	phiranjit@gmail.com	9365252501
11.	Padmanath Doley	BTM, Bihoguri, Sonitpur	padmanathdoley@gmail.com	7002213734
12.	Dhanakshi Buragohain	BTM, Dhekogora, Jorhat	buragohain.dhanakshi@gmail.com	7002503624
13.	Jayanta M. Dutta	ATM, Majuli Dev Block, Majuli	jayantamadhabdutta@gmail.com	7002577429
14.	Hitesh Deka	ATM, Raha, Nagaon	hiteshdeka94@gmail.com	9508036314
15.	Nibedita Mahanta	ATM, Pachim Kaliabor, Nagaon	nibeditamahanta09@gmail.com	7002861381
16.	Krishna Bhusan Sarma	BTM, Kaliabor	krishnabhusan@yahoo.com	9365509401
17.	Madhav Pegu	ATM, Ujoni Majuli	madzpegu@gmail.com	8638688071
18.	Mithu Dutta	BTM, Mahmara, Charaideo. Sivasagar	drmithudutta@gmail.com	9854076200
19.	Dr. Jayanta Ranjan Gogoi	ATM, Amguri, Sivasagar	jayanta14april@gmail.com	8403904319
20.	Priyanka Saikia	BTM, Demow, Sivsagar	priyankasbora@gmail.com	8474052005
21.	Dr. Joli Dutta	RA, ICAR-DRMR, Lakhimpur	duttajoli@gmail.com	7002096622
22.	Dr. Bandhan Subba	RA, ICAR-DRMR,	bandhan_subba@rediffmail.com	8101455138
23.	Dr. Dipankar Saikia	RA, ICAR-DRMR, Jorhat	dipankarsaikia880@gmail.com	8753949737
24.	Bidyut Pritom Gogoi	SRF, ICAR-DRMR, Dhemaji	bidyut.p98@gmail.com	7086560319
25.	Komedity Chamua	SRF, ICAR-DRMR, Nagaon	komeditychamua@gmail.com	7002824116
26.	Chayanika Borah	SRF, ICAR-DRMR, Sonitpur	chayanikaborah17@gmail.com	8638936345

Table 7d: List of farmers participated in training programme organized at AAU, Jorhat, Assam during 17-18 Oct. 2022.

S N	Name of Participants. father's Name	Address	Gender	Cate gory	Contact No.
1.	Jitu Panging/Kalita Panging	Machkhowa Dhemaii	М	ST	8472891339
2.	Khagen Doley/ Dimbeswar Doley	Jonai, Dhemaji	М	ST	9365045306
3.	Senapoti Pait/ Nijom Pait	Sissiborgaon Dhemaji	М	ST	9678886546
4.	Chuchen Gogo/Punaram Gogoi	Telahi, Lakhimpur	М	OBC	6002026725
5.	Mridul Kalita/Bogai Kalita	Telahi, Lakhimpur	М	GEN	8402994598
6.	Chafit Borgohain/ Dimbeswar Borgohain	Ghilamara, Lakhimpur	М	OBC	8822727706
7.	Bibekananda Pegu/ Bineswar Pegu	Dhakuakhana, Lakhimpur	М	ST	9101670576
8.	Pradip Kalita/ Lt. Phul Kalita	Balipara, Sonitpur	М	GEN	7636046376
9.	Rajib Borah/ Lt. Mahendra Borah	Balipara, Sonitpur	М	GEN	9954132775
10.	Bijit Das/ Dharanidhar Das	Gabhoru block, Sonitpur	М	OBC	7086406185
11.	Champak Bhuyan/Lt. Gulak Bhuyan	Hatbor, Kaliabar	М	GEN	9707735913
12.	Hasique Bilal/ Harjat Ali	Majgaon, Sonitpur	М	GEN	8402908449
13.	Jiten Kujur/Atul Kujur	Rangapara, Sonitpur	М	OBC	8822445738
14.	Nirupoma Doley Patir/ Lalit Doley	Bordoloni, Dhemaji	F	ST	8486561650
15.	Raju Patir/Dibakar Patir	Bordoloni, Dhemaji	М	ST	8011882959
16.	Suresh Pegu/ British Pegu	Dhekorgora, Jorhat	М	ST	9864685911
17.	Ajit Kr Mukhiya/ Purna Bahadur Mukhiya	Dhekorgora, Jorhat	М	OBC	9707640515
18.	Jugal Das/ Hahiram Das	Dhekorgora, Jorhat	М	SC	9365693728
19.	Biswajyoti Borah/ Lt. Naliya Borah	Dhekorgora, Jorhat	М	OBC	8876393069
20.	Bhaskar Das/ Lt. Rajen Das	Moirabari, Nagaon	М	SC	9864321639
21.	Pradip kr Das/Lt. Mungala Das	Moirabari, Nagaon	М	SC	6002815143
22.	Dilip Konwar/ LT. Hahiram Konwar	Bokakhat, Golaghat	М	GEN	6000089629
23.	Pradip Kaman/Lt. Biren Kaman	Bokakhat, Golaghat	М	ST	6001138387
24.	Ananta Neog/ Golap Neog	Dergaon, Golaghat	М	GEN	6901043668
25.	Rahul Das/ Narayan Das	Bokakhat, Golaghat	М	SC	7002483654
26.	Bipul Pegu/ Deudrai Pegu	Jengrai, Majuli	М	ST	9957953547
27.	Dilip Hazarika/ Kon Hazarika	Kamalabari, Majuli	М	OBC	6001900764
28.	Jayanta Hazarika/ Domboru Hazarika	Kamalabari, Majuli	М	OBC	9395079431
29.	Mrina Basumatary/ Bipul Basumatary	Nomoani gaon, Sonitpur	М	ST	8135004894
30.	Khagen Nath / Horimon Nath	Bhalukekhooa, Sonitpur	М	OBC	

TGL*=Tea Garden Labourer, MOBC*=More Other Backward Class

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.

The summary of master training programme and farmers training programme is given in Table 8 and 9.

Table 8: Summary of	f master training	programme orga	anized by ICAR-DRMF	R during 2022-23.
-	-		-	-

SN	Activity	Target	Achieved	Beneficiaries	Districts covered (No.)
		(No.)	(No.)	(No.)	
1	Masters'	02	02	49	15 (Darrang, Dhubri, Barpeta,
	Training				Nalbari, Kamrup,
	Pogramme				Bongaigaom, Morigaom,
					Kokrajhar, Nagoan, Sonitpur,
					Golaghat, Lakhimpur, Jorhat,
					Sivasagar and Dhemaji
					districts of Assam

Table 9: Summary of farmers training programme organized by ICAR-DRMR during 2022-23.

SN	Activity	Target	Achieved	Benefi	Beneficiaries (No.)						
		(No.)	(No.)	ciaries	Gender		Social Category			Total	
				(No.)	Male	Female	Gen	OBC	SC	ST	
1	Progressive farmers training	02	02	60	59	01	23	16	08	13	60

Glimpses of Training programmes of Master Trainers and Farmers organized during 13-14 October, 2022 at Krishi Niwas, DoA, Khanapara, Guwahati



Glimpses of Training programmes of Master Trainers and Farmers organized during 17-18 October, 2022 at Dhansiri Farmers Hostel, AAU, Jorhat



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

There were 250 technical trainings sessions approved linked with crop demonstration for 2022-23. 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 four phases at different places/ villages of the selected 15 districts of Assam from 6th October 2022 to 31st January 2023.

The first phase of technical training on "Scientific production technology of rapeseedmustard" was conducted cluster wise at Department of Agriculture/ ATMA office/ block office/ villages of respective districts before the sowing during November 2022. 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 2513 farmers and farm women participated in 82 technical trainings of first phase.

The second phase of technical training was conducted on "Improved agronomic practices of rapeseed-mustard for higher production" during November-December 2022 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 1623 farmers and farm women participated in 64 technical trainings of second phase.

The third phase of technical training was conducted on "Integrated pest and disease management in rapeseed-mustard" during Dec 2022 -January 2023 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 1372 farmers and farm women participated in 54 technical trainings of third phase.

The fourth phase of technical training was conducted on "Harvesting and threshing management in rapeseed–mustard" during January 2023 at the time of maturity stage of the crop at farmers field in each of the selected clusters. The technical knowledge and skill about harvesting and threshing the crop at proper maturity, harvesting time, moisture percentage and storage management etc. were provided to the participants by ICAR-DRMR during fourth phase of technical training. A total of 1166 farmers and farm women participated in 50 technical trainings of fourth phase.

Thus a total of 250 technical trainings were organized during the period wherein 6674 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 number of training and beneficiaries of different social categories are given in Table 1.

These technical trainings will help in increasing the production and productivity of rapeseedmustard 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 10: List of First Phase Technical Trainings conducted on "Scientific production technology of rapeseed-mustard" under the project during 2022-23.

SN	District	Cluster	Name of cluster	Place/Village	Date	Beneficiari es (No.)
		1	Pakabethbari	BRC Kayakuchi	12.11.2022	30
		2	Gomafulbari	Barsuha	15.11.2022	30
		3	Bhawanipur	Kuchiajhar	16.11.2022	30
1.	Barpeta	4	Chenga	Chenga	18.11.2022	31
		5	Barpeta	Sundardia	19.11.2022	30
		6	Surakehtri	Lachima	21.11.2022	30
		7	Mandia	Gopalpur	08.12.2022	30
		1	Manikpur	FIAC, Manikpur	09.11.2022	32
2	Bongaigaon			Manikpur	10.11.2022	39
		2	Bidyapur	Chikibiki	12.11.2022	70
		3	Patiladoha	DAO Office, Bongaigaon	14.11.2022	81
		1	Bechimari	Dalgaon	31.10.2022	30
3	Darrang	2	Sipajhar	Basachuba	04.11.2022	45
Ū	5	3	Pachim	Pachim Mangaldoi	01.11.2022	28
			Mangaldoi	Bezpara	10.11.2022	30
4 D		1	маспкома	Begenagaran	04.11.2022	30
	Dhemaji	2	Sissiborgaon	Amgun Ball	05.11.2022	42
		3	Bordoloni	Bordoloni Maigaon	06 11 2022	20
			MSTD	Maigaan L B School	00.11.2022	24
 		4	NISTD Agemeni	Madhuaaulmari	00.11.2022	24
		1	Chapar-		00.11.2022	24
_		2	salkocha	Kiamari Pt - II	08.11.2022	20
5	Dhubri	3	Gauripur	Sukhatikhata	10.11.2022	20
		4	Mahamaya	Bilasipara	03.11.2022	20
		5	Rupsi	Bilasipara	03.11.2022	25
		1	Bokakhat	Missimiati	04.11.2022	35
e	Cologbot		DORAKIAL	2 No. Gormora	07.11.2022	26
0	Golaghat	2	Sarupathar	Naojan	02.11.2022	35
		3	Morangi	Bebejia	05.11.2022	29
					03.11.2022	33
		1	Majuli	MRB FPC Office	03.11.2022	29
					04.11.2022	33
				lengraimukh Agri FPC	05.11.2022	31
-		2	Ujani Majuli	Office	05.11.2022	31
1	Jorhat			Ginee	06.11.2022	45
				Sonari Gaon	07.11.2022	21
		3	Kaliapani		07.11.2022	20
				Jopong Gaon	16.11.2022	27
		4	Dhekorgorah	Chinaichuk	11.12.2022	26

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		1	Kamalpur	Kamalpur	03.11.2022	35
		2	Chandrapur	Ghoramarjanpam	07.11.2022	20
		c	Suelkushi	Bongshor	09.11.2022	30
Q	Kamrun	3	Suaikuchi	Singimari	11.11.2022	30
0	Nannup	4	Hajo	Halogaon	10.10.2022	30
		_		Muktapur	17.11.2022	25
		5	Bihdia jajikona	Sahan	17.11.2022	25
				Bindia jajikona	22.11.2022	35
		1	Kokrajhar		01.11.2022	40
9	Kokrajhar	2	Kochugaon	Hatigarh	11 11 2022	28
		3	Dotma	Hogmabil	17.11.2022	25
		1	Dhakuakhana	SDA, office Dhakuakhana	09.11.2022	64
		2	Ghilamara	FIAC, Ghilamara	10.11.2022	40
		3	Narayanpur	FIAC, Narayanpur	14.11.2022	20
10	Lakhimpur	4	Bihpuria	FIAC Bihpuria	11.11.2022	28
		5	Karunabari	FIAC, Karunabari	15.11.2022	21
		6	Lakhimpur	FTS Chukulibharia	07.11.2022	40
		7	Telahi	FTS Chukulibharia	07.11.2022	40
		4	Dhumh an alls a	Block development office	04.11.2022	20
	Maringan	1	Bhurbandha	Haldhibari	08.11.2022	30
11	worigaon	2	Mayong	Goroimari FPC Office	11.11.2022	20
	Nagaon	3	Kapili	Luchonabori	08.11.2022	30
		1	Khagorijan	Senchowa	29.10.2022	27
		2	Batadraba	Sologuri	02.11.2022	25
12		3	Pachim Koliabor	SDAO, Koliabor	03.11.2022	25
		4	Daha	Khaigarh	04.11.2022	30
		4	Ralla	Khalihamari	24.11.2022	30
		5	Kaliabor	SDAO, Kaliabor	05.11.2022	32
		1	Borigog-	Balitara	03.11.2022	30
10	Nalbari		Banbhag	Majushiral	03.11.2022	30
15	Naiban	0	Do rich otri	Loharkatha	04.11.2022	30
		2	Barknetri	Barnibari	07.11.2022	30
		1	Gaurisagar	DAO Office, Sivasagar	19.11.2022	33
14	Sivsagar	2	Demow	DAO Office, Sivasagar	21.11.2022	25
		3	Sivasagar	DAO Office, Sivasagar	23.11.2022	27
		1	Rangapara	1 No. Naharani village	11.11.2022	32
		2	Dhekiajuli	Dhekiajuli Block Office	14.11.2022	40
		3	Balipara	FTS, Chariduar	16.11.2022	28
15	Sonitpur	4	Bihaguri	No. 1 Puthimari village	17.11.2022	30
		5	Gabharu	Ban Besseria village	03.12.2022	23
		6	Biswanath	Barigaon	25.11.2022	22
		7	Chaiduar	Madhya Chatrang village	26.11.2022	24
			Total tr	ainings (82)		2513

Table 11: List of Second Phase Technical Trainings conducted on "Improved agronomic practices of rapeseed-mustard for higher production" under the project-during 2022-23.

SN	District	Cluster	Name of cluster	Place/Village	Date	Beneficiaries (No.)
		1	Bajali	Barshan	09.12.2022	37
		2	Gomafulbari	Oumara	16.12.2022	30
1.	Barpeta	3	Barpeta	Fatikgrah	28.12.2022	30
		4	Chakhaka	Bhaluki	20.12.2022	30
		5	Rupshi	Amguri	04.01.2023	30
		1	Manikpur	Aolaguri	08.12.2022	36
	Bongaigaon	0	Datiladaha	Bhatipara	14.12.2022	20
2		2	Fallauona	Chakrashila	19.12.2022	23
		2	Bidvopur	Nachankuti	21.12.2022	37
		5	ыйуариі	Hollaguri	22.12.2022	32
		1	Bechimari	Borjhar	20.12.2022	30
3	Darrang	2	Pachim Mangaldoi	Bezpara	26.12.2022	30
		3	Sipajahr	Gharwa Sonapur	24.01.2023	30
			Bordoloni	Majgaon	12.12.2022	20
		1	Bordolorii	Podumoni	13.12.2022	20
				Pomua	13.12.2022	28
4	Dhemaii		Machkhowa	Rajabari	14.12.2022	20
	Dhemaji	2		Begenagarah	16.12.2022	20
		3	Sissiborgaon	Chekai Majgaon	15.12.2022	30
				Amguri Bali	17.12.2022	23
				Mothadang	18.12.2022	21
		1	Gauripur	Kismat Hasdaha Pt-IV	15.12.2022	20
		2	Agomani	Kharbari	22.12.2022	20
5	Dhubri	3	Rupsi	Gaikhowa	22.12.2022	20
		4	Mahamaya	Patakata Pt-II	06.11.2022	20
		5	Chapar - salkocha	Kazipara	06.11.2022	20
6	Cologhat	1	Bokakhat	Upar Temera	15.12.2022	24
0	Golaghat	2	Kakodonga	Baruah Gaon	26.12.2022	20
7	lorbot	1	Dhekorgorah	Chinaichuk	26.11.2022	26
1	Joinat	2	Kaliapani	Bonai	18.12.2022	20
		1	Sualkuchi	Abhaypuriapam	05.12.2022	35
		I	Suaikuchi	Bongshor	07.12.2022	25
Q	Kamrun			Singarapara	09.12.2022	33
0	Kamrup	2	Bihdia jajikona	Pubpar jatiobhangara	09.12.2022	29
		3	Kamalpur	Dwigunpar	15.12.2022	22

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		1	Kochugaon	Bashgaon	08.12.2022	30
0	Kalunaihan	2	Dotma	Bhutiyapara	23.12.2022	27
9	NUKIAJIIAI	0	Kokrajhar	Garokhuta	27.12.2022	29
		3		Uttar Bashbari	04.01.2023	23
		1	Dhakuakhana	Kalakata Gaon	13.12.2022	43
		2	Ghilamara	Dakhin Gaon	14.12.2022	43
10	Lable in a sur	3	Narayanpur	Bahupathar	17.12.2022	16
10	Laknimpur	4	Bihpuria	Lagachu Village	16.12.2022	25
		5	Lakhimpur	Amguri village	22.12.2022	26
		6	Telahi	Pamua Khabolu	21.12.2022	27
11	Mariaaan	1	Bhurbandha	Habibarangabari	14.12.2022	12
11	Mongaon	2	Mayong	Bardalpathar	15.12.2022	14
		1	Kaliabor	Pubthoria	13.12.2022	31
	Nagaon	2	Batadraba	Kandhulimari	14.12.2022	25
12		3	Pachim Koliabor	Baraligaon	17.12.2022	27
				Borghuli	17.12.2022	25
		4	Khagorijan	Takowbari	18.12.2022	25
13	Nalbari	1	Borigog- Banbhag	Hahdali	06.12.2022	20
		2	Barkhetri	Lawpara	26.12.2022	20
		1	Sivasagar	Borpatro	17.12.2022	21
14	Sivasagar	2	Demow	Demowmukh	20.12.2022	20
		3	Gaurisagar	Charing	23.12.2022	20
		1	Rangapara	Durgapur village	10.12.2022	22
		2	Dhekiajuli	1 No. Bamun Pukhuri	14.12.2022	29
45	Canitarun	3	Balipara	Nalghagori	20.12.2022	25
15	Sonitpur	4	Bihaguri	Nabill Kachari	07.12.2022	25
		5	Gabhoru	Tunga basti	26.12.2022	21
		6	Biswanath	Bhirgaon	23.12.2022	20
		7	Chaiduar	Kalyanpur village	22.12.2022	21
			Total training	s (64)		1623

Table 12: List of Third Phase Technical Trainings conducted on "Integrated pest and disease management in rapeseed-mustard" under the project during 2022-23.

SN	District	Cluster	Name of cluster	Place/Village	Date	Beneficiaries (No.)
		1	Bhawanipur	Mazgaon	09.01.2023	30
		2	Pakabethbari	Naligaon	11.01.2023	30
1.	Barpeta	3	Sarukhetri	Rangiagaon	14.01.2023	30
		4	Chenga	Batgaon	19-01.2023	34
		5	Barpeta	Khanadakpara	19.01.2023	30
		1	Patiladoha	Nowapara	09.01.2023	23
2 Bong	Bongaigaon	2	Manikpur	Dompara	10.01.2023	20
		3	Bidyapur	Hollaguri	23.01.2023	31
2	Dorrong	1	Bechimari	No.2 Borjhar	27.12.2022	30
3	Darrang	2	Sipajhar	Gharwa Sonapur	24.01.2023	30
		1	Bordoloni	Betoni Hola Goan	04.01.2023	20
4	Dhemaji	I		Balichapori	04.01.2023	30
4		2	Sissiborgaon	Pipoluguri	17.01.2023	20
		3	MSTD	Magurmari	18.01.2023	20
	Dhubri	1	Gauripur	Tisterpar	03.01.2023	20
		2	Agomani	Kiamari Pt -II	24.01.2023	50
5		3	Rupsi	Fulkumari	25.01.2023	20
		4	Mahamaya	Dalaneralga Pt - II	14.01.2023	20
		5	Chapar-salkocha	Lalkura	15.01.2023	20
6	6 Gologhat	1	Bokakhat	Dusutimukh	30.12.2022	25
0	Golaghat	I		Alami Ragdia	09.01.2023	17
7	lorbat	1	Majuli	Notun Bokora	06.01.2023	30
	Jonat	2	Kaliapani	Chintamonigarh	20.01.2023	19
		1	Haia	Halogaon	04.01.2023	21
0	Komrun	I	пајо	Tokratia	07.01.2023	24
0	Kamrup	2	Dibdia jajikana	Loch	21.01.023	27
		2	Dificia jajikofia	Sahan	24.01.023	22
		1	Kachugaon	Patakata	06.01.2023	23
0	Kaluaihan	0	Kokrajhar	Hatiduba	09.01.2023	25
9	Kokrajnar	Z		Nayachara pt 3	11.01.2023	25
		3	Dotma	Thoribari	10.01.2023	26
		1	Dhakuakhana	2 No Mainapara	17.01.2023	19
		2	Ghilamara	Phulbai Kekuri	17.01.2023	20
10	Lakhimpur	3	Narayanpur	Batharkhana Jamuguri	05.01.2023	26
		4	Bihpuria	Bahgora	06.01.2023	27
		5	Karunabari	Sandohkhowa	09.01.2023	25

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		6	Lakhimpur	Korson	12.01.2023	29
		7	Telahi	Pamua Khabolu	10.01.2023	35
11	Moriaaon	1	Bhurbandha	Bhurbandha	27.12.2022	20
	wongaon	2	Mayong	Rajamayong	23.12.2022	20
		1	Pachim Kaliabor	Namgaon	20.12.2022	25
		2	Raha	Dakhin Petboha	23.12.2022	36
12	Nagaon	3	Kaliabor	Kerybakori	24.12.2022	32
		4	Batadraba	Khariamari	04.01.2023	25
	Nalbari	5	Khagorijan	Bohuabheti	06.01.2023	25
13		1	Borigog- Banbhag	Maiusiral	28 12 2022	20
10	Naiball	2	Barkhetri	Bezpara	09.01.2023	20
		1	Demow	Halowating	29.12.2022	28
14	Sivasagar	2	Gaurisagar	Soraguri	29.12.2022	30
		3	Sivasagar	Gopalpur	17.01.2023	20
		1	Dhekiajuli	Natun Basti	10.01.2023	21
45	Conitour	2	Balipara	Bogijuli village	24.12.2022	24
15	Somilpur	3	Bihaguri	Bapubheti village	20.01.2023	28
		4	Gabhoru	Jorgarh village	21.01.2023	25
			Total traingin	gs (54)		1372



Table 13: List of Fourth Phase Technical Trainings conducted on "Harvesting, threshing and storage management in rapeseed –mustard" under the project during 2022-23.

SN	District	Cluster	Name of		Date	Beneficiaries
	District	Cluster	cluster	r lace/ village	Date	(No.)
		1	Gomafulbari	Damaljar	19.01.2023	30
1.	Barpeta	2	Bajali	Barshana	21.01.2023	30
		3	Chakchaka	Kismat Dwarika	27.01.2023	30
		1	Manikpur	Barbila	21.01.2023	22
2.	Bongaigaon	2	Patiladoha	Garugaon	21.01.2023	25
		3	Bidyapur	Chikibiki	24.01.2023	24
		1	Bechimari	Borjhar	29.12.2022	30
		1		Kahibari	15.02.2023	30
2	Dorrong	2	Pachim	Choto Nagaon	21.01.2023	30
э.	Darrang	2	Mangalsoi	Bezpara	21.01.2023	30
		2	Sipajhar	Basachuba	04-02-2023	30
		3		Jayantipur	07.02.2023	30
				Majgaon	18.01.2023	20
4.	Dhemaji	1	MSTD	Purona Jelom	19.01.2023	20
				Leku Jelom	20.01.2023	20
		1	Gauripur	Tisterpar	03.01.2023	20
		2	Agomani	Kiamari Pt -II	24.01.2023	20
5	Dhubri	3	Rupsi	Fulkumari	25.01.2023	20
5.		4	Mahamaya	Dalaneralga Pt - II	14.01.2023	20
		5	Chapar -		15.01.2023	20
			salkocha	Lalkura		
			Bokakhat	Dergaon,	12.01.2023	20
6.	Golaghat	2		Nasonipara		
			Morangi	Bebejia Likson	23.01.2023	19
7.	Jorhat	1	Ujani Majuli	Borpomuah	31.01.2023	18
		1	Kamalpur	Baruajani	25.01.2023	22
8.	Kamrup	2	Bibdia iaiikona	Mukundapur	30.01.2023	24
		2	Bindia jajikona	Ganakjhar	31.01.2023	21
		1	Dotma	Katribari	21.01.2023	26
9.	Kokrajhar	2	Kokrajhar	Paskaljhora	21.01.2023	25
		3	Kachugaon	Kamalsing	23.01.2023	23
		1	Dhakuakhana	2 No Mainapara	18.01.2023	19
		2	Ghilamara	Phulbai	18.01.2023	20
10.	Lakhimpur	3	Narayanpur	Bahupathar	19.01.2023	16
		4	Karunabari	Sandohkhowa	21.01.2023	26
		5	Telahi	Pamua khabolu,	20.01.2023	28

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11	Morigoon	1	Bhurbandha	Bakhorbori	25.01.2023	17			
11.	wongaon	2	Mayong	Garakhiadhap	24.01.2023	15			
		1	Raha	Konwariati	18.01.2023	20			
		1		Hariamukh	18.01.2023	20			
12.	Nagaon	2	Pachim	Haluwagaon	19.01.2023	25			
		2	Kaliabor			25			
		3	Kaliabor	Madhatari	21.01.2023	25			
	Nalbari	1	Barkhetri	Nawpara Pam	23.01.2023	22			
13.		2	Borigog-	Habdali	25 01 2022	21			
			Banbhag	Tianuali	20.01.2020	21			
14.	Sivasagar	1	Demow	Demowmukh	19.01.2023	25			
	Queiterra	1	Rangapara	2 no. Bahumari	19.01.2023	27			
		2	Dhekiajuli	Amtol Bhergaon	30.01.2023	23			
		2	Balipara	Buragaon	31.01.2023	25			
15		5		Chapori					
15.	Sonitput	4	Bihaguri	Nabil Kachari	02.02.2023	22			
		5	Gabharu	Geriki	24.01.2023	25			
		6	Biswanath	Panipharal	25.01.2023	20			
		7	Chaiduar	Baruah Pather	27.01.2023	26			
	Total traingings (50)								

Table 14: Summary of technical training	s organized by ICAR-DRMR during 2022-23.
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SN	Technical	Target	Achieved	Benefi	Beneficiaries (No.)						
	Training	(No.)	(No.)	ciaries	Gender		Social Category				Total
	Activity			(No.)	Male	Female	Gen	OBC	SC	ST	
1	I Phase	82	82	2513	1873	640	889	879	251	494	2513
2	II Phase	64	64	1623	1091	532	569	594	197	263	1623
3	III Phase	54	54	1372	965	407	539	430	250	153	1372
4	IV Phase	50	50	1166	828	338	500	353	142	171	1166

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Glimpses of First PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Barpeta

Bongaigaon



Darrang

Dhemaji



Glimpses of First PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Jorhat

Kamrup



Kokrajhar

Lakhimpur



Glimpses of First PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Nalbari

Nalbari



Sivasagar

Sivasagar



Sonitpur

Sonitpur

Glimpses of Second PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Barpeta

Bongaigaon



Darrang

Dhemaji



Glimpses of Second PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Glimpses of Second PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Nalbari

Nalbari



Sivasagar

Sivasagar



Glimpses of Third PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Barpeta

Bongaigaon



Darrang

Dhemaji



Glimpses of Third PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project





Kokrajhar

Lakhimpur



Glimpses of Third PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Nalbari

Nalbari



Sivasagar

Sivasagar



Glimpses of Fourth PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Glimpses of Fourth PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project



Jorhat

Kamrup



Kokrajhar

Lakhimpur



Glimpses of Fourth PhaseTechnical Trainings programmes organized during 2022-23 under ICAR-DRMR-OPIU (Agri)-APART project





Sivasagar

Sivasagar



2.4. Activity 5 and 6: Exposure visit-cum-training programme of master trainiers and progressive farmers organized during 29-31 Jan. 2023.

Exposure visit is one of the important extension tools to reinforce the confidence of the extension personnel and farmers in new technology, methods, etc. Exposure visits enable farmers from different regions to interact with and learn from each other, allowing them to view practical examples of successful adoption of scientific technology in different farming situation. It motivates farmers by showing what others have been able to achieve. As per the approved activity under ICAR-DRMR-APART programme, one Exposure visit-cum-training of progressive farmers and one exposure visit-cum-training of Master trainiers/ extension personnel to ICAR-DRMR was organized organized during 29-31 January 2023.

For these visits, field level extension workers and farmers were nominated by OPIU, Guwahati from selected 15 districts of Assam namely; Barpeta, Bongaigaon, Darrang, Dhemaji, Dhubri, Golaghat, Jorhat, Kamrup, Kokrajhar, Lakhimpur, Morigaon, Nagaon, Nalbari, Sivasagar and Sonitpur. The programme of exposure visit was designed in such a way that experts from ICAR-DRMR provided technical knowledge and exposure of latest technological advances in rapeseed-mustard to the participants. Alongwith the lectures, participants were made to visit experimental field/trials of variety development, technology park, crop cafeteria, latest varieties insect-pest and disease management, agronomical practices, seed production programme, mini oil expeller unit, seed processing unit, agriculture machinaries like seed drill, combined harvester, weeders, power sprayers, threshers, etc at ICAR-Directorate of Rapeseed-Mustard Research, Bharatpur, Sewar, Rajasthan. The participants also got an opportunity to visit an oil mill having a large production capacity with complete automatic packaging system.

The participants also visited FLDs sites at Tilchivi village of Bharatpur district of Rajasthan to see the performance of improved varieties of mustard at farmers field, and participated in field day programme organized by ICAR-DRMR where they got the opportunity to interact with local progressive farmers. They understood the gap in technology adoption and explore the feasibility in adoption of new practices in their own situations. Since "seeing is believing", the exposure visit provided better knowledge and understanding of technology, methods and improved the skills of the extension personnel/ master trainers and farmers on scientific production and protection technology of rapeseed-mustard. It exposed them to a new and different situation which would help in changing their outlook and extend their mental horizon. Detailed list of master trainers participated in exposure visit-cum-training is presented in Table 15.

Table 15: List of master trainers and farmers participated in exposure visit-cum-training organized by ICAR-Directorate of Rapeseed-Mustard Research at Sewar, Rajasthan during 29-31 Jan. 2023.

SN	Name	Designation	Gender	Caste	Mob. No.	email ID
1.	Mr.Munindra Sarma	ANO, APART	М	Gen	9435116038	munindrasarma@redffmail.com
2.	Mr.Onasish Borthakur	AS, OPIU	М	Gen	9435501654	onasisborthakur@gmail.com
3.	Ms.Bhashwati Sharma	ADO, District; Darrang	F	Gen	8638001694	bhashwatisharma129@gmail.co m
4.	Mr.Satyen Talukdar	DAMC, APART, Nalbari	М	OBC	9101207701	satyen266@gmail.com
5.	Dr. Bandhan Subba	RA, Sonitpur	М	ST	8101455138	bandhan_subba@rediffmail.com
6.	Dr. Joli Dutta	RA, Sivsagar	F	OBC	7002096622	duttajoli@gmail.com
7.	Dr. Vijay Kumar	RA, Barpeta	М	ST	8435345597	vku9077@gmail.com
8.	Dr. Dipankar Saikia	RA, Jorhat	М	OBC	8753949737	dipankarsaikia880@gmail.com
9.	Mr.Mohd. Danish	SRF Dhubri	М	Gen	9454875162	mdentomology101@gmail.com
10.	Mr.Trilochan Karki Chetri	SRF, Kamrup	М	OBC	7002292150	trilochan.kaki@gmail.com
11.	Ms.Sanjana Bora	SRF, Darrang	F	Gen	9101035534	sanjanabora.37@gmail.com
12.	Himangshu Deka	SRF Kokrajhar	М	OBC	9706560765	dekahimangshu110@gmail.com
13.	Mr. Mrinmoy Jyoti Nath	SRF, Bongaigaon	М	OBC	8474092098	mrinmoyjnath96@gmail.com
14.	Ms.Chayanika Borah	SRF, Lakhimpur	F	OBC	6001470167	chayanikaborah17@gmail.com
15.	Ms. Moukham Wakhet	SRF, Morigaon	F	ST	8876426959	moukhamwakhet55@gmail.com
16.	Ms.Manisha Barman	SRF, Nalbari	F	Gen	9957275224	Manishabarman234@gmail.com
17.	Ms.Uddipana Shandilya	SRF, Golaghat	F	Gen	7002924491	uddipanashandilya7@gmail.com
18.	Ms. Komedity Chamua	SRF, Nagaon	F	OBC	7002824116	komeditychamua@gmail.com
19.	Mr.Dipankar Hazarika	BoD, Akhay, FPC, Morigaon	М	OBC	7002706475	dh2429920@gmail.com
20.	Mr. Jogesh Deka	Farmer, Darrang	М	Gen	6001879213	jogeshdeka679@gmail.com
21.	Mr. Bhupen Sonowal	Farmer, Lakhimpur	М	ST	7896672331	sonowalbhupen4@gmail.com
22.	Mr. Dinesh Taye	Farmer, Sivsagar	М	ST	9954060556	dineshtaye885@gmail.com
23.	Mr.Gopal Roy	Famer, Dhubri	М	OBC	9706208776	Nil
24.	Mr. Rahul Das	Famer, Golaghat	М	SC	7002483654	roy758165@gmail.com
25.	Mr.Banikanto Patri	Office-cum- Assistan & Computer Operator	М	ST	7002778809	bunnypatri@gmail.com
26.	Mr.Rajdeep Das	MIS,Kamrup	М	Gen	7002084055	Rajdeep.piuagri@gmail.com

Table: 16 Summary of Exposure Visit-cum-Training Programme of Master trainers/ ExtensionPersonnel and Progressive Farmers organized during 29-31 January 2023.

SN	Activity	Target (No.)	Achieved (No.)	Beneficiaries (No.)	Districts covered (No.)	
1	Exposure visit-cum- training programme of master trainers	01	01		Barpeta, Bongaigaon, Darrang, Dhemaji,	
2	Exposure visit-cum- training programme of master trainers	01	01	26	Dhubri, Golaghat, Jorhat, Kamrup, Kokrajhar, Lakhimpur, Morigaon, Nagaon, Nalbari, Sivasagar and Sonitpur.	



Glimpses of Exposure Visit-cum-Training Programme of MT and Farmers organized at ICAR-DRMR, Bharatpur, Rajasthan during 29-31 Jan. 2023.



Glimpses of Exposure Visit-cum-Training Programme of MT and Farmers organized at ICAR-DRMR, Bharatpur, Rajasthan during 29-31 Jan. 2023.



2.5. Activity 7: Publication of Training Manual on "Seed Production Technology of Rapeseed-Mustard" during 2022-23.

Seed is a basic input in agriculture. In seed, the importance is given to the biological existence whereas; in grain the importance is given to the supporting tissue of the economic produce. The quality seed ensures genetic and physical purity of the crops, gives desired plant population and ensures uniform growth and maturity. It has capacity to withstand the adverse conditions and good quality seeds of improved varieties ensures higher yield of at least 10-15 %.

In view of that, ICAR-DRMR has developed and published an extension literature on "Seed Production Technology of Rapeseed-Mustard" in the form of training manual that will help the agricultural officials and farmers of the state for better understanding and to focus on the specific requirements, principles and activities needed to produce the quality seed of rapeseed mustard that will ensure the sufficient availability of quality seed in the state. ICAR-DRMR has developed this training manual in English (Master copy) and that will be translated into local language by OPIU-Agriculture for printing of multiple copies and distribution to farmers by District ATMAs personnel. It covers importance and characteristics of quality seed, classes of seed, seed standards, scientific recommendations for quality seed production of rapeseed-mustard, etc. It will provide support to other extension methods and facilitate use at convenience and will serve as a future reference.

13. Rouging: Roguing is the activity to identify and eliminate unusual plants. The purpose of roguing is to maintain the genetic purity and variety of quality. Roguing is carried out generally from the vegetative phase to the harvesting phase. The unwanted and off-types plants are removed from Maximum percentage of off-type permitted is 0.10% for foundation seed production and 0.50% for certified seed production. Roguing is done epeatedly and systematically

14. Harvesting and threshing: The crop should be harvested when 75 % of pods turn to golden yellow in colour. Threshing should be done with threshers after proper drying.

15. Storage: For safe storage, moisture content of seeds should be 8% or less, which can be achieved by sun drying of threshed seed for approximately one week.

approximately one week. 16 Insects and diseases: Mustard aphid, saw fly, painted bug, pea leaf miner and bihar hairy caterpillar are the important insects and Alternaria bight, white rust, downy mildew, powdery mildew and Sclerofinia stem rot are important diseases commonly observed in Assam. The following strategy should be adopted for integrated management of insects and diseases of rapesed-mustard in Assam.

- · Proper cropping pattern to avoid disease and pests.
- Timely sowing.
- Mechanical removal of the crop residue of previous season

- mectianizarientovato the crop resoure of previous season. Seed treatment with Carbendazim 2g per (kg) seed for Sclerotinia rot and Apron 35 SD @ 6g/kg for white rust disease. Spray 0.2% Mancozeb to manage white rust, Alternaria blight and downy mildew and 0.1% Carbendazim for Sclerotinia rot and powdery mildew diseases. Pluck and destroy aphid-infested twigs thrice initially.
- For the control of mustard aphids at the economic threshold level(ETL), i.e., at least 10% plants having 26-28 aphids/plant, spray 0.025% Oxydematon methyl 25 EC or 0.03% Dimethoate 30
- If Coccinella septumpunctata, Chrysoperla carnea and Syrphid fly are seen in the field, then don't spray chemicals

Class of seed	Year		
	2023-24	2024-25	
Proposed area (Lakh ha)	4.62	6.87	
Total certified seed requirement @ 7kg/ha	3.23	4.81	
Actual certified seed requirment @ 70% SRR (000 ton)	2.26	3.37	
Foundation seed (Ton)	11.32	16.83	
Breeder seed (Kg)	56.60	84.15	
Total seed (CS+FS) (MT)	2271.3	3386.8	

*Considering 70% seed replacement every year

tegy for self-sufficiency in quality seed of rapeseed-mustard ir

Strategies

Seed rolling plan for next five year should be prepared

- > Ensure adequate and timely availability of breeder / foundation seed/quality seed as per plan.
- > Training of farmers registered as seed growers in each district of the state for seed production.
- > Incentives to seed growers to encourage quality seed production. > Maintenance of seed purity and quality through regular monitoring
- and evaluation > State seed certification agency be set up in the state or to be
- strengthened.
- > Adequate arrangement for seed procurement Time bound programme for seed processing, testing and tagging
- > Construction of new processing centers, seed godowns under seed village programme
- Seed bank to be set up in cluster villages
- > State seed farm in different agro-climatic zone of the state be strengthened and utilized properly
- > Seed testing laboratory to be set up in each district of the state > Seed testing should be to ensure germination before distribution to the farmers.
- > Post harvest drying, packaging and labelling of seeds imperative > Conduct PVS (participatory varietal selection) to identify and
- disseminate farmer-preferred varieties > Introduce agri-clinics and agri-business centres
- > Facilitate rapid spread of guality seeds of improved hybrids/ varieties among farmers through
 - i. Demonstrations in cluster area. ii. Dissemination of information on availability of quality through
 - multimedia seeds to farmers.
- Author : Drs. Ashok Kumar Sharma, Vinod Kumar, Arun Kumar and P.K. Rai This folder has been published under ICAR-DRMR-OPIU (Agri.)-APART Project

To more information contact us: Director, ICAR-Directorate of Rapeseed-Mustard Research Sewar, Bharatpur-321 303 (Rajasthan), India Phone: + 91-5644-260379,260495 Fax: -491-5644-260565 e-mail: director.dmrr@gmail.com Web:http://www.dmr.res.



2.6. Activity 8: Publication of technical folder on "Rapeseed-Mustard Cultivation in Assam: Frequently Asked Questions (FAQ)" during 2022-23.

Keeping in view of frequently asked queries by farmers and extension personnel, a simple and actionable farmer-friendly extension material in the form of technical extension folder on "Rapeseed-Mustard Cultivation in Assam: Frequently Asked Questions (FAQ)" in English was developed and published by ICAR-DRMR (master copy) and translation into local languages will be done by OPIU-Agriculture. Printing of multiple copies and distribution to farmers will be the done by District ATMAs. The folder contains the commonly asked questions and answers about the cultivation of rapeseed-mustard in Assam. It will help the extension personnel and farmers of the state to understand the different aspects of scientific cultivation of rapeseed-mustard in Assam and achieve higher productivity of the crop through adoption of recommended technology. The folder is handy that will provide opportunity to farmers and extension workers for reading, learning and/or referring. They are the best method for dissemination of information or a message. They save time and resources in dissemination of information to a large group of people. They can be used at any age. More efficient than oral languages.



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 during the period. The list of ICAR-DRMR staff engaged in the project and locally appointed staff are given in Tables 21 and 22.

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 18: Client's local staff engaged

SN	Name of Experts	Key or Non-Key	Designation in ICAR- DRMR	Designation in APART	Place of deployme nt	Date of availability for work in the assignment
1.	Dr. G.N. Hazarika	Key	Resident Consultant	Resident Consultant	Guwahati	In place
2.	Dr. Bandhan Subba	Non-key	Research Associate	Research Associate	Sonitpur	In place
3.	Dr. Vijay Kumar	Non-key	Research Associate	Research Associate	Barpeta	In place
4.	Dr. Dipankar Saikia	Non-key	Research Associate	Research Associate	Jorhat	In place
5.	Dr. Joli Dutta	Non-key	Research Associate	Research Associate	Sivasagar	In place
6.	Ms.Uddipana Shandilya	Non-key	Sr. Research Fellow	Sr. Research Fellow	Golaghat	In place
7.	Ms. Chayanika Borah	Non-key	Sr. Research Fellow	Sr. Research Fellow	Lakhimpur	In place
8.	Ms. Sanjana Bora	Non-key	Sr. Research Fellow	Sr. Research Fellow	Darrang	In place
9.	Mr. Mohd. Danish	Non-key	Sr. Research Fellow	Sr. Research Fellow	Dhubri	In place
10.	Mr. Mrinmoy Jyoti Nath	Non-key	Sr. Research Fellow	Sr. Research Fellow	Bongaigaon	In place
11.	Mr. Himangshu Deka	Non-key	Sr. Research Fellow	Sr. Research Fellow	Kokrjahar	In place
12.	Ms. Manisha Barman	Non-key	Sr. Research Fellow	Sr. Research Fellow	Nalbari	In place
13.	Mr.Trilochan Karki Chetri	Non-key	Sr. Research Fellow	Sr. Research Fellow	Kamrup	In place
14.	Ms. Moukham Wakhet	Non-key	Sr. Research Fellow	Sr. Research Fellow	Morigaon	In place
15.	Ms. Komedity Chamua	Non-key	Sr. Research Fellow	Sr. Research Fellow	Nagaon	In place
16.	Bidyut Pritom Gogoi	Non-key	Sr. Research Fellow	Sr. Research Fellow	Dhemaji	In place
17.	Mr. Banikanto Patiri	Non-key	Office Assistant cum comp. Operator	Office Assistant cum comp. Operator	Guwahati	In place

4. Consultants Invoice and payment by the client:

Table 19. 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	ICAR-DRMR-APART- 2019.20.4 dated 14.5.2020 Rs. 43.12 lakh	17.6.2020	NA	NA	5.10.2020
2	ICAR-DRMR / TAD ./APART / 2020-21 /86 dated 2.2.2021 Rs 38 81 Lakb	2.2.2021	NA	NA	20.5.2021
3	ICAR-DRMR-TAD-APART /2020-21 /118 dated 28.6.2021	28.6.2021	NA	NA	15.7.2021
4	ICAR-DRMR-TAD- APART/2021-22/171 (Rs. 52.03 lakh)	02.12.2021	Nil	Nil	28.12.2021
5	ICAR-DRMR-TAD/APART- 2021-22./207 (Rs.101.11 lakh)	15.2.2022	Nil	Nil	30.3.2022 (Rs. 94.63 Lakh) and 17.8.2022 (6.48 lakh)
6	ICAR-DRMR / TAD/ APART/ 2022-23/ 47-1	24-9-2022	Nil	Nil	30-11-2022

5. Contractual issues (if any) and changes desired: Nil
6. Work plan for the next six months

Table 20: Month-wise work-plan

SN	Month wise activities	No.			
February 2023					
1	Organization of Field days	250			
4	Organization of Farmer fair	01			
5	Field monitoring	-			
March 2023					
1	Crop cutting and data collection	-			
2	PHT demonstrations	45			
April 2023					
1	Feedback collection	-			
2	Data analysis	-			
May 2023					
1	Awareness meetings 44				
2	Base line survey -				
June 2023					
1	Awareness meetings	22			
3	Collection of data	-			
July 2022					
1	Awareness meetings	30			
2	Base line survey				

7. Summary of the overall progress.

The achievements and results of the period under report are summarised in the table 25, below.

	Table 21. Summar	y of the progre	ss of work done	during Jul	y 2022-Jan 2023
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Activities	Unit	Target	Achievement	Remarks
Crop Demonstrations	No.	5000	5000	All demonstrations were laid out
				successfully
Minikit ATMA	No.	18000	18000	All minikit demonstrations were
				laid out successfully
Technical trainings	No.	250	250	Completed
Training for Master	No.	2	2	Completed
Trainers				
Training for progressive	No.	2	2	Completed
farmers				
Exposure visit of MT	No.	01	01	Completed
Exposure visit of	No.	01	01	Completed
progressive farmers				
Training manual folder	No.	01	01	Completed
published				
Technical Extension	No.	01	01	Completed
Folder				

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

Contract No. OPIU Agri/APART/DRMR/23/ dated 28th April 2020

