

Yield Gap Analysis of Vegetable Varieties in Kargil District of Jammu and Kashmir

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ABSTRACT

The study has conducted by Krishi Vigyan Kendra, Kargil in the state Jammu and Kashmir to know about the gaps in performance of high yielding varieties of vegetables in Front Line Demonstrations and farmers' practices. The demonstrations were conducted on three vegetable varieties namely Arkel (Pea), Red Coral (Onion) and Mitra (Cabbage) during the period 2013-14 to 2015-16. The results indicates that adoption of high yielding varieties of vegetables have increased the production of the vegetables in the district. Also return from the high yielding varieties were high indicating ample scope for the vegetable growers in the district. The extension gap is found to be higher in all the three varieties. So there is a need to strengthen the extension approaches to encourage the wider adoption of high yielding varieties so as to increase the production of vegetables and to reduce the demand- supply gap of the vegetables in the district.

Key words: Extension gap, front line demonstration, technology gap, yield gap

INTRODUCTION

The district Kargil is lying in cold arid region of India which is characterized with low temperature, low precipitation in the form of snow, windy high evaporation rate and short duration season. The district is spread over 14036 Square Kilometers of which 19437 hectare is cultivable land constituting only 1.38 per cent of the total district geographical area. Agriculture system in the district is irrigated in which major crops grown are barley, wheat, fodder, pulses millets and vegetables. Even though total cultivable area is low, vegetable production has now has gained the attention in the district. The vegetable crops grown are mainly sold in large amounts to defense establishment and as well as in local market (Tewari, 2014). According to the official website of the Kargil district, against the requirement of 6600 tonnes of vegetables only 2500 tonnes of vegetables are produced in the district. In order to bridge the demand supply gap in vegetables recently state had also intervened to increase the vegetable production by distributing the improved varieties at subsidized rate. This offers huge opportunities for the vegetable growers in the district.

In this context, the opportunities to increase the vegetable production in the region has to be studied at the field level. The Front Line Demonstrations (FLDs) are

very good tools to analyze the production and productivity performance of the vegetable varieties. Hence, KVK, Kargil has conducted FLDs on the performance of improved varieties of three widely cultivated vegetables namely Arkel (Pea), Red Coral (Onion) and Mitra (Cabbage) during the period 2013-14 to 2015-16. The soil condition in the study area is sandy to sandy loam.

METHODOLOGY

The present study has conducted by the KVK, Kargil in the villages of Kargil for three consecutive years from 2013-14 to 2015-16 to assess the performance of high yielding varieties of onion, pea and cabbage. During this period a total of 145 Front Line Demonstrations were conducted covering 7 hectares of area under these three vegetable crops. The soil characteristics in the study area is sandy to Sandy loam with soil pH ranging from 6.8-8.3. The average yield of vegetable varieties from both demonstrations and farmers field were recorded and their technology gap, extension gap and economic analysis were worked out as follows:

Technology Gap= Potential Yield- Demonstration Yield

Extension Gap= Demonstration Yield- Farmers' Yield

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B.C. ratio= Gross return/Total cost

RESULTS AND DISCUSSION

The yield gap analysis of varieties cabbage, onion, and pea is given in the Table 1. The results indicates that yield in demonstration plot is higher compared to farmers field for all three vegetables varieties. However, yield of varieties have been fluctuating over the years which might be due to the changes in various weather and climatic parameters in the district and also due to the changes in locations of trials.

The data revealed that in the case of pea higher

percentage increase in yield was observed in the year 2015-16 where lower percentage increase was observed in 2014-15. Extension gap in pea was ranging from 2 Q/ha to 13 Q/ha while the technological gap was ranging from 7 Q/ha to 18 Q/ha. The average extension gap and average technological gap in pea over three years were 7 Q/ha and 12 Q/ha respectively. In the case of onion extension gap was found to be 64 Q/ha, 73 Q/ha and 54 Q/ha where respectively in three years with average gap recorded at 63 Q/ha. The technological gap was 21 Q/ha, 19 Q/ha, 26 Q/ha over three years with average value of 63 Q/ha. The extension gap in cabbage was observed to be more than 40 Q/ha in three years with average technological gap of 18 Q/ha. Highest extension gap and technological gap for cabbage were recorded in 2014-15.

Table 1: Gap analysis of different vegetable varieties in farmers' field

Year	Crop	Variety	No. of demonstrations	Potential yield (Q/ha)	Demonstration yield (Q/ha)	Farmers yield (Q/ha)	% increase over farmers' yield	Extension Gap (Q/ha)	Technology Gap (Q/ha)
2013-14	Pea	Arkel	10	120	113	107	6	6	7
	Onion	Red Coral	12	400	379	315	20	64	21
	Cabbage	Mitra	19	400	385	340	13	45	15
2014-15	Pea	Arkel	10	120	102	100	2	2	18
	Onion	Red Coral	29	400	381	308	24	73	19
	Cabbage	Mitra	15	400	365	310	18	55	35
2015-16	Pea	Arkel	30	120	108	95	14	13	12
	Onion	Red Coral	10	400	354	320	11	54	26
	Cabbage	Mitra	10	400	396	325	22	71	4

The gap analysis of three varieties indicated that extension gap is higher as compared to the technological gap. This is also indicative that farmers need to be educated regarding the adoption and cultivation practices of high yielding varieties. Through proper extension practices the yield of all three vegetables can be increased in the farmers' field.

The economics of high yielding varieties in both

demonstration and farmers field is presented in table 2. The analysis indicated that adoption of improved varieties not only increased the yield but also increased the economic benefits as indicated by the higher benefit- cost ratio in the demonstration as compared to the farmers' practices. As compared to the farmers' practices, the average gross returns were higher for all the three varieties in all three years depicting higher profitability in vegetable cultivation in the district.

Table 2: Economic Analysis of vegetable varieties in farmers' field

Year	Variety	Demonstration (₹/ha)				Farmers (₹/ha)			
		Gross cost	Gross return	Net Return	B C Ratio	Gross cost	Gross return	Net Return	B C Ratio
2013-14	Arkel	91960	218025	126065	2.37	78980	160500	81520	2.03
	Red Coral	161600	360050	198450	2.23	138800	267000	128200	1.92
	Mitra	180000	527250	347250	2.93	155000	370000	215000	2.39
2014-15	Arkel	148000	405000	257000	2.74	128600	275000	146400	2.14
	Red Coral	215000	616500	401500	2.87	200000	390000	190000	1.95
	Mitra	198500	411000	212500	2.07	187500	310000	122500	1.65
2015-16	Arkel	169300	512500	343200	3.03	115500	312500	197000	2.71
	Red Coral	323055	1114550	752750	3.45	265000	604590	339590	2.28
	Mitra	117000	296000	179000	2.53	108500	185000	76500	1.71

CONCLUSION

The front line demonstration conducted by the KVK, Kargil, revealed that adoption of high yielding varieties of vegetables have resulted in higher production and higher return with the recommended practices. The extension methodologies have to applied in the district to encourage the farmers for adoption of the cultivation of improved vegetable varieties. This will increase the income of the farmers as well as it reduces the demand-supply gap in the vegetable production.

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REFERENCES

Bhargav, K.S., Pandey, S. S., Sharma, R.P., Singh, A., and Kumar, A. (2015). Evaluation of front line demonstration on chickpea in Dewas district, *Ind.J.Ext.Edu*,51:159-161.

Dayanand, Verma, R.K., and Mehta, S.M. (2012). Boosting mustard production through front line demonstrations, *Ind.Res.J.Ext.Edu*, 12:121-123.

Kumar, J., Singh, Y.P., Rana, and D.K. (2014). Yield and

gap analysis of Wheat (*Triticum aestivum*) productivity in NCR of Delhi, *Ind.J.Ext.Edu*,50:56-58.

Singh, D.V., Mukhi, S.K. and Mohapatra, M.R. (2016). Yield gap analysis of Toria (*Brassica campestris*) through front line demonstration in Khandamal District of Odisha *Ind.J.Ext.Edu*,52:167-170.

Tewari, J.C. (2014). Changing facets of farming systems in cold desert of the country, *Popular Kheti*, 2(3): 1-2.

Yadav, D.B., Kamboj, B.R. and Garg, R.B. (2004). Increasing the productivity and profitability of sunflower through front line demonstrations in irrigated agro eco system of eastern Haryana, *Haryana. J.Agron*, 20:33-35.