

RELATIONSHIP BETWEEN TECHNOLOGICAL GAP IN THE RECOMMENDED SOYBEAN PRODUCTION TECHNOLOGY AND THE SELECTED INDEPENDENT VARIABLES

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ABSTRACT

The present study was conducted in Kota & Baran districts of Kota region, Rajasthan. Total four panchayat samities from both the districts and 12 Gram panchayats from selected panchayat samities were selected with the help of simple random sampling technique. Out of these 300 farmers from the 24 villages were selected with the help of systematic sampling technique. The results of the study revealed that the technological gap of all categories of respondents was found to be negatively and significantly related with the independent variables i.e. level of knowledge, education, social participation, source of information utilized and cropping intensity. Further, it was found that marginal farmers' technological gap was found to be negatively and significantly related with independent variable i.e. farm implements. Age was positively and significantly related with the technological gap in recommended soybean production technology.

INTRODUCTION

Soybean [*Glycine max* (L) Merrill] belongs to family Leguminosae, sub family Papilionaceae and genus *Glycine*. It is mainly grown in kharif season and occupies second place in the world followed by groundnut in oilseed production. Presently soybean is grown in many countries of the world like USA, China, India, Brazil, Argentina. India produced 21.4 million tonnes of oilseed on 22.4 million hectare area in the year 2001-02, out of which soybean contributes 5.9 million tonnes. The state of Rajasthan is ranked third in terms of both area and production of soybean in India. Area of soybean in Rajasthan is 4.79 lakh hectare, production 4.55 lakh tonnes and productivity 949 kg/ha during the year 2000-01, which also decreases in succeeding years because of the low knowledge level of the soybean grower farmers. There are a lot of independent variables that affects the acquisition of knowledge about improved soybean production technology. The technological gap has been the major constraint in harnessing yield potential of soybean in India.

In Rajasthan, soybean production and area

decreased in succeeding years whereas the potential yield which a farmer could obtain has been reported to be 30 q/ha which is less than the expected yield. This portrays a wide gap between what the farmers are actually getting and what they can get. The gap may be attributed to some reasons. The farmers are not adopting the recommended production technology of the soybean crop. They still cling to their age old traditional practices and getting lower yield. Keeping in view the above facts the present investigation has been undertaken with the following specific objective to ascertain the relationship between the technological gap in the recommended soybean production technology and the selected independent variables.

RESEARCH METHODOLOGY

The study was conducted in Kota region of Rajasthan. Two districts namely Kota and Baran were selected randomly. From each district two panchayat samities were selected with the help of simple random sampling technique. From each selected panchayat samiti, 3 Gram panchayats were selected randomly. Two villages were selected

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randomly from each selected Gram panchayats. Thus, there were 24 villages. A list of total number of soybean growers comprising of big, small and marginal from each selected village was prepared. A

sample size of 300 respondents was drawn from the list with the help of systematic sampling in which there were 74 big farmers, 94 small farmers and 132 marginal farmers.

Table 1: Relationship between independent variables and overall technological gap in the recommended soybean production technology of different categories of farmers (n=300)

S. No.	Independent variables	Co-efficient of correlation 'r' value		
		Big	Small	Marginal
1.	Knowledge	-0.453**	-0.275**	-0.405**
2.	Size of Family	-0.006	-0.095	-0.064
3.	Education	-0.640**	-0.799**	-0.794**
4.	Age	0.264*	0.268*	0.214*
5.	Caste	-0.114	0.166	0.023
6.	Occupation	-0.055	-0.183	-0.138
7.	Social participation	-0.004	-0.027	-0.178
8.	Farm power	-0.090	0.033	-0.053
9.	Farm implements	-0.170	-0.071	-0.279*
10.	Source of information utilized	-0.383**	-0.579**	-0.362**
11.	Credit behavior	0.144	0.032	0.003
12.	Cropping intensity	-0.272*	-0.976**	-0.970**

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

RESULTS AND DISCUSSION

Table 1 reveals that out of the twelve variables of the big farmers, four variables namely knowledge, education, source of information utilized and

cropping intensity were found to be negatively and significantly related with overall technological gap in the recommended soybean production technology. Whereas, only age was positively and significantly related with overall technological gap.

Table 2. Coefficient of multiple determination and partial regression of independent variables on overall technological gap in the recommended soybean cultivation of big farmers (n=74)

S. No.	Independent variables	b-value	s-error of b	t-value
1.	Knowledge	-21.959	49.833	-0.441
2.	Size of Family	-4.371	-43.207	-0.010
3.	Education	-4.271	-0.960	-4.448**
4.	Age	3.005	1.324	2.269*
5.	Caste	-44.237	23.958	-1.846
6.	Occupation	-0.894	23.989	-0.037
7.	Social participation	-27.413	41.933	-0.654
8.	Farm power	-6.235	4.064	-1.534
9.	Farm implements	-5.114	5.593	-0.914
10.	Source of information utilized	-3.868	10.620	-0.369
11.	Credit behavior	45.759	44.373	1.031
12.	Cropping intensity	-2.332	1.151	-2.026*

Determination coefficient $R^2 = 0.7375$

Multiple correlation $R = 0.8587$

F-calculated = 6.9160 with 12,61d.f.s.

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

Table 2 also reveals that in case of big farmers twelve independent variables jointly accounted for 73.75 per cent of variation in the overall technological gap in the recommended practices of soybean cultivation. Further it was also observed that 't' test of significance expressed coefficient of

regression 'b' value were negatively significant for education at 0.01 level of significance. Whereas, the cropping intensity was negatively significant at 0.05 level of probability, only age was positively significant at 0.05 level of probability.

Table 3. Coefficient of multiple determination and partial regression of independent variables on overall technological gap in the recommended soybean cultivation of small farmers (n=94)

S. No.	Independent variables	b-value	s-error of b	t-value
1.	Knowledge	-0.273	0.297	-0.917
2.	Size of Family	0.956	0.739	1.294
3.	Education	-0.219	0.059	-3.733**
4.	Age	0.133	0.172	0.773
5.	Caste	-0.277	0.165	-1.675
6.	Occupation	0.682	0.688	0.991
7.	Social participation	-6.051	0.028	-0.217
8.	Farm power	2.143	0.037	0.584
9.	Farm implements	-1.697	0.024	-0.719
10.	Source of information utilized	-0.604	0.343	-1.761
11.	Credit behavior	1.190	0.006	0.185
12.	Cropping intensity	-2.843	0.294	-9.685**

Determination coefficient $R^2 = 0.4787$ Multiple correlation $R = 0.6919$ F-calculated = 6.7125 with 12,81 d.f.s.
* Significant at 0.05 level of probability ** Significant at 0.01 level of probability

Table 3 reveals that in case of small farmers twelve selected independent variables jointly accounted for 47.87 per cent of variation in the

overall technological gap in recommended soybean production technology. The coefficient of regression (b-value) was found negatively

Table 4: Coefficient of multiple determination and partial regression of independent variables on overall technological gap in the recommended soybean cultivation of marginal farmers (n=32)

S. No.	Independent variables	b-value	s-error of b	t-value
1.	Knowledge	-7.920	0.308	-0.026
2.	Size of Family	-0.497	0.450	-1.105
3.	Education	-0.233	0.089	-2.617**
4.	Age	0.214	0.160	1.335
5.	Caste	-5.315	0.144	-0.004
6.	Occupation	0.283	0.264	1.070
7.	Social participation	2.318	0.024	0.964
8.	Farm power	-1.678	0.029	-0.574
9.	Farm implements	3.526	0.037	0.096
10.	Source of information utilized	-0.997	0.502	-1.986
11.	Credit behavior	4.081	0.006	0.659
12.	Cropping intensity	-2.063	0.164	-12.608**

Determination coefficient $R^2 = 0.7269$, Multiple correlation $R = 0.8526$, F-calculated = 12.4473 with 12,119 d.f.s.
* Significant at 0.05 level of probability. ** Significant at 0.01 level of probability

significant at one per cent level of probability for education and cropping intensity.

While analyzing the factors associated with the overall technological gap of small farmers in recommended production practices of soybean cultivation, it was found that knowledge, education, farm implements, source of information utilized and cropping intensity were negatively and significantly related with overall technological gap. However, age was positively and significantly related with overall technological gap.

Table 4 reveals that in case of marginal farmers twelve selected independent variables jointly accounted for 72.69 per cent of variation in the overall technological gap in the recommended soybean production technology. Further the 't' value of significance indicated that the coefficient of regression (b-value) was found negatively significant at 1 per cent level of probability for education and cropping intensity whereas, source of information utilized were found negatively and significantly at 5 per cent level of probability.

CONCLUSION

The technological gap of all categories of respondents was found to be negatively and significantly related with the level of knowledge, education, social participation, source of information utilized and cropping intensity. Whereas, in case of

marginal farmers technological gap was found to be negatively and significantly related with farm implement. Age was positively and significantly related with the technological gap in recommended soybean production technology.

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