

An Assessment of Improved Production Technology of Rapeseed Mustard under Rain-fed Agro-ecosystem in Hamirpur District of Himachal Pradesh, India

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DOI: <http://dx.doi.org/10.33980/jbcc.2020.v06i01.004>

(Received 11 April, 2020; Accepted 20 May, 2020; Published 26 June, 2020)

ABSTRACT: An assessment of improved production technology of rapeseed mustard was conducted in Hamirpur district of Himachal Pradesh during 2018-2019 through frontline demonstrations. Ninety farmers of 14 villages of Hamirpur district in Himachal Pradesh were provided seeds of rapeseed mustard (Gobhi Sarson GSC-7) during November, 2018. The crop was harvested in February-March, 2019. One Kg seeds yielded 250 Kg mustard seeds with a benefit to cost ratio of 1.75. This technology has proved great boost to enhancement of agricultural income and sustainability of farming under rain-fed agro-ecosystem.

Keywords: Rapeseed Mustard; Rain-fed; Gobhi Sarson; Production Technology and Agro-ecosystem.

INTRODUCTION: Hamirpur district is under rain-fed agro-ecosystem and is a part of sub-montane subtropical low hill agro-climatic zone of Himachal Pradesh. Wheat, maize, paddy, gram, sugarcane, mustard, potato and vegetables are the major field crops grown in this zone.¹ Agriculture farm income accounts for 20% in this rain fed region. Using improved crop varieties is important for doubling the income of the farmers by 2022. A number of research activities has been undertaken to document the ecosystem of lower foot hills of Himachal Pradesh including district Hamirpur.²⁻²⁵

MATERIALS AND METHODS: Career Point University Hamirpur conducted frontline demonstration of improved production technology of rapeseed mustard in the district. Ninety farmers of 14 villages (namely Tikker, Bhair, Ser, Balbagh, Bindli, Cherchedi, Tooh, Mehal, Dhanwin, Lathwan, Dungri, Anu Kalan, Barot and Kot) of Hamirpur district (Himachal Pradesh) were provided seeds of rapeseed mustard (Gobhi Sarson GSC-7) during November, 2018 (Figure 1 and Figure 2).



Figure 1: Rapeseed-Mustard crop in farmers field.



Figure 2: Field photograph of crop

RESULTS AND DISSCUSSION: Rapeseed-mustard is the third important oilseed crop in the world after soybean (*Glycine max*) and palm (*Elaeis guineensis* Jacq.) oil. The mustard growing areas in India are experiencing the vast diversity in the agro climatic conditions and different species of rapeseed-mustard are grown in some the country.²⁶ Gobhi sarson (*Brassica napus*) and karan rai (*Brassica carinata*) are the new emerging oilseed crops having limited area of cultivation. Gobhi sarson is a long duration crop (more than 155 days) confined to Punjab, Himachal Pradesh and Haryana. Despite the high quality of oil

and meal and also its wide adaptability for varied agro-climatic conditions, the area, production and yield of rapeseed-mustard in India have been fluctuating due to various biotic and abiotic stresses coupled with India's domestic price support programme. Nevertheless, the crop has potential to ensure the nutritional security and contribute to livelihood security. The highest productivity is in Gujarat (1396 kg/ha), Haryana (1343 kg/ha) and Rajasthan (1185 kg/ha) with overall national yield of 1151 kg/ha.²⁷ However the average yield in the study area is 747 Kg/ha which is below the national yield (Table 1).

Table 1: Summary sheet of front line demonstrations (FLD's) conducted in study area.

SN	Names of farmer	Mean yield (kg /ha)		YIOF P (%)	COC (Rs/ha)		GMR (Rs/ha)		ANMR (Rs/ha)	B: C Ratio	
		IP	FP		IP	FP	IP	FP		IP	FP
1	Sarla Devi Sushma Devi Suneeta Devi Trilok Kumar Chamlel Singh Vijay Kumar Sandeep Kumar Raj Kumar Kushla Devi Bholi Devi	650	525	24	12000	12200	21750	16000	9750	1.8	1.3
2	Neeta Devi Mansa Devi Dharm Chand Piplan Devi Guldai Devi Hukum Chand Omkar Chand Suresh Kumar Amit Kumar Avinash Sharma	700	525	33	12000	12200	21060	16000	9060	1.7	1.3
3	Veena Devi Sanjeev Kumar Kamla Devi Anjali Manish Manmati Devi Prem Lata Gyan Chand Neeraj Suman Devi	675	525	29	12000	12200	21550	16000	9550	1.8	1.3

4	Kuldeep Chand Sunita Devi Rekha Sharma Shantam Bhardwaj Neelam Pusha Devi Soma Devi Sunil Sharma Tripta Devi Neita Devi	700	525	33	12000	12200	21060	16000	9060	1.7	1.3
5	Sapna Devi Baldev Singh Reena Devi Hoshiyar Singh Pradeep Kumar Asha Devi Parkasha Devi Sushma Sharma Bashant Ram Sharma	675	525	29	12000	12200	21550	16000	9550	1.8	1.3
6	Kiran Bala Piar Chand Rajesh Kumar Rakesh Kumar Ajudhya Devi Jaisi Ram Urmil Devo Babu Ram Roop Lal Taro Devi Chandu Lakha	1300	1050	24	12000	12200	21750	16000	9750	1.8	1.3
7	Santosh Kumari Vinod Kumar Ashok Kumar Milki Ram Dhani Ram Dalal Singh Ashok Kumar Kanshi Ram Santosh Kumari Rattan Chand	700	525	33	12000	12200	21060	16000	9060	1.7	1.3
8	S. Vaibhav Shashi Punam Hoshiyar Rajinder Tajinder, M. R Sharma Tripta Kumari Sunil Priyanka	650	525	24	12000	12200	21750	16000	9750	1.8	1.3

9	Youdhvir Hoshiyar Somdatt Suresh Vishal Promila Devi Santosh Kumari Anita Devi Usha Devi Manju Kumari Reena Kumari	675	525	29	12000	12200	21550	16000	9550	1.8	1.3
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Abbreviations used- IR: Irrigated; RF: Rainfed; YIOFP: Yield increase over farmer's practice; CoC: Cost of cultivation; GMR: Gross monetary return; ANMR: Additional Net Monetary Return; IP: Improved practices; FP: Farmers' Practices; B:C : Benefit : Cost.

CONCLUSION: Under this collaboration 90 farmers of 14 villages (namely Tikker, Bhair, Ser, Balbagh, Bindli, Cherchedi, Tooh, Mehal, Dhanwin, Lathwan, Dungri, Anu Kalan, Barot and Kot) of Hamirpur district (Himachal Pradesh) were provided seeds of rapeseed mustard (Gobhi Sarson GSC-7) during November, 2018. The crop was harvested in February-March, 2019. One Kg seeds yielded 250 Kg mustard seeds with a benefit to cost ratio of 1.75. This technology has proved great boost to enhancement of agricultural income and sustainability of farming under rain-fed agro-ecosystem.

ACKNOWLEDGEMENT: The authors are thankful to the Directorate of Rapeseed Mustard Research, Bharatpur and Indian Council for Agricultural Research for providing necessary grants for frontline demonstrations. Thanks are also due to Punjab Agricultural University Ludhiana for providing seeds for distribution to farmers.

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