



Evaluation of Different Rajmash Cultivar for Yield and Economics under Dry Temperate Region of Himachal Pradesh

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ABSTRACT

Kinnaur, a dry temperate region of Himachal Pradesh is well known for its quality apple, off-season vegetable and rajmash production. The productivity of rajmash is lesser due to use of local strains of rajmash and non adoption of improved cultural practices. Farmers generally practice broadcast method of sowing with excessive seed rate of 2 to 2.5 times higher than recommended, which leads to poor germination and crop strand. Cluster front line demonstration was conducted during *kharif* season of years 2017 with four varieties *viz.*, Kailash, Baspa, Triloki, Jwala and local strain as check. Line sowing with recommended seed rate and other cultural practices were adopted in demonstrated varieties. Total area of 4.5 ha with 25 demonstrations was covered during the *kharif* season of 2017 in two clusters/villages. The maximum yield, gross return, net return and B:C ratio was recorded in variety Kailash followed by Triloki, Baspa and Jwala. Minimum value for yield, gross return, net return and B:C ratio was observed in local strain with farmers practice.

Key Words: Dry temperate region, Line sowing, Rajmash.

INTRODUCTION

Rajmash is widely cultivated in the tropics, sub-tropics and temperate regions across the globe. In the dry temperate region of Himachal Pradesh rajmash is an important cash crop of kharif season. Being a crop of every household, this pulse crop is grown in Kinnaur district in an area of 1480 ha. Taste of rajmash grown in the district is incomparable due to cooler climatic conditions. Every tourist coming to Kinnaur district buys rajmash for its rich taste and popularity. It is always in high demand in the market and farmers fetch remunerative price for their produce.

Productivity of locally available varieties is quite lesser due to continuously growing of same crop year after year and non adoption of recommended

cultural practices. Despite the fact that the economy of the farmers in cold desert and dry temperate regions is mainly dependent on apple farming followed by cultivation of rajmash, attention has not been paid to increase their productivity (Sharma and Verma, 2011). Farmers mainly grow the locally available strains. Seed rate used by them is very high due to broadcast method of sowing. Among all the agronomic practices sowing method assumes the great significance as it brings considerable change in plant environment with respect of spacing, light and availability of soil moisture and consequently influences the crop-weed competition and crop productivity (Bhargav *et al*, 2018). Different bush type varieties were evaluated along with improved cultural practices to find the performance of these varieties and to reduce the productivity gap.

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Table 1. Yield and economic performance of different varieties of Rajmash

Variety	Yield/ (q/ha)	Percent increase /decrease over check	Cost of Cultivation (Rs/ha)	Gross Return (Rs/ha)	Net Return (Rs/ha)	Cost: Benefit ratio (Rs/ha)
Baspa	20.75	70.50	62,000	2,07,500	1,45,500	2.35
Jwala	14.50	19.14	62,000	1,45,000	83,000	1.34
Kailash	21.95	80.36	62,000	2,19,500	1,57,500	2.54
Triloki	24.75	103.36	62,000	2,47,500	1,85,500	2.99
Local Strain (Check)	12.17		55,000	1,21,700	66,700	1.21

MATERIALS AND METHODS

Regional Horticulture Research and Training Station & Krishi Vigyan Kendra, Kinnaur conducted cluster front line demonstration under pulses in year 2017-18. Two villages were selected for CFLD under pulses village Rispa as Cluster I and village Nesang as Cluster II. Fifteen demonstrations covering 2.25 ha area with average 0.15 ha per beneficiary and ten demonstrations covering 2.20 ha with average 0.22 ha per beneficiary were carried out in cluster I & cluster II respectively. Through various extension approaches like trainings, method demonstrations and interactions etc. the factors contributing to low productivity like lack of know-how on improved variety, improper management practices, negligent plant protection measures were identified. Critical inputs were applied as per the package of practices for *kharif* crops recommended by the CSK HP Krishi Vishvavidyalya Palampur. The four varieties *viz.*, Kailash, Baspa, Triloki and Jwala were distributed to the farmers and locally available strain of rajmash was used as check to compare the performance of different varieties. Seed rate of 100 kg/ha at the spacing of 25-30 cm was compared with the farmers practice of broadcast method with seed rate of 250 kg/ha. Ten plants were selected at random from each plot for recording observations. Based on the net plot yield, yield per ha was calculated and expressed in quintal (q) per ha. Yield data were collected from the control and demonstration plots and cost of cultivation, net income and benefit: cost

ratio was computed. The economical assessment was done as per prevailing market prices.

RESULTS AND DISCUSSION

A comparison of productivity level from table 1 revealed that Triloki variety recorded the maximum yield of 24.75q/ha followed by Kailash, Baspa and Jwala. The minimum yield of 12.17 q/ha was recorded in the Local Strain (Check). The highest yield of variety Triloki may be due to genetic potential of variety and improved cultural practices of line sowing and recommended seed and fertilizer dose. The minimum yield in check variety may be due to varietal degeneration as farmers are growing same variety year after year. The reason of low productivity may be due to non adoption of recommended practices. Farmers grow through broadcast method of sowing which results poor seed germination as seeds are placed either on the surface of soil or deep in the soil. The similar results of low yield in broadcast method of sowing were also reported by Kumar *et al* (2018) in pea crop. The productivity of local varieties was observed to be low because of non adoption of available technologies by the farmers. Chandra *et al* (2005), Rajput *et al* (2016) and Sharma and Singh (2020) have shown similar trend of yield results. The maximum percent increase over check was also recorded in Triloki (103.36 %) followed by Kailash, Baspa and Jwala (Fig.1).

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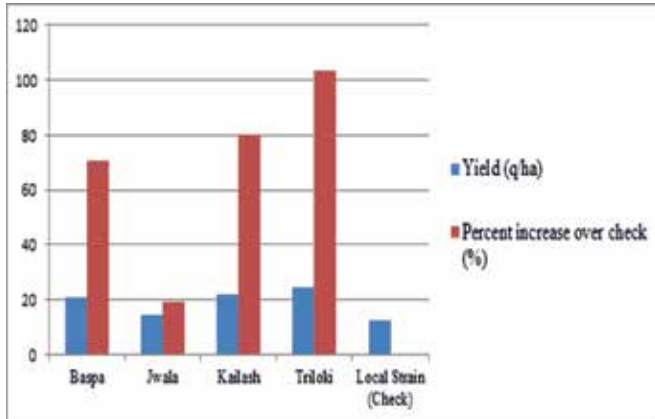


Fig. 1 : Yield of different varieties and percent increase over check

Maximum gross return (Rs. 2,47,500/-), net return (Rs. 1,85,500/-) and B:C (2.99) ratio were also observed in variety Triloki having highest yield potential followed by Kailash, Baspa and Jwala (Fig. 2). The lowest gross return and net return of check or farmers practice was due to low productivity of local strain and minimum cost benefit ratio in farmers practice was due to higher seed rate application in broadcast method of sowing besides low yield.

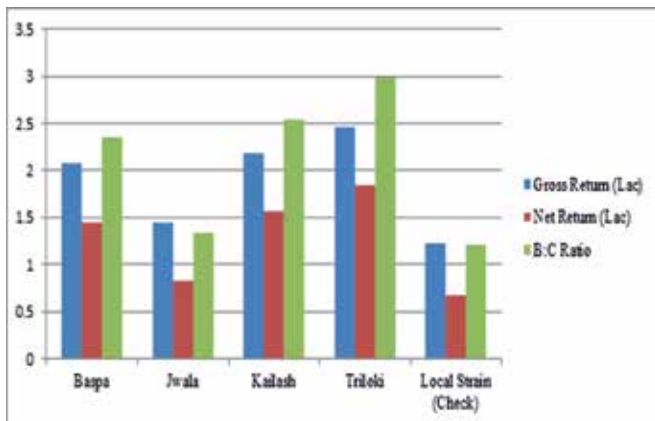


Fig. 2: Gross return, net return and benefit: cost ratio of different varieties

CONCLUSION

It was concluded from the present study that farmers of the tribal region of district Kinnaur can obtain high yield with the adoption of improved varieties and recommended cultural practices. Percent increase in yield was obtained up to 103.36 % in high yielding cultivars with the adoption of improved varieties and recommended cultural practices.

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