

AWARENESS OF BROAD BED FURROW TECHNOLOGY BY THE SOYBEAN GROWERS IN WESTERN VIDARBHA OF MAHARASHTRA STATE



Agronomy

KEYWORDS: (BBF-Broad Bed Furrow, Awareness, Soybean)

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ABSTRACT

The study on "Awareness and Adoption of Broad Bed Furrow Technology in Soybean crop," was undertaken in Washim district of western Vidarbha of Maharashtra State during 2015-16. Based on more area of soybean crop, 10 villages were selected purposely and the same criterion was used in selection of respondents. Thus from each selected village 15 soybean growers were selected. Thus, total 150 respondents were selected to constitute the sample size. The exploratory design of social research was used. The findings indicate that, the awareness about Broad Bed Furrow Technology was observed in majority of the respondents (61.34%) were found in 'low' level category of awareness level. Out of 150 respondents 92 respondents were in 'low' level category, followed by 32.00 per cent respondents were found in 'medium' level category.

Introduction

Soybean crop area in the world during 2013-14 was 10290 lakh/ha and India was 103.34 lakh/ha. Maharashtra state area was 38.00 lakh/ha, and Vidarbha region of Maharashtra state was 19.31 lakh/ha. In case of production of soybean crop in world 10237 lakh/MT, India 119.39 lakh/MT, Maharashtra 30.72 lakh/MT, and Vidarbha 14.75 lakh/MT. Productivity of Soybean in World was 24.30 Q/ha, India 11.85 Q/ha, Maharashtra 8.08Q/ha, Vidarbha 15.52 Q/ha. during 2013-14 (www.sopa.com).

Seedbed preparation is one of the most important tillage operations in any crop production system. The BBF farming become the centre piece of technology that contain preparation of land, seed bed preparation, sowing and intercultural operation to improve the effectiveness and efficiency of drainage practices and resource conservation.

BBF farming is a new idea developed for conservation of water for dry land farming. The placement of seed at correct depth is very important for proper germination and for obtaining optimum plant population per unit area of the crop especially under dry land farming where soil moisture is at greater depth. (Khambalkar *et al.* 2014).

Broad-bed and furrow (BBF) system is an improved in-situ soil and water conservation and drainage technology for the Vertisols. The system consists of relatively flat bed approximately 100 cm wide and shallow furrow about 50 cm wide laid out in the field with a slope of 0.4 to 0.8 per cent. BBF system helps for safe disposal of excess water through furrows when there is high intensity rainfall with minimum soil erosion, while at the same time it serves as land surface treatment for in-situ moisture conservation.

Soybean is an important crop in Vidarbha region in Washim district, the soybean production per unit area is comparatively low. The low yield may be attributed to non adoption of latest rain water harvesting technologies by the farmers. Therefore it is necessary to find out the levels of difficulties in adoption of Broad Bed Furrow Technology. The present studies focus on extent of adoption of Broad Bed Furrow Technology by the farmers.

There are number of benefits of Broad Bed Furrow Technology such as supplemental irrigation for post-rainy season crop, rain water management can be carried out either through land configuration techniques or adoption of suitable tillage practices with major emphasis on soil water and nutrient management (SWNM) through

selective mechanization and improved cropping systems to sustain productivity and soil quality. This can be achieved by machine utilizing broad bed furrow (BBF) technology. Looking to its urgent need, Directorate of Soybean Research, Indore has designed, developed and commercialized an effective BBF machine.

The Soybean growers in Washim district of Vidarbha region facing the major challenge that is the scarcity of water in the district. BBF technology play an important role under dry land area or with less irrigation facilities in the area as it helps the soil to preserve the water level for longer period, holding moisture availability, the bed stimulates crop growth. In view of the importance of the study was conducted in washim district with the specific objectives as to study the personal, socio-economic, communication and psychological characteristics of the respondents and to study the awareness of Broad Bed Furrow technology by the respondents.

Materials and Methods

In the present study the exploratory research design of social research was used. The present study was conducted in Washim district in Vidarbha region of Maharashtra State based on the soybean as a major crop.

Selection of villages

The list of villages having more soybean cultivation was obtained from Taluka Agriculture Officer, Department of Agriculture, Washim and total 10 villages were selected purposively based on more acreage under soybean cultivation.

Selection of respondents

From the selected villages, list of soybean growers were prepared based on more area under soybean and from each village soybean growers as respondents were selected purposively. Thus from 10 village 150 soybean growers were selected to constitute sample size of 150 respondents.

Awareness

Awareness of respondents about BBF technology is the dependent variable for the study awareness is an important factor which enables respondents to become knowledgeable and skilful with regard to BBF technology.

It is operationally defined as scientific information known by individual soybean grower about Broad Bed Furrow technology.

To measure this variable a schedule was specially developed and used

to measure awareness quantitatively. For ascertaining the awareness of individual respondent questions was prepared through consultation with Advisory Committee Members and referring the relevant literature on BBF technology.

The individual soybean grower as respondent was requested to answer each question on two point continuum i.e. Yes=1 and No=0 score. The scores on all the items of awareness test of each respondent were summed up and this sum totally indicated the awareness score for the individual respondent.

Finally index was computed to measure the awareness of Broad Bed Furrow Technology in soybean crop in quantitative term by using formula,

$$\text{Awareness index} = \frac{\text{Awareness score actually obtained}}{\text{Maximum obtainable awareness score.}} \times 100$$

On the basis of awareness score obtained, the respondents were categorized into three categories as low, medium, and high awareness.

RESULTS AND DISCUSSION.

Table 1. Distribution of respondents according to their practice wise awareness about Broad Bed Furrow Technology in soybean crop

Sl. No.	Awareness	Awareness			
		Yes		No	
		Freq.	(%)	Freq.	(%)
1	Awareness about new technology in soybean crop (single row cotton drill and rabi drill, Dibbling, BBF technology)	119	(79.34%)	31	(20.66%)
2	Awareness about broad bed furrow technology for soybean crop	84	(56.00%)	66	(44.00%)
3	Awareness about broad bed furrow planter	43	(28.67%)	107	(71.33%)
4	Awareness about distance between two furrow and width of bed (size 95x55x15cm)	11	(7.34%)	139	(92.66%)
5	Awareness about recommended plant to plant distance while using BBF technology (5-10 cm)	39	(26.00%)	111	(74.00%)
6	Awareness about broad bed furrow is time saving method of preparing bed and sowing operation	75	(50.00%)	75	(50.00%)
7	Awareness about the seed rate requirement for broad bed furrow method (20-22 kg/acre)	64	(42.67%)	86	(57.33%)
8	Awareness about increase in germination per cent of crop by adopting broad bed furrow technology	16	(10.67%)	134	(89.33%)
9	Awareness about increase in yield by 30-35 per cent through BBF technology	62	(41.34%)	88	(58.66%)

10	Awareness about BBF technology can conserve the moisture level in soil.	21	(14.00%)	129	(86.00%)
11	Awareness about can be minimized weed infestation by using BBF technology	8	(5.34%)	142	(94.66%)
12	Awareness about proper management of fertilizer can be done by using BBF planter	10	(6.67%)	140	(93.33%)
13	Awareness about BBF technology minimizes the effect of drought on crop	36	(24.00%)	114	(76.00%)
14	Awareness about BBF technology can reduced insect pest and disease infestation	18	(12.00%)	132	(88.00%)
15	Awareness about excess water can be drained out by using BBF technology	34	(22.67%)	116	(77.33%)
16	Awareness about that the status of soil aeration can be improve by adopting BBF technology	8	(5.34%)	142	(94.66%)
17	Awareness about water use efficiency can be increased during dry spell by adopting BBF technology	12	(8.00%)	138	(92.00%)
18	Awareness about cost of cultivation can be minimized by using BBF technology	73	(48.67%)	77	(51.33%)
19	Awareness about soil properties can be improved over a year by adoption of BBF technology	14	(9.34%)	136	(90.66%)
20	Awareness about the working efficiency can be improved without any difficulties due to broad bed furrow technology	15	(10.00%)	135	(90.00%)

Practice wise awareness about BBF technology by the soybean growers presented in Table 1 and it can be seen that majority of respondents in general were aware about Broad Bed Furrow (BBF) Technology (79.34%), whereas 20.66 per cent of respondents were not aware about this technology followed by 56.00 per cent of respondents who were aware about BBF technology use in soybean crop and 44.00 per cent of respondents were not aware then half of the respondents (50.00%) aware about Broad Bed Furrow is time saving method of preparing bed and sowing operation and the same per cent of respondents were not aware, about half (48.67%) of respondents were aware about cost of cultivation can be minimized by using BBF technology, less than half (42.67%) of respondents were aware about the seed rate requirement for Broad Bed Furrow method (20-22kg/acre), 41.34 per cent of respondents were aware about increase in yield by 30-35 per cent through BBF technology, more than one fourth of respondents (28.67%) were aware about Broad Bed Burrow planter, little more than one fourth of respondents (26.00%) were knowing about recommended plant to plant distance while using BBF technology (5-10 cm), less than one fourth of respondents (24.00%) found aware about BBF technology minimizes the effect of drought on crop and not aware little more than three fourth of respondents (76.00%) and 22.67 per cent of respondents were aware about excess water can be drained out by using BBF technology.

The majority of respondents (94.66%) were not aware about minimization of weed infestation by using BBF technology were similarly equal proportion (94.66%) of respondents were not aware about the status of soil aeration can be improve by adopting BBF technology, followed by respondents (93.33%) who were not aware about proper management of fertilizer done by using BBF planter, majority of respondents (92.66%) found not aware about distance between two furrow and width of bed (size 95x55x15 cm) and 92.00 per cent of respondents not aware about water use efficiency can be increased during dry spell by adopting BBF technology, 90.66 per cent of respondents were not aware about soil properties can be improved over a year by adoption of BBF technology, 90.00 per cent of respondents not aware about the working efficiency can be improved without any difficulties due to Broad Bed Furrow Technology, 89.33 per cent of respondents not aware about increase in germination per cent of crop by adopting Broad Bed Furrow Technology, 88.00 per cent of respondents not aware about BBF technology can reduced insect pest and disease infestation, 86.00 per cent of respondents found not aware about BBF technology can conserve the moisture level in soil.

Table 2. Distribution of respondents according to their awareness

Sl.No.	Category	Respondents (n=150)	
		Frequency	Percentage
1	Low(up to 33.33)	92	61.34
2	Medium(33.34 to 66.66)	48	32.00
3	High(above 66.67)	10	6.66
	Total	150	100.00

It revealed from Table 2 that 61.34 per cent of the respondents had ‘low’ level of awareness while (32.00%) of respondents had ‘moderate’ extent of awareness about BBF technology. The respondents with ‘high’ extent of awareness level were only (6.66%).

Conclusion:

The awareness about Broad Bed Furrow Technology by the soybean growers was observed that majority of the respondents (61.34%) were found in ‘low’ level category of awareness level. Out of 150 respondents 92 respondents were in ‘low’ level category, followed by 32.00 per cent respondents were found in ‘medium’ level category.

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