

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

ICAR-DRMR-OPIU (Agri)-APART project

Introduction

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

Enhancing the domestic edible oil availability is one of the prime concerns of the policy planners to check the rising edible oil imports. Rapeseed-mustard is one of the important sources of edible oil in the country which has made a significant contribution to domestic edible oil availability over the last few decades. Rapeseed-mustard crop has good production potential, where the cultivation is supported with technology and knowledge inputs. Over the last decade, the number of rapeseed-mustard technologies have been developed, but for certain proven technologies there is a profound adoption gap particularly among smallholder farmers. Increased technology adoption, broadly defined to include adoption of improved agricultural practices, crop varieties, inputs and associated products has the potential to contribute to economic growth through increasing production and productivity of rapeseed-mustard.

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Rapeseed-mustard crop has adaptability to irrigated and rainfed areas and suitability not only for sole and but mixed cropping also. It has low water requirement and is relatively salt tolerant and give higher return with low cost of production. There is lowest saturated fatty acid and about 35-46 % oil in the seed. Seed meal has high content (36-38%) & quality of protein.

Major constraints of low productivity of Rapeseed-Mustard in Assam

The lack of confidence among the farmers to compensate the cost involved in intensive/scientific cultivation of rapeseed-mustard, non-adoption of improved production and protection technologies, use of locally available traditional varieties, non-availability of quality seeds in time, inadequate moisture at sowing time in rice fallow areas and lack of irrigation facilities, delayed sowing due to the adoption of longer duration rice varieties, biotic stresses and lack of coordination between the technologists/extension workers and farmers are some of the constraints responsible for low productivity of rapeseed-mustard in Assam

Scope of Rapeseed-Mustard Cultivation in Assam

Though rapeseed-mustard is grown in substantial area in Assam, but productivity is very low (660 kg/ha) in comparison to national (1511 kg/ha). Expansion of the crop to non-traditional areas, especially in rice-fallow, is one option to increase production, because rapeseed-mustard is capable of growing under diverse agro-climatic zones. The vast availability of natural resources and fertile land offering ample scope to promote oilseed cultivation in Assam. Rapeseed-mustard has good production potential, if cultivation is supported with suitable technological interventions and knowledge inputs. The selection of suitable varieties and technologies are likely to play the major role in realizing yellow revolution in Assam. Motivation of farmers coupled with identification, use of inclusive technology package and provision of close institutional support for cultivators will be a great step to increase production and productivity of rapeseed-mustard. Awareness and popularization of scientific cultivation of rapeseed-mustard in Assam, identification of suitable rapeseed-mustard varieties, facilitation of timely availability of quality seeds of improved varieties of rapeseed-mustard, improving production and protection technology through field demonstrations of varieties and technology, use of short or medium duration varieties of rice so as to complete timely sowing of

rapeseed- mustard (latest by first week of November), optimum plant population through use of recommended seed rate and spacing, intercultural operation and use of recommended dose of fertilizers and adoption of need based plant protection measures are strategic interventions to enhance Rapeseed- Mustard Production in Assam.

About ICAR-DRMR, Bharatpur

The ICAR, New Delhi on October 20, 1993, established the National Research Centre on Rapeseed- Mustard (NRCRM) at Bharatpur (Rajasthan) and upgraded it as Directorate of Rapeseed- Mustard Research (DRMR) in April 2009. It operates as a national repository for rapeseed-mustard genetic resources and for undertaking basic, strategic and applied research to enhance the productivity and quality of oil and seed meal. The Directorate is assigned a leadership role not only for the ICAR Institutes but also for the State Agricultural Universities in developing ecologically sound and economically viable production technology based on location specific interdisciplinary information through multilocal testing and coordination. With a view to further the cause of Yellow Revolution in India, the Directorate has the responsibility to establish linkages and promote cooperation with national and international agencies and to extend technical expertise and consultancies in this area.

ICAR-DRMR-APART Project

ICAR-Directorate of Rapeseed-Mustard Research has signed a MoU with the Director of Agriculture, Government of Assam on April 28, 2020 for a project on "Consultancy services for technical advisory support for augmenting rapeseed-mustard production in Assam for sustainable livelihood security" through APART. ICAR-DRMR is working as knowledge partner and providing expertise to support the Directorate of Agriculture, Govt. of Assam. ICAR-DRMR is providing technical backstopping, arranging human resources, creating awareness and capacity building of all stakeholders about improved varieties and scientific cultivation of rapeseed-mustard under the project. It has been planned that a team of trained and skilled progressive farmers with better knowledge and understanding of technology and methods in scientific production and protection technology of rapeseed-mustard for adoption by them and also dissemination among their fellow farmers will be developed.

GOAL of the project

The main goal of the project is to augmenting rapeseed-mustard production of farmers of Assam for sustainable livelihood security through providing **increasing access to up-to-date and timely knowledge and technologies, thereby reducing yield gaps in the rape-seed/ mustard value chain**. The programme will ultimately aim at increasing rapeseed-mustard production in the area and reduction in poverty of the farmers.

Specific objectives of the programme are as follows:

1. Enhancing adoption of high yielding short duration rapeseed-mustard varieties
2. Enhancing area and raising productivity, profitability, and resource use efficiencies of rapeseed-mustard cultivation in Assam through improved crop management and protection technologies.
3. Strengthening post-harvest management, reduce losses, increase efficiency and profitability, and improve mustard value chain
4. Developing knowledge materials and capacity development of various stakeholders and extension functionaries in Assam. The activities under this objective are spread over other three objectives hence, no separate targets under this objective are provided.

Program implementation plan: ICAR-DRMR's role is mainly limited to providing technical support and handholding for implementation of programme activities. ICAR-DRMR will be involved in

providing technical back stopping, arranging human resources, and creating awareness among all stakeholders, facilitating demonstrations, training, exposure visits, extension literature, etc.

The budget for physical activities will be allocated to Department of Agriculture/ATMAs to work as implementing agencies. For technical advisory, the budget will be allocated to ICAR-DRMR. For this consultancy work, ICAR-DRMR's experts and from project implementation unit in Assam) will closely work with Department of Agriculture (DoA) through Agricultural Technology Management Agency (ATMA), to ensure timely implementation of all agreed activities of the programme. The present consultancy contract is proposed for a period of four years i.e. from April 2020 to March 2024.

Activities of the project

1. Technical support in organizing Mustard crop climate resilient, market led demonstrations and Technical trainings linked to these demonstrations.
2. Technical support in organizing climate resilient, market led post harvest demonstrations on mustard, setting up, Technical trainings linked to these demonstrations and setting up mini mustard oil expellers.
3. Organizing Capacity building programmes for extension personnel /Master Trainers (MT)
4. Organizing Capacity building programmes for farmers.
5. Organizing Exposure visit-cum-trainings of extension personnel / MT to ICAR-DRMR
6. Organizing Exposure visit-cum-trainings of progressive farmers/FF to ICAR-DRMR.
7. Developing Extension Material/Literature/Training manual/video film/digital/IT tools
8. Organization of farmer fair/ conference/workshop, field days, etc.

District covered under the project

The project covers 15 districts of Assam

The activities under the project were carried out in seven undivided districts namely; Jorhat, Sivasagar, Golaghat, Sonitpur, Morigaon, Darrang and Dhubri of Assam during 2020-21. The results of demonstrations were very encouraging and technology dissemination through various programmes was effective and created interest and motivation in the farmers to adopt the scientific rapeseed-mustard production technologies in larger area. The results also invigorated the policy makers for expanding the scope of the project in new districts of Assam. After having long deliberation with all stakeholders, it was mutually agreed between ICAR-DRMR and Directorate of Agriculture to expend the project activities in additional districts namely; Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup, Lakhimpur, Dhemaji, Nagaon and Tinsukia of Assam with additional number of demonstrations and other activities for next three years (2021-22 to 2023-24).

Achievement of the project so far

SN	Activity	Progress of 2020-21 and 2021-22		
		Target (No.)	Achieved (No.)	Beneficiaries (No.)
1	Crop Demonstrations	5440	5440	5440
2	Technical trainings	338	338	8366
3	Farmers training	04	04	132
4	Masters' Training	04	04	122
5	Exposure visit of MT	02	02	47
6	Exposure visit of farmers	02	02	40
7	Field days	294	294	11410
8	PHM Demo	67	67	1670
9	Farmer Fair	02	02	446
10	Extension folder/ Bulletin	04	05	-
	Total direct beneficiaries			27673