

## Research Article

# Impact of demonstrations of farmers fields in agro climatic zone II-A of Rajasthan

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**SUMMARY :** An attempt has been made to study on impact of demonstration on farmers fields in adopted villages of Sikar district. The yield gap, input gap, cost and return were calculated for purpose of the study. The survey covered 40 farmers from 4 adopted villages where wheat, barley, gram and mustard demonstration (full technology) were conducted in adopted villages. In each village, 10 demonstrations were conducted. From each village, 10 farmers were selected who have adopted traditional practices for crop cultivation. The results indicated that yield gap per hectare between demonstration plots and farmers practices was 15.71, 23.70, 29.17 and 20.00 per cent for wheat, barley, gram and mustard, respectively. On farmers practices, overall inputs gap was about 21 per cent for wheat, barley and mustard and 33 per cent for gram as compared to demonstration. Thus, there is more scope to raise the mustard, gram, barley and wheat productivity by improving the techniques of production rather than by raising the input use levels. The results further revealed that the cost of cultivation per hectare on demonstration plots was Rs. 16854, Rs. 15110, Rs. 13622 and Rs. 12415 for wheat, barley, gram and mustard while on farmers fields it was Rs. 13883, Rs. 12445, Rs. 10301 and Rs. 10227 for wheat, barley, mustard and gram, respectively. The net return per hectare was the highest for mustard followed by wheat, barley and gram. While on farmers practices, it was highest for wheat followed by mustard, barley and gram. The increase of net return on demonstration plots over farmers' practices was 26.79, 24.75, 19.25 and 9.43 per cent for barley, gram, mustard and wheat, respectively.

**KEY WORDS :**

 Impact,  
 Demonstrations,  
 Agro climatic zone

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## BACKGROUND AND OBJECTIVES

Rajasthan state is divided into ten agro-climate zones. Zone IIa covers four districts namely Sikar, Jhunjhunu, Nagaur and parts of Churu district. Wheat, barley, gram and mustard are important *Rabi* crops in the zone which occupied 11, 20, 23 and 9 per cent area and 10, 17, 33 and 9 per cent of production of the state, respectively. The average productivity per hectare was 2660 kg for wheat, 2556 kg for barley, 1123 kg for gram and 1280 kg for mustard. The productivity was low of these crops in the zone due to poor adoption of recommended technology.

The basic purpose of the full technology demonstration is to test of research findings on farmers' fields and to get direct feedback from the

farmers to help the scientists to reorient their research and training programmes. These demonstrations are mainly conducted on various crops to boost their production and productivity by using the latest technologies. Hence, the present study was undertaken to assess the yield and inputs gap between demonstration plots and farmers practices. Looking to these facts, the present study was conducted in adopted villages of Sikar tehsil of Sikar district with the following specific objectives :

- To assess the inputs and yield gaps between demonstration plots and farmers fields,
- To work out the costs and returns of demonstration plots and farmers practices,
- To measure the impact of demonstration on farmers fields.

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## RESOURCES AND METHODS

Four villages were adopted by the Agricultural Research Station, Fatehpur-Shekhawati from Sikar tehsil of Sikar district. Full technology demonstrations were conducted in 4 adopted villages for wheat, barley, gram and mustard crops. Ten demonstrations in each crop and each village were conducted by the scientists. Thus, in all 40 demonstrations were conducted in adopted villages. In addition to this, the same farmers from each village were also selected to use traditional practices for growing of wheat, barley, gram and mustard crops in adopted villages. The inputs and output data were collected from the selected farmers for purpose of the study.

The primary data were collected with the help of schedule and questionnaire by personal interview with the respondents. The enquiry was conducted by the survey method pertaining to year 2008-2009. Costs and returns were worked out on the basis of cost of cultivation prevalent in the study area.

## OBSERVATIONS AND ANALYSIS

The experimental findings obtained from the present study have been discussed in following heads:

### Yield and input gaps :

The yield and inputs gap per hectare between

**Table 1 : Yield and input gaps for different Rabi crops in adopted villages**

Particulars	Wheat	Barley	Gram	Mustard
Demonstration yield (kg)	4050	4175	1550	1800
Actual farmers yield (kg)	3500	3375	1200	1500
Yield gap (kg)	550 (15.71)	800 (23.70)	350 (29.17)	300 (20.00)
Input use gap (%)				
Human labour	21.22	11.66	9.57	5.76
Bullock labour	3.26	10.80	44.93	50.00
Machine labour	25.92	34.42	26.19	23.44
Seed and seed treatment (Rs.)	49.11	85.75	180.60	152.69
FYM (Rs.)	-4.76	10.00	-25.00	-3.85
Fertilizer (Rs.)	45.34	32.00	242.04	140.08
Irrigation (Rs.)	13.08	4.93	11.11	10.08
Plant protection measures (Rs.)	-	-	276.34	36.19
All inputs gap (Rs.)	21.40	21.41	33.19	20.52

Figures in parentheses are percentage of yield gap

**Table 2 : Cost of cultivation of demonstration plots and farmers practices for different Rabi crops in adopted villages (Rs./ha)**

Particulars	Demonstration plots				Farmers practices			
	Wheat	Barley	Gram	Mustard	Wheat	Barley	Gram	Mustard
Human labour	6341	5870	5278	5381	5231	5227	4817	5088
Bullock labour	760	800	700	675	736	722	483	450
Machine labour	2876	2800	2313	2438	2284	2083	1833	1975
Irrigation	2290	1490	1390	1365	2025	1420	1251	1240
Seed and seed treatment	1594	1529	1866	235	1069	878	665	93
FYM	800	880	300	250	840	800	400	260
Fertilizer	1436	990	838	1186	988	750	245	494
Plant protection	31	-	350	350	-	-	93	257
Interest on working capital	726	651	587	535	598	536	440	444
Total operational cost	16854	15110	13622	12415	13883	12445	10227	10301

**Table 3 : Impact of demonstration on farmers fields of different Rabi crops in adopted villages (Rs./ha)**

Particulars	Demonstration plots				Farmers practices			
	Wheat	Barley	Gram	Mustard	Wheat	Barley	Gram	Mustard
Main product	30375	22936	22475	30600	26250	18563	17400	25500
By product	4050	4200	875	-	3690	3388	625	-
Total gross income	34425	27163	23350	30600	29940	21951	18025	25500
Net return	17571	12053	9728	18185	16057	9506	7798	15199
% Net return over farmers practices	9.43	26.79	24.75	19.25	-	-	-	-
Benefit cost ratio	1:1.51	1:1.96	1:1.57	1:2.41	-	-	-	-

demonstration plots and farmers practices for different *Rabi* crops are given in Table 1. The yield gap between demonstration plots and farmers practices was 550 kg, 800 kg, 350 kg and 300 kg for wheat, barley, gram and mustard per hectare, respectively. The gap was quite large in gram and barley crops on farmers fields. Among the various factors of production contribution to the yield gap, difference in technique of production or difference in cultural practices between the farmers fields and demonstration plots, turned out to be the major contribution to the yield gap on the farmers fields, while all inputs use difference (money term) contributed 33.19, 21.41, 21.40 and 20.52 per cent for gram, barley, wheat and mustard, respectively. Thus, there is more scope to raise the gram, mustard, barley and wheat productivity by improving the techniques of production rather than by raising the inputs use levels in the adopted villages. The lower use of human labour on farmers fields was compared to demonstration plots. In case of wheat, the farmers were using 21.22 per cent less human labour on farmers fields. In case of gram and mustard, plant nutrients (N and P) and plant protection measures were 242.04 and 140.08 per cent and 276.34 and 36.19 per cent, respectively lower on farmers fields as compared to demonstration plots. FYM used excessive on farmers fields in wheat, gram, and mustard. The seed and seed treatment gap was quite large between the demonstration plots and farmers practices, which were 180.60 per cent for gram and 152.69 per cent for mustard. Similar results were obtained by Singh *et al.* (2007); Mitra and Samajdar (2010).

#### Cost and return :

The cost of cultivation on demonstration plots and farmers practices are given in Table 2. The cost of cultivation per hectare on demonstration plots was Rs. 16854, Rs. 15110, Rs. 13622 and Rs. 12415 for wheat, barley, gram and mustard, respectively. While on farmers practices it was Rs. 13883 for wheat, Rs. 12445 for barley, Rs. 10227 for gram and Rs. 10301 for mustard. The cost of cultivation was higher on demonstration plots for all crops as compared to farmers practices. However, total cost of inputs on demonstration plots was higher in gram (33.40 %) followed by barley (21.41 %), wheat (21.40 %) and mustard (20.52 %) as compared to farmers practices. Similar work on the related topic were done by Tiwari and Saxena (2001) and Tiwari *et al.* (2003) and the results found coincide with the present results

#### Impact of technology on farmers fields :

The impact of demonstration on farmers fields for different *Rabi* crops are given in Table 3. The net return per hectare in demonstration plots was highest for mustard (Rs. 18185) followed by wheat, barley and gram. While on farmers fields it was Rs. 16057 for wheat, Rs. 15199 for mustard, Rs. 9506 for barley and Rs. 7798 for gram. The per

cent net returns on demonstration plots over farmers practices was the highest for barley (26.79%) followed by gram, mustard and wheat (Singh *et al.*, 2008). The incremental benefit cost ratio over farmers practices was found to be 1.51, 1.96, 1.57 and 2.41 for wheat, barley, gram and mustard, respectively. If the farmers adopted recommended technology they could increase their profit ranged 9 to 27 per cent from different *Rabi* crops in the adopted villages. Singh *et al.* (2000); Singh *et al.* (2002) and Sharma and Sharma (2003) have worked on the related aspects of the present investigation from Rajasthan.

#### Conclusion :

The yield gap between demonstration plots and farmers fields was found 15.71, 23.70, 29.17 and 20.00 per cent for wheat, barley, gram and mustard, respectively. The overall input gap between demonstration plots and farmers practices was 21.40 per cent for wheat, 21.41 per cent for barley, 33.19 per cent for gram and 20.52 per cent for mustard in adopted villages. The cost of cultivation on demonstration plots was highest for wheat followed by barley, gram and mustard. The same trend was found on farmers practices. The per cent net return on demonstration plots over farmers' practices was highest for barley followed by gram, mustard and wheat.

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