Popularization of Improved Mustard Production Technology Through Frontline Demonstrations In Mahrajganj of Eastern Uttar Pradesh, India

Abstract

One of the most important oilseeds crop in India is mustard, which is used to supplement the income of small and marginal farmers. During the year 2020-21 and 2021-22, the present study was carried out at Mahrajganj district of Eastern Uttar Pradesh during the year 2020-21 and 2021-22. The effect appraisal depended on the correlation of recipient and non-recipient respondents regarding expansion in information level of recipient ranchers, degree of reception of further developed mustard creation advances and disposition of recipient ranchers towards FLDs. Development rehearses included under FLD viz., utilization of further developed assortment, line planting, adjusted use of composts, ideal weed administration and control of bug through insect spray - pesticides at monetary limit level showed that the yield of mustard expanded from 62.38 to 74.49 percent over rancher's training during the demonstration period from 2020-21 to 2021-22.

Key Words: Frontline demonstrations, Extension gap, Technology gap, Technology index, Mustard & transfer of technology

Introduction

Mustard (Brassica juncea L.) is a significant Rabi season oilseed crop; has a place with family Cruciferae and class Brassica. The interest for rapeseed and mustard oil overwhelms the creation and subsequently, India is bringing in on a normal 46.8 lakh lots of eatable oil to yearly meet its prerequisite during the last five-six years at an expense of around 10,000 crores. Rapeseed-mustard is the second most significant palatable oilseed crop in India, next just to groundnut and records for almost 30% of the absolute oilseed delivered in the country (Shivani and Kumar,2002).

India is the third biggest rapeseed-mustard maker on the planet and the fourth principal mustard consuming Country (Verma et al., 2012), possessing the main situation in region and second situation underway after China (Thakur and Sohal., 2014). In India, oilseeds represent 3% to the Gross Public Item and 10 percent to the complete worth of all In India it is become on the 35% region of the all out developed region of the world with a 16 percent share underway (Darekar and Reddy, 2018) horticultural items. India is the biggest maker of oilseeds on the planet and records for around 14% of the worldwide oilseeds region, 7% of the absolute vegetable oil

creation and 10 percent of the complete eatable oil utilization. The absolute oilseed developed area,production and efficiency of nine oilseed crops in India. during 2014-15 were 25.6 mha, 27.5 mt and 1075 ha individually (Mysterious, 2016). “Indian mustard is a significant oilseed harvest of Indian subcontinent offers more than 80% of the absolute rapeseed-mustard creation in India” (Meena 2014; Meena et al., 2015). Directing of forefront exhibitions at ranchers' field help to recognize the limitations and capability of rapeseed-mustard in unambiguous region as well as it helps in working on the monetary and societal position of the ranchers. Be that as it may, (Manan and Sharma 2017). “Cutting edge Showing is the new idea of exhibition developed by the Indian Chamber of Rural Exploration, New Delhi with the origin of the Innovation Mission on Oilseed Harvests during mid eighties” (Ghintala et al., 2018). Bleeding edge exhibit is one of the most useful assets of augmentation since ranchers, as a general rule, are driven by the discernment that 'Truth can be stranger than fiction' (Sharma et al., 2011). The fundamental goal of FLD is to exhibit recently delivered crop creation and security advancements at the ranchers' field under various agro-climatic circumstances and cultivating circumstances (Chaudhary et al., 2018) . The accessible agrarian innovation doesn't fill its need till it comes to and embraced by its definitive client, the rancher. The creation and efficiency of the rapeseed-mustard are not satisfactory in that frame of mind because of purpose of low quality of seeds, pervasion of illnesses and assault of bug bothers from planting to reaping. Among, the bug bothers mustard aphid, L. erysimi is considered as restricting elements in the fruitful development of rapeseed-mustard. The provinces of mustard aphid feed on the new shoots, inflorescence and underside of leaves which cause misfortune in yield up to 75-91.3 percent (Kumar et al., 2011; Singh and Sachan, 1994; Sharma and Kashyap, 1998) and 15 percent in oil content (Verma and Singh, 1987). As such there generally seems, by all accounts, to be a hole between the suggested innovation by the researcher and it's changed from at the rancher's level. The innovation hole is consequently the serious issue in the endeavors of expanding horticultural creation in the country. A need of the day is to diminish the innovative hole between the horticultural innovation suggested by the researcher and its acknowledgment by the ranchers on their field. Considering the above factors, cutting edge exhibitions were embraced in a precise way on rancher's field to show the value of another assortment and persuade the ranchers to take on superior development practices of Mustard for expanding efficiency of Mustard. Keeping in view the current examination endeavors to concentrate on the yield hole between bleeding edge

showing trails and ranchers yield, stretch out of innovation reception and advantage cost proportion.

Materials and Methods

Forefront exhibits on rapeseed-mustard (Var. RH 0749) were led by Krishi Vigyan Kendra, Mahrajganj locale of Eastern Uttar Pradesh during the year 2020-21 and 2021-22.Keeping considering a compelling expansion approach of FLDs for advocacy of further developed mustard creation innovation by Krishi Vigyan Kendra, Mahrajganj under Acharya Narendra Deva College of Agrarian and Innovation, Ayodhya (UP) were directed at rancher's fields of block-Nichlol town Bisokhore and block-Ghughli, town Pakriyar Bishunpurwith mustard assortment RH 0749 . For directing cutting edge showing ranchers were chosen from embraced towns following the seat mark study. Preceding directing FLD's a preparation program on creation and security innovations of rapeseed-mustard crop were likewise coordinated. The planting was finished during end of October under guaranteed inundated conditions. Seeds were planted in columns 45 cm separated with plant to establish distance of 10 cm by drill. Cutting edge exhibits were directed at fields of 50 ranchers in the space of 20 hectare each. In show quality seeds of further developed assortment and bug the executives methods were exhibited on the rancher's field through bleeding edge show at various areas. The rancher's practices were kept up with in the event of nearby checks. Ordinary visits to the FLD's field by the KVK researchers for guaranteeing appropriate direction to the ranchers were finished. For the administration of mustard aphid, L. erysimi, foliar splash of Thiamethoxam 25 WG @ 100 gm/ha was given with the assistance of a rucksack sprayer at Financial edge level (ETL) of 50 aphids/10 cm terminal part of the focal shoot. The number of inhabitants in mustard aphid was recorded from10 cm top piece of the terminal shoot of 10 arbitrarily chosen and labeled plants from each field. Pre-treatment counts of the aphids were made 24 hours before insect spray application while post-treatment counts were made at 1, 3, 7 and 10 days after the splashing. Percent aphid mortality at every span after splash was determined. The information were exposed to investigation of fluctuation for understanding of results. . From forefront exhibition plots and ranchers practice plot (control plot) lastly augmentation hole, innovation hole, and innovation file were determined as given as equation proposed by (Samui et al. 2000 and Dayanand et al. 2012) as given below.

1. % increase over farmers practices = Improved practices – Farmers practices / farmers practices x 100
2. Technology gap = Potential yield – Demonstration yield
3. Extension gap = Demonstration yield – farmers yield
4. Technology index = [(Potential yield – Demonstration yield) /Potential yield] x 100

All the technological intervention was taken as per prescribed package and practices for improved variety of mustard crop (Table 1).

Results and Discussion

The better bundle and practices is more significant with mechanical mediation for efficiency and benefit of oilseeds. Point by point bundle and practices with mechanical mediation for suggested practice (Table 1). Sulfur is a significant enhancement for oilseed yields and it is suggested that rancher's ought to apply single super phosphate manures to meet the prerequisite of both phosphorus and sulfur in mustard. It was additionally seen that rancher's utilization foolish and un-suggested insect sprays and generally rancher's didn't utilize fungicides. Comparable perceptions were accounted for by (Singh et al., 2011).

Yield: The grain yield of exhibited field's and rancher's training is introduced in table 2. Information uncovered that normal grain yield of shown field's was higher from rancher's training in all blocks of Raigarh locale. The outcomes uncovered that normal yield of mustard under cutting edge exhibitions were 16.40 and 17.10 qha-1 as contrast with 10.10 and 9.80 qha-1 kept in rancher's training, normal yield increment of 62.38 and 74.99 percent, and unexpected return of 29295 and 36865 Rs.ha-1 , separately. The Potential grain yield (q/ha) of RH0749 from 20.00 qha-1 when contrasted with 16.40-10.10 qha-1 of existing assortment in all blocks showing appropriateness of assortment and cultivating arrangement of locale. The comparative outcomes were as per discoveries of different laborers (Singh et al., 2007, Singh et al., 2011). The improved yield in bleeding edge exhibitions (Fld's) field might be because of mindfulness and reception of bundle and practices appropriately (Table 1). The current discoveries are likewise as per the discoveries of (Sharma 2014) who found that the yield levels under ranchers' practices were generally lower than got under bleeding edge exhibit. The outcomes uncovered that expansion hole went from 6.30-7.30 qha-1 of Mahrajganj locale which demonstrated that

rancher's ought to know for reception of further developed creation innovation in mustard. There is an immense hole between the rancher's yield and further developed assortment yield according to suggested practice through bunch forefront exhibits on ranchers' field. (Vittal et al. 2005) additionally upheld that bleeding edge exhibits is superior to rancher rehearses. Innovation holes were likewise recorded of each blocks from 3.60-2.90 qha-1 . These holes might be ascribed to the variety in soil ripeness status. Also innovation list were 18.00-14.50 percent. Notwithstanding, the reception levels for the superior innovation in oilseeds require the requirement for better spread (Kiresur et al. 2001). The program of enormous scope bleeding edge show could be advocated for other oilseed crops additionally to expand rancher's pay and accomplish independence in oilseeds creation.

Economics analysis: Financial examination of bunch forefront showing on mustard uncovered that the complete return from suggested practice (Fld's) were 81308.00 Rs.ha-1 when contrasted with 48228.00 Rs.ha-1 in rancher's act of Mahrajganj area. The net gets back from 33080 Rs.ha-1 in suggested practice. Suggested practice demonstrated helpful in regard of yield and financial matters of mustard in sequential blocks of Mahrajganj Area In Eastern Uttar Pradesh.

Conclusion

The current review uncovered that RH0749, assortment of mustard gave better return and net returns in suggested practice (Fld's) than ranchers practice in the entirety of block's Mahrajganj area. The most noteworthy grain yield was ascribed to higher potential with further developed assortment, convenient planting, supplement the executives, weed administration and bug, nuisance and sickness the board in understanding of bundle and practice. Financial investigation of various boundaries uncovered that net returns and extra increase were recorded most noteworthy with suggested practice (Fld's). The review was reasoned that RH0749 in suggested practice demonstrated gainful in regard of yield and financial matters of mustard.

Table 1. Detail of package and practices for mustard cultivation

Sl No.	Technological intervention	Farmer's practice	Recommended Practice (FLD's)

1	Variety	Existing / old recommended cultivar	New Variety RH 0749
2	Seed rate (kgha-1)	6.00	5.00
3	Seed treatment.	Not practice.	Carbendazime50 WP @ 3gkg-1 seed, Thiamethoxam 25WG 2gkg-1 and 5-10 ml PSB culture
4	Sowing method/Spacing.	Broadcasting / un uniform plant population	Sowing with seed cum fertilizer drill
5	Time of Sowing	November- December	15 October- 15 November
6	Nutrient management	Imbalance use of fertilizers and 150 kg urea/ha at first and second irrigation and 100 kg DAP at sowing.	Balance fertilization as per soil test values (STV) 275 kg Urea/ha (in 3 split application at Ist, IInd and IIIrd irrigation), 525 kg SSP and 60 kg MOP at sowing
7	Weed management.	No weeding/ manually	Quizalofop-p-ethyl a.i.50gha-1 at15-20 DAS
8	Insect, pest and disease management.	No/ injudicious use of and insecticides and fungicides.	Two sprays of Thiamethoxam 25WG @ 0.5ml l-1 of water at 45 &85 days for sucking pest and one spray of Metalaxyl 35% WS 2gl-1 of water for white blister

Table 2: Performance of Front Line Demonstrations (FLD) of mustard

Year	**Area (ha)**	**Potential grain yield (q/ha)**	**Grain Yield (q/ha)**		**% increase over FP**	**Extension gap (q/ha)**	**Technology gap (q/ha)**	**Technology index**
			FLD	**FP**				
2020-21	10	20	16.40	10.10	62.38	6.30	3.60	18.00
2021-22	10	20	17.10	9.80	74.49	7.30	2.90	14.50
Mean	**10**	**20**	**16.75**	**9.95**	**68.43**	**6.80**	**3.25**	**16.25**

Table 3. Economic analysis of the cluster frontline demonstrations on mustard

Year	**Area (ha)**	**Potential grain yield (q/ha)**	**Cost of cash input**	**Additional cost in demonstrations (Rs./ha)**	**Sale price of grain (MSP) (Rs./qt)**	**Grain Yield (q/ha)**	**Total returns Rs. (ha**	**Extra returns**	**Incremental Benefit: Cost ratio**

			FLD	**FP**			**FLD**	**FP**	**FLD**	**FP**		**FLD**	**FP**
2020-21	10	20	28750	24493	4257	4650	16.40	10.10	76260	46965	29295	1.64	1.92
2021-22	10	20	29970	26321	3649	5050	17.10	9.80	86355	49490	36865	1.71	1.88
Mean	**10**	**20**	**29360**	**25407**	3953	**4850**	**16.75**	**9.95**	**81308**	**48228**	**33080**	**1.68**	**1.90**

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