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Adoption level of improved soybean production technology in Sehore block of district Sehore, Madhya Pradesh

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Abstract
The adoption of a new technology may have implications for the rest of the farming system, and these attendant changes may be examined in an adoption study. The present study was conducted in the Sehore district of Madhya Pradesh in the year 2018-19. Sehore block was selected purposely for the study,10 village from block and 12 farmers from each village were selected, total 120 farmers were randomly selected. It is found that majority of farmers had partial adoption and characteristics of farmers were positive and significantly related with the adoption level of Improved soybean production technology.

Keywords: Adoption level, improved soybean production technology, independent variables, level of significant

Introduction
Soybean is known as the "golden bean", "miracle crop" etc., because of its several uses. It is an excellent source of protein and oil. It contains about 43 per cent of good quality protein (43%), carbohydrates (21%), minerals (5%), moisture (8%), fat (20%), fiber (4%) and reasonable amounts of vitamins. The area under the crop in the Madhya Pradesh state during 2017-18 was 54.09 lakh hectares and the production was 59.17 million metric tons with rank first followed by Maharashtra area under 36.39 lakh hectare and production was 38.52 million metric tons and Rajasthan area under 9.21 lakh hectare and production was 9.45 million metric tons (Source: SOPA Databank orhttp://www.sopa.org).

The total production of soybean in India, 10-12 per cent of it is directly consumed and the rest is crushed to derive soy meal and soy oil. Indian soymeal is considered to be one of the premium soy meals and European and Asian countries prefer to use it other than any soy meal. India export approximately 65 per cent of the total soy meal produced and has turned out to be one of the largest exporters of soy meal usually to the Asian countries. Adoption is a decision to make full use of an innovation as the best course of action available. The north central rural sociology subcommittee for the study of diffusion of farm practices (1955) identified five stages of the adoption process which received world-wide attention. The adoption of a new technology may have implications for the rest of the farming system, and these attendant changes may be examined in an adoption study. Researchers were pleased to see the widespread adoption of a new variety, for instance, but what effects does this change have on the use of other varieties and the genetic diversity in farmer's fields in other cases, the adoption of a new variety may bring about significant changes in other management practices.

Material and Methods
The present study was conducted in Sehore district of M.P. The district has five blocks namely Ashta, Budhni, Nasrullaganj Ichhawar and Sehore. In the present study Ex-post facto research design was used. A multi stage sampling design was used to select the sample farmers as respondents. In the first stage, the Sehore block was selected purposively because this blocks occupying the largest area under soybean crop presently as compared to other block. In the second stage, ten villages were selected on the basis of highest growing area under soybean crop. In the final stage, a list of farmers was prepared. From this sampling frame the 12

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farmers were selected from each village through random sampling method to get a sample of 120 respondents.

Result and Discussion
Level of adoption about recommended cultivation practices of soybean
The table 1 presented various improved farm practices of soybean cultivation were recommended to the farmers includes improved variety, seed treatment, sowing time, fertilizer, irrigation, weed control, plant protection, harvesting and storage.

As observed in improved variety, majority of the respondents (64.17%) had partial adoption, whereas 24.16 per cent had complete adoption and 11.67 per cent of the respondents had low adoption about improved variety.

In case of seed treatment, 60.83 per cent of the respondents had partial adoption, while 25 per cent respondents had complete adoption and 14.17 per cent had low adoption about seed treatment.

In relation to sowing of time more than half of the respondents (51.67%) had partial adoption whereas, 30 per cent of the respondents had complete adoption and 18.33 per cent of the respondent had low adoption about sowing of time in soybean production technology.

Regarding recommended dose of fertilizers, majority of the respondents (60%) had partial adoption followed by complete (26.67%) and low (13.33%) respectively. In case of irrigation, 52.5 per cent of the respondents had partial adoption, while 27.5 per cent respondents had complete adoption and 20 per cent had low adoption about irrigation.

In the case of weed control majority of the respondents (73.33%) had partial adoption followed by 14.17 per cent respondents had complete adoption and 12.5 per cent of the respondent had low adoption about weed control in soybean production technology.

In relation to plant protection majority of the respondents (64.17%) had partial adoption whereas, 23.33 per cent of the respondents had complete adoption and only 13.33 per cent of the respondent had low adoption about plant protection in soybean production technology.

As regards harvesting and storage, majority of the respondents (66.66%) had partial adoption, whereas 16.67 per cent had complete and 1.89 per cent of low adoption about harvesting and storage.

Extent of adoption
It is clear from Table 2 reported that the majority of the respondents (61.67%) had partial adoption, whereas 23.33 per cent had complete adoption and 15 per cent of the respondents had low adoption about improved soybean production technology. These findings were also supported by Kumar and Kumar (2018) [6], Raghuwanshi (2016) [9] and Patodiya (2018) [7].

Relationship between characteristics of the respondents with their level of adoption towards improved soybean production technology
The data presented in Table 3 show that the independent variables *viz*., education (0.333), occupation (0.245), annual income (0.268), size of landholding (0.312), sources of information (0.222), mass media exposure (0.282), cosmopoliteness (0.234), scientific orientation (0.265) and attitude towards improved production technology (0.246) were positively and significantly related with adoption level about soybean production technology at 0.01 level of significance, on the other hand farming experience (0.198) and material possession (0.202) were positively and significantly related with adoption level about soybean production technology at 0.05 level of significance whereas, age (0.128) was found to be not significant. Similar findings were also reported by Deshmukh, K.U. and Kadam, R.P. [4] (2018) and Dohare, Rajesh Kumar (2014) [5].

Table 1: Distribution of the respondents according to their extent of level of adoption regarding improved soybean production technology

S. No.	Practices	Adoption						TS	MN	R
		Low		partial		Complete				
		f	%	f	%	f	%			
1.	Improved variety	14	11.67	77	64.17	29	24.16	212	1.77	VI
2.	Seed treatment	17	14.17	73	60.83	30	25.00	211	1.76	VII
3.	Sowing of time	22	18.33	62	51.67	36	30.00	213	1.78	V
4.	Fertilizer	16	13.33	72	60.00	32	26.67	213	1.78	V
5.	Irrigation	24	20.00	63	52.50	33	27.50	218	1.82	III
6.	Weed control	15	12.50	88	73.33	17	14.17	225	1.88	II
7.	Plant protection	16	13.33	77	64.17	27	23.33	215	1.79	IV
8.	Harvesting and storage	20	16.67	80	66.66	20	16.67	227	1.89	I

TS= Total Score, MN= Mean, F= Frequency

Table 2: Level of adoption about recommended cultivation practices of soybean n=120

Level of adoption	Frequency	Percentage
Low (<31.72 score)	18	15.00
Partial (31.72 – 39.62 score)	74	61.67
Complete (>39.62 score)	28	23.33
Mean=35.67	SD=3.95	

Table 3: Relationship between profiles of soybean growers with their adoption about soybean production technology

S. No.	Variables	"r" value	"t" value
	Socio-personal traits		
1	Age	0.128	1.40NS
2	Education	0.333	3.83**
3	Farming experience	0.198	2.19*
	Socio- economic traits		

4	Occupation	0.245	2.74**
5	Annual income	0.268	3.02**
6	Material possession	0.202	2.24*
7	Size of land holding	0.312	3.56**
Communicational traits			
8	Sources of information	0.222	2.47**
9	Mass media exposure	0.282	3.19**
10	Cosmopoliteness	0.234	2.61**
Psychological traits			
11	Scientific orientation	0.265	2.98**
12	Attitude toward improved production technology	0.246	2.75**

NS Non-significant**Significant at 0.01 level of probability
*Significant at 0.05 level of probability

Conclusion
It is concluded that the majority of the respondents had partial adoption, followed by complete and low adoption about improved soybean production technology. It is also concluded that Independent variables like education, occupation, annual income, size of landholding, sources of information, mass media exposure, cosmopoliteness, scientific orientation and attitude towards improved production technology were positively and significantly related with adoption level of soybean production technology at 0.01 level of significance, on the other hand farming experience and material possession were positively and significantly related with adoption level of soybean production technology at 0.05 level of significance whereas, age was found to be not significant. With adoption level about soybean production technology respectively.

Acknowledgements

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