

Research Article

## Impact analysis of field demonstrations of different temperate vegetables in Kullu Valley

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**SUMMARY :** The present study was carried out to know the yield gaps between improved package and practices (IP) and farmers practice (FP) of different temperate vegetables. Yield variations were quite large during the year 2007-2011. In total 265 front line demonstrations were conducted during the period on improved package and practices (IP) v/s farmers practices (FP). The averages per cent increase in yield of IP over FP were in cauliflower (22.72), cabbage (22.34), capsicum (21.77) and carrot (21.76). The range of per cent increase over FP was observed in cauliflower from 19.80 to 24.33, cabbage from 20.64 to 25.12, capsicum from 19.53 to 22.77 and in carrot from 19.90 to 25.25 with IP. Newly developed varieties/hybrids have added advantage in cauliflower from 20.10 to 31.79, cabbage from 23.69 to 31.95, capsicum from 38.55 to 49.39 and in carrot from 28.35 to 37.29 per cent higher yield as compared to the existing cultivars.

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Key Words :

Field demonstration,  
Improved package and  
practices (IPP),  
Farmer practice (FP)

### BACKGROUND AND OBJECTIVES

The vegetables are the most important to the human diet for better health, because they possess high nutritive value and are rich source of carbohydrates, proteins, vitamins and minerals. The selection of field demonstrations area in Kullu Valley of Himachal Pradesh was due to the very good conditions for temperate vegetable production of the same. Hence, the area was suitable for both that the vegetable production and their breeding for most of the temperate types of vegetables. The summer being mild is suitable for many sub-tropical important vegetables. Still in this area, the vegetable production is low, because the improved cultivation practices are not adopted by the vegetable growers for high production by adopting the improved package of practices at their own field.

Tharas, Mathogi, Bara Bhui and Zia in order to demonstrate the production potential benefits of latest technologies *vis-à-vis* traditional farming practices. The purpose of these field demonstrations was to know the yield gap between field demonstrations and farmers field and to find out the reasons for low yield and specific constraints with the small farmers. The information on output data and inputs used per Bigha was collected from the field demonstration's trails. Yield gap was calculated by using the following formula:

**Yield of field demonstration – Yield of farmers field**

### OBSERVATIONS AND ANALYSIS

The data in Table 1 showed that the yield variations were quite large during the year 2007-2011. In total 265 front line demonstrations were conducted during the period on improved package and practices (IP) v/s farmers practices (FP). The averages percent increase in yield of IP over FP was in cauliflower (22.72), cabbage (22.34), capsicum (21.77) and carrot (21.76). The range of

### RESOURCES AND METHODS

Field demonstrations in temperate vegetables were conducted from *Kharif* 2007 to *Kharif* 2011 at various fields' locations *i.e.* in Hurla,

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**Table 1: Yield variation between improved package of practices and farmers' practices**

Year	No. of demonstration	Improved package of practices (IPP) (t/ha)	Farmers practices (FP) (t/ha)	% increase over farmers practice
<b>Cauliflower</b>				
2007	14	23.8	19.2	23.95
2008	14	22.9	18.5	23.78
2009	15	23.5	18.9	24.33
2010	13	24.1	19.8	21.72
2011	14	23.6	19.7	19.80
Total	70	23.58	19.22	22.72
<b>Cabbage</b>				
2007	14	25.8	21.2	21.70
2008	13	24.9	20.3	22.66
2009	14	26.3	21.8	20.64
2010	14	24.9	19.9	25.12
2011	15	24.8	20.4	21.57
Total	70	25.34	20.72	22.34
<b>Capsicum</b>				
2007	13	24.6	20.1	22.39
2008	12	25.1	21.0	19.53
2009	13	25.3	20.8	21.63
2010	14	23.9	19.5	22.56
2011	13	24.8	20.2	22.77
Total	65	24.74	20.32	21.77
<b>Carrot</b>				
2007	11	24.6	20.1	22.39
2008	12	25.1	20.9	20.09
2009	13	24.8	19.8	25.25
2010	11	24.6	20.3	21.18
2011	13	25.3	21.1	19.90
Total	60	24.88	20.44	21.76

per cent increase over FP in cauliflower from 19.80 to 24.33, cabbage from 20.64 to 25.12, capsicum from 19.53 to 22.77 and in carrot from 19.90 to 25.25 with IP.

Raising the productivity of temperate vegetables through high yielding hybrids is an important component. Table 2 indicate that the newly developed varieties/hybrids have

added advantage in cauliflower from 20.10 to 31.79, cabbage from 23.69 to 31.95, capsicum from 38.55 to 49.39 and in carrot from 28.35 to 37.29 per cent higher yield as compared to the existing cultivars.

Appropriate agro-techniques are necessary to realize profitable yields from vegetable production. The major

**Table 2: Impact of newly developed varieties compared to existing varieties**

Year	Improved varieties/hybrids (IVH)	Number of demonstration's conducted	Local check (LC)	Vegetable yield (t/ha)		% increase
				IVH	LC	
<b>Cauliflower</b>						
2007	PSB K – 25	14	PSB K – 1	24.2	18.3	24.38
2008	PSB K – 25	14	PSB K – 1	22.1	18.4	20.10
2009	PSB K – 25	15	PSB K – 1	23.5	19.2	22.39
2010	PSB K – 25	13	PSB K – 1	25.4	19.9	27.63
2011	PSB K – 25	14	PSB K – 1	22.8	17.3	31.79
	Average	14		23.6	18.62	25.26
<b>Cabbage</b>						
2007	KGMR – 1	14	Golden Acre	25.6	19.4	31.95
2008	KGMR – 1	13	Golden Acre	26.1	21.1	23.69
2009	KGMR – 1	14	Golden Acre	25.3	19.9	27.14
2010	KGMR – 1	14	Golden Acre	24.8	19.5	27.18
2011	KGMR – 1	15	Golden Acre	23.9	18.4	29.89
	Average	14		25.14	19.66	27.97
<b>Capsicum</b>						
2007	Pusa Deepti	13	California Wonder	24.8	16.6	49.39
2008	Pusa Deepti	12	California Wonder	24.6	17.6	39.77
2009	Pusa Deepti	13	California Wonder	23.8	16.8	41.67
2010	Pusa Deepti	14	California Wonder	25.1	17.7	41.81
2011	Pusa Deepti	13	California Wonder	24.8	17.9	38.55
	Average	13		24.62	17.32	42.24
<b>Carrot</b>						
2007	Pusa Nayanjyoti	11	Pusa Yamdagni	25.4	18.5	37.29
2008	Pusa Nayanjyoti	12	Pusa Yamdagni	26.4	19.6	34.69
2009	Pusa Nayanjyoti	13	Pusa Yamdagni	25.3	18.8	34.57
2010	Pusa Nayanjyoti	11	Pusa Yamdagni	23.8	17.9	32.96
2011	Pusa Nayanjyoti	13	Pusa Yamdagni	24.9	19.4	28.35
	Average	12		25.16	18.84	33.57

components of agro technologies for the system consist of tillage and seed bed preparation, seeding techniques, seed rate, planting geometry, varietal options, nutrient management, water management, plant protection measure, hoeing and weed management. Vegetables require fine seed bed for proper emergence and establishment of seedling. Therefore, timely and optimum tillage are major considerations for achieving satisfactory crop stand, promote soil aeration, water retention in root zone and availability of water to the crop. Selections of varieties have wide options for vegetables and should be selected to specific requirement of farming situations. Thus, for adoption of complete package of practices, balanced fertilizer use not only increases crop yield but also improves farmers profit. To achieve the potential yield, weed, insect pests and disease should be controlled to save the crop from heavy loss of the yield. The results are also in a accordance

with the findings of Birthal and Sant (2004), Mathe 2005 and Rathod (2009).

### Conclusion:

Front line demonstrations are to be planned in such a way so that the productivity of vegetables enhances with all the sustainable measures. Integrated nutrient management, weed management and moisture conservation practices should be on priority in this regard. Innovative/indigenous/traditional farmers' practices may be incorporated in agronomic requirements for sustaining the yielding levels. The day is not so far when the vegetables will have a definite place in enhancing the food security base in the coming years.

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