Adoption Of Improved Package Of Practices Of Soyabean Crop And Its Constraint Faced By Soyabean Growers

ABSTRACT

The Broad bed and furrow system has been mainly developed at the International Crops Research Institute for the Semi-arid Tropics (ICRISAT) in India. The scientists and farmers are concerned with the low productivity of Soybean under present agro-situations, keeping the aforementioned perspectives in mind and realizing the importance of Broad Bed Furrow technology for soyabean crops in dissemination of technology the study was carried out to know the effect of demonstration conducted at different locations on the production and profitability of the farmers. The field experiments were conducted at the farmer's fields in the operational village of Krishi Vigyan Kendra, Sangvi (Rly) Yavatmal-II district of Maharashtra. The selection of 50 respondents was randomly drawn from villages a cluster of five villages Dhulapur, Lohi, Tarnoli, Chikhali in Darwha tehsil and Karkheda, in Ner tehsil of Yavatmal. Thus, an attempt was made to examine the adoption of broad bed furrow technology in accordance with all the 21 recommended agronomic practices to derive significant findings and recommendations for soyabean growers and extension specialists to update farmers' technical knowledge. The majority of soybean growers (60%) had low level of overall adoption of the recommended practices. Out of 21 agronomic practices recommended under BBF technology by the soybean grower; full adoption 52.00 per cent used improve the soybean varieties followed by the recommended seed rate of 56.00 per cent, use of herbicide for weed control (76.00%), Majority of respondents partially adopt control insect (56 %) and disease (50%) by improved package of practices by soyabean growers. The majority of soyabean growers encounter obstacles such as the unavailability of BBF machines (96 %) and skilled labourers (56%), as well as challenges while utilizing BBF technology (92%). Only 50 per cent of large-holding soyabean growers use BBF technology and 44 per cent of those with higher family income have access to it. It was concluded that the improved package of practices of soybean cultivation was found superior in comparison with conventional seed drill.

Keywords:-Improved package of practices, Soyabean growers & Constraints

INTRODUCTION

Soybean (*Glycine max* L.) primarily a kharif season crop is a significant oilseed crop of India, ranking third place next to groundnut and rapeseed & mustard in terms of area and production. This crop possesses a higher potentiality to replace various oilseeds to overcome the shortage of edible oil and protein rich food. Soybean is one of the oldest cultivated crops in the world. In India large portion of the population is vegetarians, under this situation, crop like soybean with high protein content and high yield potential became an important crop. Soybean protein is receiving more focus than any other source of protein today. Additionally, it provides numerous vitamins, calcium, phosphorous and iron. These characteristics make them well-suited for human consumption. Food uses of soybean include beverages; fermented products like soya sauce and cheese. Small quantities of soybean.

'The scientists and farmers are worried about the low yield of Soybean under present agro situations. In order to overcome these problems, it is needed to educate and bring out the facts of the cultivation practices to the notice of the farmers through demonstration of improved production technology in their field so that they may augment technology based on seeing is believing it will develop the faith among the growers' (Singh *et al*., 2018). 'In a rainfed eco-system, it is crucial to strategize agriculture by making the best use of rainfall potential. To achieve a sustainable crop production system under rainfed conditions, it is vital to conserve rainwater and recycle it efficiently. The rainwater can be conserved in either in-situ or ex-situ settings within natural or man-made structures for additional irrigation. In-situ rainwater conservation can be implemented through tillage or management of the land surface' (Singh *et al*., 2000). 'The BBF landform management system primarily lowers the speed of runoff water and thereby enhances the time water infiltrates and reduces sediment losses. Moreover, during the period of intense rainfall, the furrows facilitate the safe drainage of excess water from the plots and thus preventing water accumulation around the crop' (Kampen, 1982). Thus, keeping the above views in mind and realizing the importance of Broad Bed Furrow technology for soyabean crops in the dissemination of technology the study was carried out to know the effect of demonstrations conducted at different locations on the production and profitability of the farmers.

MATERIAL AND METHODS

The field experiments were conducted at the farmer's fields in the operational village of Krishi Vigyan Kendra, Sangvi (Rly) Yavatmal-II district of Maharashtra. The selection of 50 respondents was randomly drawn from villages a cluster of five villages Dhulapur, Lohi, Tarnoli, Chikhali in Darwha tehsil and Karkheda, in Ner tehsil of Yavatmal district of Maharashtra and from each village 10 respondents to assess adoption of broad bed furrow (BBF) practices of Soyabean (Var. JS 95-60) was used and constraints faced by them. Therefore, an effort was made to study all the 21

recommended agronomic practices-wise adoption of broad bed furrow technology for drawing meaningful conclusions and suggestions for farmers and extension professionals for updating the technical know-how of the farmers. Using an interview schedule, the soyabean growers were interviewed to get the data. An exploratory design of social research was used for the study. For the measurement of the extent of adoption, a list of improved packages of practices of soyabean crop was prepared and responses from the soyabean growers were collected on it. The extent of adoption was measured on a three-point continuum i.e. complete, partial and non-adoption.

RESULT AND DISCUSSION

Table 1. Adoption of improved soybean package of practices under BBF technology by soyabean growers.

Sr. No.	Package of practices	Full adoption	Partial adoption	No adoption
A	**Tillage and Land Preparation**			
1	Deep summer ploughing once in 3 years	24 (48.00)	22 (44.00)	4 (8.00)
2	Two cross harrowing/ cultivator	10 (20.00)	23 (46.00)	17 (34.00)
3	Apply FYM @ 10 t/ha	10 (20.00)	16 (32.00)	24 (48.00)
B	**Variety, Seed treatment, Sowing and plant geometry**			
4	Use improved soybean variety	26 (52.00)	16 (32.00)	8 (16.00)
5	Use recommended seed rate	14 (28.00)	28 (56.00)	8 (16.00)
6	Germination test	9 (18.00)	15 (30.00)	26 (52.00)
7	Seed treatment with fungicide	7 (14.00)	15 (30.00)	28 (56.00)
8	Seed treatment with Rhizobium/ PSB culture	7 (14.00)	16 (32.00)	27 (54.00)
9	Timely sowing on BBF	20 (40.00)	25 (50.00)	5 (10.00)
10	Use of intercrop	32 (64.00)	11 (22.00)	7 (14.00)
11	Maintain row to row distance	15 (30.00)	31 (62.00)	4 (8.00)
12	Plant to plant spacing	14 (28.00)	32 (64.00)	4 (8.00)
C	**Weed Control**			
13	Herbicide use	38 (76.00)	9 (18.00)	3 (6.00)
14	Manual weed management/ inter-culture operation	12 (24.00)	28 (56.00)	10 (20.00)
D	**Plant Nutrition**			
15	Application of recommended dose of NPK	15 (30.00)	30 (60.00)	5 (10.00)
16	Application of recommended dose of Zinc	11 (22.00)	14 (28.00)	25 (50.00)

17	Application of recommended dose of Sulphur	13 (26.00)	21 (42.00)	16 (32.00)
E	**Plant Protection**			
18	Insect management	12 (24.00)	28 (56.00)	10 (20.00)
19	Disease management	10 (20.00)	25 (50.00)	15 (30.00)
20	Soil moisture conservation	11 (22.00)	16 (32.00)	23 (46.00)
F	**Harvesting**			
21	Timely harvesting	18 (36.00)	22 (44.00)	10 (20.00)

Table 1 revealed that component wise adoption of improved package of practices of soyabean crops in soybean growers are as follows;

Tillage and land preparation

Out of 21 agronomic practices recommended under BBF technology by the soybean growers; only 48 per cent of soyabean implemented summer ploughing once in 3-4 years. Further, followed by 46 percent partially adopted the practice of two criss-crosses harrowing for seedbed preparation. Similarly, due to restricted FYM availability, only 32 per cent soyabean growers partially apply the FYM 10 t/ha to soyabean plots.

Variety, Seed treatment, Sowing and plant geometry

It is quite encouraging to observe of soyabean growers (52.00%) have fully adopted and used improved the soybean varieties followed by the recommended seed rate of 56.00 per cent along with 50 per cent for timely sowing. In case of partial adoption, 50.00 per cent soyabean growers maintained row to row and plant to plant 64.00 per cent in soyabean crop because lack of knowledge regarding recommended spacing,

Weed Control& Plant nutrition

The majority of soyabean growers utilise herbicide for weed control (76.00%) followed by 56 per cent who engage in manual weed control practices/intercultural operations for managing weeds in soyabean crop. Whereas, the majority of soyabean growers use and partially apply (60.00%) recommended dose of NPK followed by 42 per cent soyabean growers partially apply the recommended amount of sulphur to soyabean crop.

Plant protection and Harvesting

The majority of soyabean growers partially implement for insect control (56 %) and disease (50%) by improved package of practices. Merely 32 per cent of soyabean growers partially implement soil and water conservation practices because of lack of knowledge and unawareness of BBF technology. Most of the respondents harvest soyabean crop at the recommended time to avoid losses by soyabean

growers. The forementioned results are consistent with findingsreportedby Verma (2008), Singh *et al* (2011) and Gupta *et al* (2017).

Table 2. Adoption improved soybean package of practices by soyabean growers.

Adoption level	Number of soyabean growers	Percentage
Low	30	60.00
Medium	14	28.00
High	6	12.00
	50	**100.00**

The data (Table 2) concerning the adoption levels of soyabean growers related to broad bed furrow technology revealed that the majority of soybean growers (60%) exhibited a low level of adoption of the suggested package of practices. Merely 12 per cent of the soyabean growers adopted the technologies at high level, whereas, only 28 per cent soyabean growers had medium level adoption, which presents a significant issue for the development.

Table 3. Constraints faced by soyabean growers during adoption of improved soyabean package of practices

Sr. No.	Constraints	Respondent N=50	Per cent
1	Unavailability of BBF Machine	48	96.00
2	Difficulties use of BBF technology	46	92.00
3	Lack of knowledge about the package of practices in soybean on BBF technology	40	80.00
4	Lack of knowledge about the importance of BBF technology in now days	37	74.00
5	Unavailability of skilled labour	35	70.00
6	Lack of knowledge about soil management practices	32	64.00
7	Lack of knowledge about use of seed rate	28	56.00
8	BBF technology adopted only large size holding	25	50.00
9	Less contact with extension worker	24	48.00
10	Higher family income provides access to technology	22	44.00

Constraints faced by soyabean growers during adoption

Further analysis of the data (Table 3) indicated constraints faced by soyabean growers while adopting of improved package of practices i.e. BBF technology in soyabean crop. The majority of soyabean growers encounter issues such as the lack of access to BBF machines (96 %) and skill labours (56%), they experience challenges when using BBF technology (92%), are unaware of the package of practice of related BBF technology (80%) and its importance (74%). Only a significant proportion of large size holding soyabean growers utilize BBF technology (50%) and those with higher family income have better access to this technology (44%).

CONCLUSION

Based on the findings from the current study, Soybean cultivation using the tractor operated seed cum fertilizer drill method of sowing, along with harvesting through a combined harvester, is a crucial option for achieving improved crop growth, yield, lower cultivation costs. Additionally, mechanization also helps in avoiding the losses caused by unexpected rainfall during the harvesting periods. In conclusion, it was determined that the method of soybean cultivation utilizing the broad bed furrow seed drill was found superior when compared to the conventional seed drill. The technology is beneficial for increasing soyabean productivity and necessitates the execution of demonstrations within the transfer of technology programme by KVK's. Horizontal spread of improved technologies may be accomplished the effective execution of frontline demonstrations and various extension activities like training programs, field days and exposure visits organized in FLDs programs in the farmer's fields

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