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Research Article

Assessment of high yielding varieties of mustard through front line demonstration in district Hathras

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Abstract Assessment of Front Line Demonstration on Mustard Crop in Hathras District of Uttar Pradesh. The domestic requirement of oil seed had been manifold of a modern livening standard which has been fulfilled through the import that lead to imbalance the Indian economy. The aim of this study was to evaluate the influence of mustard varieties and year of production in relation of weather condition on seed yields, oil content and its quality with a focus on human nutrition value through a field study carried at three different locations in Hathras. The seed yield was significantly affected by the year of production the location and the variety. The environmental factors that negatively affected seed yield are temperature in summer, water shortage, wet and cold soil in spring. The highest seed yield reached at mid-heavy soil in the region with lower precipitation amount.R.H-749 would we recommendable for Hathras environmental condition. R.H.-749 variety gave the significantly highest oil yield.

Keywords: Seed yield, nutrition quality, oil, field production, growth conditions

Introduction

Mustard (*Brassica campestris L.)* is a traditional oil seed crop in district Hathras that represents a valuable alternative for cropping system because of the high quality of the seed oil. Which is being increasingly appreciated by consumers for cosmetic, food and eco-materials.. In India, it occupies an area of about 6.23 m hectares producing over 72.42 MT with the productivity of 1.84 tons/ha. In Uttar Pradesh, the crop is cultivating to an extent of 11.20% with a production of 10.49 lakh tones and productivity of 1.75 tons/ha. (Anon., 2018). Hathras district situated in south western semi-arid eco-system (Zone - IV) of U.P. There are 4- sub-divisions and seven development blocks in district. The small and marginal farmers are growing mustard in Rabi season as main oil seed crop of the area. Although area (11098 ha), with an annual production 14.15 Mt and productivity 17.5 q/ha under mustard crop is suffering from large number of diseases and insects. Chaudhary, R.P., Chaudhary, G.K., Prasad, R., Singh, R. and Chaudhary, A.K. (2018), S.K., Chhonkar, D.S. and Kanwat, M. (2019), Singh, G., Sirohi, A. and Malik, Y.P. (2008), Singh, S.N., Singh, V.K., Singh, R.K. and Singh, R.K. (2007).

Materials and Methods

The present study was carried out by the Krishi Vigyan Kendra, Hathras, C. S. Azad University of Agriculture & Technology, Kanpur (U.P.) during rainy seasons of two consecutive years 2017-18 to 2018-19in the farmers fields of 03-villages of Sasni block of the district in agro-climatic zone - IV of Uttar Pradesh to 2017-18 in irrigated condition on medium soils with low to medium fertility. The selected farmers of the demonstration area were of small and marginal in nature front line demonstration of mustard variety of RH-749 was conducted in 10 ha area in each year2017-18 to 2018-19.The soil samples from each adopted village were analyzed. It was found to be sand and alluvial in texture

with PH 6.5, medium in available phosphorus. Siliqua/plant, plant height at maturity (CM) was measured and numbers of branches were counted. The purpose of this frontline demonstration was to know the yield gap between improved practice and farmers practices to determine the difference in their yield attributing characters to find out the extension gap and to know reason for yield and specific constraints with the practicing farmers. Finally the extension gaps, technology gap along with the benefit cost ratio were workout. The technological gap, extension gap and technology index were calculated as suggested by Samui, *et al* .(2000).

Technology gap = Potential yield- Demonstration yield

Extension gap = Demonstration yield-Farmers yield

$$\text{Technology index (\%)} = \frac{\text{Technology gap}}{\text{Potential yield}} \times 100$$

Results and Discussion

The yield of mustard under improved practices was 23 and 24 q/ha, whereas yield under farmers practices was 17 and 17.5 q/ha during 2017 1nd 2018 respectively over farmers practice. Grain yield was found positively correlated with yield. Use of improved variety ,seed treatment before line sowing, soil test based optimal supply of nutrients and other agro-technique might have helped in better crop growth and portioning of photosynthesis. Higher gross retunes (Rs.103500 and 108000) net returns (Rs. 78500 /ha) and returns per rupee invested (4.14 and 4.32 were recorded with technological intervention during 2017-2018 respectevily.Innovative practices increased the gross return by 13 and 15.5% net return by9 and 11 % and B:C ratio 2.17and 2.25 during average mean of both the years. The higher profitability under innovative practices was attributed to higher values of yield attributes and grain yield of mustard compared to farmer's practices. Costs of cultivation were higher under innovative practices during both the year sowing of seed by seed dril, cost of improved seed and fungicides used for seed treatment. Higher growth and yield attributes, grain yield and economics mustard with response to line sowing and other agro-techniques has also advocated. This finding is in corroboration with the findings of Katare, S., Pandey, S.K. and Mustafa, M. (2011), Dayan and, V.R.K. and Mehta, S.M. (2012), Katare, S., Pandey, S.K. and Mustafa, M. (2011), Meena, R.P., Singh, B., Mitra B. and Samajdar T. (2010), Verma, S., Verma D.K., Giri S.P. and Vats A.S. (2012).The overall performance among technologies, the highest yield and increased over farmers check was in Technology-2. This finding is in corroboration with the findings of Meena, R.K. and Shinde, K.P. (2020), Singh, K.K., Singh, R.P.N. and Mishra, D. (2019),

Conclusion

The results showed that the integration of improved technology with active participation of farmers has positive effect in increase the seed yield and economic returns of mustard production. The suitable technology for enhancing the productivity of mustard crop and conduct such demonstration may lead to the improvements and empowerment of farmers. The demonstration traits also enhance the relationship and confidence between farmers and Krishi Vigyan Kendra farmers scientist. The recipient farmers of frontline demonstrations also play an important role as source of information and quality of seed for wider demonstration of the improved varieties of mustard for other nearly farmers. It is concluded that the front line demonstration programme is a successful tool in enhancing the production and productivity of mustard crop through changing the knowledge attitude and skill of farmers. These technologies further could be taken under front line demonstration programme for large scale adoption horizontal and vertical spread among brinjal grower of the district.

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