



Research Paper

Study on Knowledge and Adoption Behavior of Soybean Growers Under Atma Program in Dewas District of M. P. India

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ABSTRACT: The Agricultural Technology Management Agency (ATMA) is a society of key stock holders involved in agricultural activities for sustainable agricultural development in the district. It is focal point for integrating research and extension activities and decentralizing day to day management of the public agricultural technology system (ATS). It is registered society responsible for technology dissemination at the district level. The ATMA at district level would be increasingly responsible for all the technology dissemination activities. It is fact that the effective extension activities like trainings and field demonstrations would result in increasing the level of knowledge and level of adoption of beneficiaries in farming business. Looking to the importance of training under ATMA programme for dissemination of improved technology in soybean cultivation which are parameter to change the level of knowledge and adoption to be essentially required for judging the impact of the programme. Hence, the study was conducted with following specific objective and revealed that the data provides enough evidence the impact of ATMA programme on knowledge & adoption of soybean production technology. This clearly shows that as regard the adoption, there was a significant difference between beneficiaries and non beneficiaries.

Keywords: ATMA Agriculture Technological Management Agency FLD- Front Line Demonstration

I. INTRODUCTION

In Madhya Pradesh soybean is popular cash crop giving pronounced yield and profit where other kharif crops are not able to give sustainable yield and economic viable. Due to suitable agro-climatic condition and better price, soybean crop gets prominence in the cropping pattern of the cultivator of Madhya Pradesh. In Madhya Pradesh 5734 thousand hectares area was found under soybean with the total production of 6355 thousand tonnes and average productivity of 1108 Kg. per hectare in the year of 2015. Madhya Pradesh is the largest soybean growing state in India and it alone contributes about 72 per cent and 65 per cent of the total area and total production of India respectively.

Looking the problems in soybean production and low productivity the ATMA project personnel exercised suitable extension system to fill the adoption gap of recommended soybean production technology on farmer's field. In the present study an attempt has been made to examine the knowledge and adoption of improved soybean production technology by beneficiaries under ATMA programme in relation to socio-economic and psychological attributes with the view to focus how ATMA programme helped to soybean growers in increasing the level of knowledge and adoption of improved production technology on their farms. Based on the above facts, the study was undertaken with the following objective.

II. OBJECTIVE

To study the knowledge and adoption of soybean production technology by beneficiaries and non beneficiaries of ATMA programme.

III. REVIEW OF LITERATURE

Knowledge of soybean growers regarding improved soybean production technology

Goyal (2010) reported that the majority of the farmers were in medium category regarding level of knowledge about improved soybean production technology followed by low and high knowledge respectively.

Soni (2011) reported that the majority of respondents had medium level followed by low level and high level of knowledge of recommended practices of soybean cultivation respectively. audahari *et al.* (2012) found

that majority of the respondents were having medium level of knowledge, followed by low level of knowledge and high level of knowledge.

Patel (2013) reported that in case of knowledge level of respondents about soybean cultivation practices recommended by ATMA project, that 46.25 per cent of respondents had medium level of knowledge about cultivation practices of the soybean to the soybean demonstration beneficiaries under ATMA followed by low level 33.75 per cent and high level 20.00 per cent respectively.

Adoption of improved soybean production technology

Sharma *et al.* (2005) in their study on adoption pattern and constraints of soybean production technology in Malwa plateau of Andhra Pradesh revealed that there was a considerable yield gap of 60.03 per cent between potential yield and actual yield.

Venkattakumar and Padmaiah (2010) reported that thorough review on adoption behaviour of oilseed growers reveals that there is scope for improving the adoption behaviour of oilseed growers. This needs intensive transfer of technology efforts. However, there are certain problems exist in public sector in transfer of technology efforts. The strategies to improve transfer of technology efforts targeting oilseeds are also suggested.

Chaudhari *et al.* (2012) found that majority of the respondents had medium level of adoption followed by low level of adoption and high level of adoption.

IV. MATERIAL & METHODS

Dewas district is one of the important soybean growing area and the ATMA personnel conducted various training programmes, demonstrations and other extension activities for increasing production and productivity of soybean through adoption of improved production technology. Hence, Dewas district was selected purposively for the present study. Dewas district comprises of 8 blocks namely Dewas, Bagli, Hatpipliya, Kannod Khategone, Satwas, Tonk khurd and Sonkatch. Out of 8 blocks only one Dewas block was selected purposively for this study due to awareness and convenience of the researcher.

Dewas block comprises total 225 villages, out of which 5 were selected randomly. A village wise list of beneficiaries of ATMA programme was prepared with the help of information obtained from Department of Agriculture Dewas and from beneficiaries list 13 beneficiaries were selected from each village on the basis of random sampling method. For comparative study between beneficiaries and non beneficiaries, the 5 adjoining villages were selected and from each village 13 non beneficiaries soybean growers were selected randomly. Thus, the total 130 respondents i.e. 65 beneficiaries and 65 non beneficiaries were the sample of the study.

Knowledge Of Beneficiaries' Under ATMA Programme:-

Knowledge of beneficiaries under ATMA programme regarding improved soybean production technology was operationalized as factual information possessed by them. To measure the knowledge test index of knowledge was develop. A list of scheduled through ATMA programme regarding improved technology was carefully framed and the most appropriate responses (full knowledge) was given score of 2, appropriate responses (partial knowledge) was given score 1 and no knowledge was given score 0.

$$\text{Knowledge index} = \frac{\text{Actual Score}}{\text{Maximum Score}} \times 100$$

Adoption Scoring:

The extent of adoption of soybean production technology refers to the extent of adoption of recommended and improved soybean production techniques and practices by soybean growers on their farm. To measure the level of adoption, index of adoption was develop. A list of scheduled through ATMA programme regarding improved technology was carefully framed and the most appropriate responses (full adoption) was given score of 2, appropriate responses (partial adoption) was given score 1 and no adoption was given score 0.

$$\text{Adoption index} = \frac{\text{Sum of the adoption scores obtained by respondent}}{\text{Sum of obtainable adoption score}} \times 100$$

A well structured and pretested interview schedule was prepared for the purpose of collecting information from respondents. The data was collected through a well structured and pre tested interview schedule. The researcher was personally meets the beneficiaries and explains to them about the purpose of the study. The data was collected and recorded in a free and frank atmosphere where the interviewer and interviewee have good rapport. All the collected primary data was related to the agricultural year 2013-14. The data collected was tabulated in the form of tables and figures.

V. RESULT & DISCUSSION

Knowledge & Adoption Of Soybean Production Technology By Beneficiaries And Non Beneficiaries Of ATMA Program

The data regarding knowledge of beneficiaries and non beneficiaries regarding soybean production technology under ATMA programme has been analyzed and presented in table -

Table: Difference in level of knowledge of beneficiaries and non beneficiaries regarding soybean production technology.

S.No.	Practices	Beneficiaries		Non Beneficiaries	
		Total Score	Mean Score	Total Score	Mean Score
1.	Ploughing and land preparation	77	1.18 ⁰	64	0.98 ⁰
2.	Improved varieties of soybean	74	1.14	67	1.03 ⁰
3.	Sowing method of seed	71	1.09	61	0.94
4.	Recent knowledge about seed treatment	85	1.31 ⁰	62	0.95
5.	Depth of seed and distance between row to row	68	1.05	66	1.02 ⁰
6.	Use of rhizobium and PSB culture	73	1.12	58	0.89
7.	Pattern of fertilizer application	76	1.17	62	0.95
8.	Use of bio-fertilizer	79	1.22 ⁰	56	0.86
9.	Use of weedicide and their method of application	75	1.15	57	0.88
10.	Use of plant protection measures	78	1.20 ⁰	60	0.92
11	Over all mean average	76	1.17	62	0.95
't' value		(calculated 't' = 2.72*), (table value = 2.26)			

* Significant at 5% level of significance with 9 d.f.

⁰ = Higher value than overall mean score

10 areas under package of practices of soybean production technology were considered to examine the knowledge level of beneficiaries and non beneficiaries. In present segment of study the description of these 10 areas of package of practices were compared to find out difference in the knowledge level of beneficiaries and non beneficiaries in respect of soybean production technology.

The average means score values of overall knowledge of all components of soybean production technology showed that it was 1.17 and 0.95 of beneficiaries and non beneficiaries. On the other hand, the calculated 't' value 2.72 at 5 per cent level with 9 d.f. was found to higher than the table value of 't' 2.26. These parameters declared to be significant differences in the level of knowledge among beneficiaries and non beneficiaries of soybean production technology.

Therefore, it may be concluded that the data provides enough evidence the impact of ATMA programme on level of knowledge of soybean production technology. This clearly shows that as regard the knowledge level, there was a significant difference between beneficiaries and non beneficiaries.

Overall knowledge of beneficiaries and non beneficiaries regarding soybean production technology:

The detail distribution of beneficiaries and non beneficiaries according to their overall knowledge regarding soybean production technology under ATMA program was presented in table

Table: Distribution of beneficiaries and non beneficiaries according to their overall knowledge regarding soybean production technology.

Attribute	Categories	Beneficiaries		Non beneficiaries	
		Frequency	Percentage	Frequency	Percentage
Level of knowledge	Low	15	23.08	19	29.23
	Medium	34	52.31	30	46.15
	High	16	24.62	16	24.62
	Total	65	100.00	65	100.00

The data presented in table showed that majority of the beneficiaries 52.31 per cent found to pertaining medium knowledge regarding various components of soybean production technology under ATMA program followed by high knowledge 24.62 per cent and low knowledge 23.08 per cent respectively.

Thus, it can be concluded that in study area, most of the beneficiaries found to pertaining medium knowledge regarding various components soybean production technology under ATMA programme followed by and high low knowledge.

On the other hand, data showed that majority of the non beneficiaries 46.15 per cent found to pertaining medium knowledge regarding soybean production technology under ATMA program followed by low knowledge 29.23 per cent and high knowledge 24.62 per cent respectively.

Thus, it can be concluded that in study area, most of the non beneficiaries found to pertaining medium knowledge regarding soybean production technology under ATMA programme followed by low and high knowledge.

Difference In Level Of Adoption Of Beneficiaries And Non Beneficiaries Of Soybean Production Technology:

The data regarding extent of adoption of beneficiaries and non beneficiaries of soybean production technology under ATMA programme has been analyzed and presented in table .

Table: Difference in level of adoption of beneficiaries and non beneficiaries of soybean production technology

S.No.	Practices	Beneficiaries		Non Beneficiaries	
		Total Score	Mean Score	Total Score	Mean Score
1.	Ploughing and land preparation	76	1.17 ⁰	60	0.92 ⁰
2.	Improved varieties of soybean	77	1.18 ⁰	60	0.92 ⁰
3.	Sowing method of seed	78	1.20 ⁰	60	0.92 ⁰
4.	seed treatment	68	1.05	63	0.97 ⁰
5.	Depth of seed and distance between row to row	66	1.02	57	0.88
6.	Use of rhizobium and PSB culture	78	1.20 ⁰	59	0.91 ⁰
7.	Pattern of fertilizer application	76	1.17 ⁰	59	0.91 ⁰
8.	Use of bio-fertilizer	85	1.31 ⁰	58	0.89
9.	Use of weedicde and their method of application	73	1.12	56	0.86
10.	Use of plant protection measures	73	1.12	56	0.86
11	Over all mean average	75	1.15	58	0.89
't' value		(calculated 't' = 2.41*), (table value = 2.26)			

* Significant at 5% level of significance with 9 d.f.

⁰ = Higher value than overall mean score

10 areas under package of practices of soybean production technology were considered to examine the adoption level of beneficiaries and non beneficiaries. In present segment of study the description of these 10 areas of package of practices were compared to find out difference in the adoption level of beneficiaries and non beneficiaries in respect of soybean production technology.

The average means score values of overall adoption of all components of soybean production technology showed that it was 1.15 and 0.89 of beneficiaries and non beneficiaries. On the other hand, the calculated 't' value 2.41 at 5 per cent level with 9 d.f. was found to higher than the table value of 't' 2.26. These parameters declared to be significant differences in the level of adoption among beneficiaries and non beneficiaries of soybean production technology.

Therefore, it may be concluded that the data provides enough evidence the impact of ATMA programme on level of adoption of soybean production technology. This clearly shows that as regard the adoption level, there was a significant difference between beneficiaries and non beneficiaries.

Overall Adoption Of Beneficiaries And Non Beneficiaries Of Soybean Production Technology:

The detail distribution of beneficiaries and non beneficiaries according to their overall adoption of soybean production technology under ATMA program was presented in table

Table: Distribution of beneficiaries and non beneficiaries according to their overall adoption of soybean production technology.

Attribute	Categories	Beneficiaries		Non beneficiaries	
		Frequency	Percentage	Frequency	Percentage
Level of adoption	Low	13	20.00	19	29.23
	Medium	37	56.92	31	47.69
	High	15	23.08	15	23.08
	Total	65	100.00	65	100.00

The data presented in table 4.18 showed that majority of the beneficiaries 56.92 per cent found to have medium adoption of various components of soybean production technology under ATMA program followed by high adoption 23.08 per cent and low adoption 20.00 per cent respectively.

Thus, it can be concluded that in study area, most of the beneficiaries found to have medium adoption of various components of soybean production technology under ATMA programme followed by high and low adoption of various components of soybean production technology under ATMA programme.

On the other hand, data showed that majority of the non beneficiaries 47.69 per cent found to have medium adoption of various components of soybean production technology under ATMA program followed by low adoption 29.23 per cent and high adoption 23.00 per cent respectively.

Thus, it can be concluded that in study area, most of the non beneficiaries found to have medium adoption of various components of soybean production technology under ATMA programme followed by low and high adoption of various components of soybean production technology under ATMA program.

Higher percentage of the beneficiaries found to pertaining medium knowledge regarding various components soybean production technology under ATMA programme. The medium knowledge of beneficiaries might be attributed due to medium level of education, medium social participation, medium extension participation and medium information seeking behaviour. This finding is in conformity with the findings as reported by Kumar (2009), Goyal (2010), Soni (2011), Chaudahari *et al.* (2012) and Patel (2013).

Higher percentage of the beneficiaries found to have medium adoption of various components of soybean production technology under ATMA programme. This might be due to the fact that, soybean growers had the tendency towards indiscriminate use of inputs inefficiently, lack of technical skill and lack of faith in result of these improved practices and technology. This finding is in conformity with the findings as reported by Chaudahari *et al.* (2012)

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