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DISSEMINATION OF IMPROVED PRODUCTION TECHNOLOGIES OF SOLANACEOUS VEGETABLES IN BANSWARA DISTRICT OF RAJASTHAN THROUGH FRONTLINE DEMONSTRATIONS

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ABSTRACT

The solanaceous vegetables (i.e. Tomato, Brinjal and Chilli) cover largest area in total vegetable production in Banswara district of Rajasthan. One of the major constraints of low productivity of these vegetables is lack of technical know how of newly generated technology among farmers. The present study named dissemination of improved production technologies of solanaceous vegetables in Banswara district of Rajasthan through frontline demonstrations and its impact assessment. A total of 214 frontline demonstrations were conducted on 214 farmer's fields. Out of total 214 demonstrations, 111 on tomato, 31 on brinjal and 72 on chilli were conducted during 2007-08 to 2010-11. The percentage increase in the yield over local check was 28.77 to 56.00 % in tomato, 21.43 to 25.76 % in brinjal and 29.17 to 66.67 % in chilli. By conduction of frontline demonstrations on farmer's field there was significant increase in knowledge level of the farmers and majority of farmer's showed high level of satisfaction about demonstrated technologies.

INTRODUCTION

The Solanaceous vegetables cover largest area and play an important role in our total vegetable production. With the search of new technology, now most of the solanaceous vegetables are available during most period of the year. Considering the changing scenario in demand of vegetables, there is further need for increasing quality vegetables production in country by the transfer of improved new technology in farmer community. Keeping in view the significance of transfer of technology, the present study was planned to find out the yield gap between demonstration trials and farmer's field, extent of technology adoption, monitory returns from different vegetables and convinving farmers to adopt improved production technologies of solanaceous vegetables for increasing productivity of these crops.

RESEARCH METHODOLOGY

The present study was conducted in the Banswara district of Rajasthan during 2007-08 to 2010-11 under National Horticulture Mission for dissemination of production and protection technologies of vegetables through frontline demonstrations. Total 214 frontline demonstrations were conducted on 214 farmer's fields. Out of total 214 demonstrations, 111 on tomato, 31 on brinjal and 72 on chilli were conducted. Each demonstration was conducted on an area of 0.2 ha and the some area adjacent to the demonstration plot was kept as farmer's practices (local check). The package of improved technologies comprising high yielding hybrid seeds, integrated balanced nutrient management and proper plant protection measures were used as per package and practices of each crops. The cross sectional data on yield of different solanaceous vegetables have been collected from the demonstration trials. In addition to this, data on traditional practices followed by the farmers have also been collected. Yield of the demonstration trials and potential yield of the respective crops were compared to estimate the yield

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gaps which were further categorised into technology and extension gaps. The knowledge level and farmers satisfaction about demonstrated technologies were also find out by adopting standard techniquines.

RESULTS AND DISCUSSION

Performance of FLD

A comparison of productivity levels between improved practices in demonstration trials and local checks is shown in table 1. During the study period it was observed that the adoption of improved production technologies in demonstration trials has increased the yield over the local check.

The percentage increase in the yield over local check was 28.77-56.0 in tomato, 29.17-66.67 in chilli and 21.43-25.76 in brinjal, respectively (Table 1). Similar yield enhancement in different crops in frontline demonstrations were reported by Singh (2000), Haque (2000) & Kumar et al (2010). From results it is evident that the performance of improved technologies was found better than the farmer's practices under local conditions. Farmers were motivated by results of improved technologies applied in the FLDs trials and it is expected that they would adopt these technologies in the coming years.

Yield of the demonstration trials and potential yield of the respective crops were compared to estimate the yield gaps which were further categorised into technology and extension gaps. The technology gap was highest in ujala variety of chilli (110 q ha-1) and lowest in 706 variety of brinjal (25 q ha-1). Though the demonstration trials were laid out under the supervision of multidisciplinary team of scientists in farmer's field, there exists a gap between the potential yield and the trial yield. This may be due to the soil fertility, managerial skills of individual farmer's and climatic condition of the area. Hence, location specific recommendations are necessary to bridge the gap.

The extension gap for all the crops was higher as compared to the technology gap, which emphasised the need to educate the farmers in adoption of new improved technology to narrow these extension gaps (Table 1). Higher gaps were

Table 1: Yield, technology gap and technology index of frontline demonstrations

Crop	Year	Variables	Average Yield ($q\ ha^{-1}$)	% Increase Over Local Check	Technology Gap ($q\ ha^{-1}$)	Technology Index (%)
Tomato (Pusa hybrid-2)	2007-08	Local Check	420	-		
		Demonstration	550	30.95	50	8.33
Tomato (Pusa hybrid-1)		Local Check	300	-		
		Demonstration	460	53.33	40	8.00
Brinjal (706)	2008-09	Local Check	350	-		
		Demonstration	425	21.43	25	5.55
Chilli (Jawala)		Local Check	85	-		
		Demonstration	120	29.17	38	24.05
Tomato (Maharaja)		Local Check	365	-		
		Demonstration	470	28.77	70	12.96
Brinjal (706)	2009-10	Local Check	330	-		
		Demonstration	415	25.76	35	7.77
Chilli (Ujala)		Local Check	65	-		
		Demonstration	90	38.46	110	55.00
Tomato (Maharaja)		Local Check	300	-		
		Demonstration	468	56.00	72	13.33
Brinjal (706)	2010-11	Local Check	350	-		
		Demonstration	425	21.43	25	5.55
Chilli (Ujala)		Local Check	78	-		
		Demonstration	130	66.67	70	35.00

also recorded by Singh (2000) in solanaceous crops. The extension gap (52 q ha-1) was highest in ujala, a new variety of chilli.

The adoption of technology in demonstration trials was studied through technology index. Technology index shows the feasibility of the evolved technology on farmer's field. The lower the value of the technology index more is the feasibility of the technology. The technology index was highest in chilli (variety ujala) among the different solanaceous vegetables and lowest in brinjal (variety 706) (Table 1). This indicates that in all the vegetables, gap exists between the technology generated at research station and farmer's field. The findings of the present study are in line with the findings of Hiremath and Nagaraju (2009).

MONETARY RETURNS

The economics of solanaceous crop production under frontline demonstrations were estimated and the results have been presented in table 2. The comparative profitability of different solanaceous vegetables revealed that among the vegetables, brinjal produced maximum gross & net returns which might be due to the higher market price, longer fruiting period and profitable over other crops while the lowest returns was recorded in chilli. These results are in line with the findings of Sharma (2003) and Hiremath and Nagaraju (2009).

Table 2: Monetory returns from various solanaceous vegetables

Crop	Cost of Cash Inputs (Rs/ha)	Gross Returns (Rs/ha)	Net Returns (Rs/ha)
Tomato	20000-29400	181800	157100
Brinjal	17600-25850	210833	189108
Chilli	19750-26300	169500	146475

Increase in Knowledge

Knowledge level of respondent farmers on various aspects of improved production technologies of solanaceous crops before conducting the frontline demonstration and after implementation of the FLD programmes was measured and compared by applying dependent 't' test. The data presented in table 3 reveals that farmer's mean knowledge score had increased by 32.55 to 102.5 after implementation of FLDs. The increase in mean knowledge score of farmers was observed significantly higher. It means there was significant increase in knowledge level of the farmers due to training of farmers at KVK and frequently suggestions given by scientists during visit of frontline demonstration at farmer's field.

The satisfaction level of respondent farmers over extension services and performance of

Table 3: Comparison between knowledge levels of the respondent farmers about improved production technologies of various solanaceous vegetables

S. No.	Crop	No. of respondent (n)	Mean Score		Mean Score Gap	Calculated 't' Value
			Before FLD Conduction	After FLD Conduction		
1	Tomato	111	85	187.5	102.5	3.025
2	Brinjal	31	26.35	58.9	32.55	4.096
3	Chilli	72	57.6	141.2	83.6	4.863

't' at 0.05 per cent of probability

Table 4: Farmer's satisfaction level about of extension programme executed

S. No.	Crop	No. of respondent (n)	Satisfaction level		
			Low	Medium	High
1	Tomato	111	00	45 (40 %)	66 (60 %)
2	Brinjal	31	00	12 (39 %)	19 (61 %)
3	Chilli	72	00	15 (20 %)	57 (80 %)

demonstrated interventions were measured and results reported in table 4. As per an overall view of satisfaction level the respondents were divided into three groups viz. low satisfaction group < 33, medium satisfaction group (34 to 49) and high satisfaction group (> 49). The groups were based on the calculated mean and standard deriation of the satisfaction level obtained by the respondents. The results of the same are presented in table 4. It is further cleared that non of farmers was found in low satisfaction group with the demonstrated technologies. Majority of farmers in all the crops are belonging from highly satisfied group. The medium to high level of satisfaction about demonstrated technologies indicate stronger conviction, physical and mental involvement in the FLDs which helps in higher adoption.

CONCLUSION

Thus it is concluded that the frontline demonstrations of solanaceous vegetables on improved of technologies (high yielding hybrid seeds, balanced nutrient management and proper plant protection measures) significantly increased the yield give higher monetory returns and farmers satisfaction than the traditionals practice of production of these crops.

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