

## Adoption behavior of farmers in soybean production technology

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### ABSTRACT

It was observed that most of the soybean growers (58.71 per cent) were of middle age (26 to 45 years), received formal education up to Higher Secondary and diploma level, possessed medium size of land holding between 4.01 to 7.00 acres. Majority of the soybean growers (49.54 per cent) had medium farming experience i.e. 9 years to 17 years, having medium social participation group (i.e. score between 3 to 4) and medium annual income (Rs. 75,551 to Rs.1, 50,765 /-). It was found that the majority of the soybean growers' (75.23 per cent) had adopted the recommended package of soybean production practice at medium extent. It can be stated that the level of adoption of soybean cultivation practices by majority soybean growers was satisfactory.

### INTRODUCTION

Soybean (*Glycine max*) in Indian Agriculture has attained great importance as a pulse and oilseed crop because of its nutritional and industrial value. It is popularly known as 'Queen of pulses', 'Wonder crop' and 'Agriculture's cinderella'. In India, the soybean had occupied an important place in case of getting more foreign exchange from the export of soya powder due to its greater demand in international market. It is highly nutritious food item, as it contains 21 per cent carbohydrate, 36.5 per cent protein and 19.9 per cent fat (total lipid), 11.5 per cent iron and 4 per cent minerals like calcium, phosphate and many important vitamins too.

Front Line Demonstrations on soybean were implemented in Khadak Malegaon village since last 3 years by Krishi Vigyan Kendra, Nashik. All the farmers do not adopt the recommended crop production technologies at the same time and at the same rate. With this background the present investigation was undertaken to assess the adoption behaviour of soybean growers about soybean production technology.

### METHODOLOGY

Krishi Vigyan Kendra, Nashik has adopted the village for its different programme implementation. Front Line Demonstration on oilseed and pulses is one of the mandates of the KVKs. Every developmental activity

measured in terms of its extent of impact on the intended group. Therefore, Khadak Malegaon village from Nashik district of Maharashtra was purposively selected for the study. Among the total 109 soybean growing farmers, all the farmers were selected for the present study.

### RESULTS AND DISCUSSION

The findings obtained from the present study are presented below:

#### Personal profile:

The data on personal profile was soughted, computed, presented and discussed (Table 1). It was observed that majority of the soybean growers (58.71 per cent) were of middle age (26 to 45 years) and 46.79 per cent growers had received formal education up to Higher Secondary and Diploma level. As regarding holding, the soybean growers (49.54 per cent) possessed medium size of land holding between 4.01 to 7.00 acres. The soybean growers (49.54 per cent) had medium farming experience i.e. 9 years to 17 years. Majority of the soybean growers (63.30 per cent) were found in medium social participation group (i.e. score between 3 to 4). Majority of the soybean growers (71.56 per cent) had medium annual income (Rs. 75,551 to Rs.1, 50,765 /-), followed by those having high (11.01 per cent) annual gross income. Majority (65.14 per cent) of the respondents had fragmentation of land holding

#### Key words :

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**Table 1: Distribution of soybean growers according to their personal profile (N=109)**

Particulars	No. of respondents	Per cent
<b>Age (years)</b>		
Young (Up to 25 years)	34	31.20
Middle (26 to 45 years)	64	58.71
Old (46 years and above)	11	10.09
Total	109	100.00
<b>Education</b>		
Illiterate (having no formal education)	05	04.59
Primary education (up to 4 <sup>th</sup> Std.)	13	11.93
Secondary education (5 <sup>th</sup> to 10 <sup>th</sup> Std.)	22	20.18
Higher Secondary and Diploma (11 <sup>th</sup> to 12 <sup>th</sup> Std. and diploma)	51	46.79
Higher education (up to graduation and above)	18	16.51
Total	109	100.00
<b>Size of land holding (acre)</b>		
Small holding (up to 4.00 acres)	33	30.28
Medium holding (4.01 to 7.00 acres)	54	49.54
Large holding (7.01 to above acres)	22	20.18
Total	109	100.00
<b>Farmer experience (years)</b>		
Low (up to 8 years)	10	09.17
Medium (9 years to 17 years)	54	49.54
High (18 years and above)	45	41.29
Total	109	100.00
<b>Social participation category</b>		
Low (Score up to 2)	27	24.77
Medium (Score between 3 to 4)	69	63.30
High (score 5 and above)	13	11.93
Total	109	100.00
<b>Annual income (Rs.)</b>		
Low (up to Rs.75,550/-)	19	17.43
Medium (Rs. 75,551 to Rs.1,50,765 /-)	78	71.56
High (above Rs. 1,50,765/-)	12	11.01
Total	109	100.00
<b>Land fragmentation (index)</b>		
Low (up to 1.05)	23	21.10
Medium (1.06 to 1.16)	71	65.14
High (1.16 and above)	15	13.76
Total	109	100.00

**Table 2: Distribution of soybean growers according to their adoption level of soybean production technology (N=109)**

Level of adoption	No. of respondents	Per cent
Low	11	10.09
Medium	82	75.23
High	16	14.68
Total	109	100.00

to 'medium' extent.

#### Overall adoption level of the soybean growers:

The data pertaining the overall adoption level of the respondents are given in Table 2.

It is inferred from Table 2 that, the majority of the respondents (75.23 per cent) of the soybean growers had medium level of adoption of various recommended practices followed by 14.68 per cent respondents had high level of adoption and 10.09 per cent respondents of soybean growers had low level of adoption.

#### Practice wise adoption of soybean growers:

The data pertaining to the practice wise adoption of soybean cultivation practices by the soybean growers are presented in Table 3.

From Table 3, it was found that hundred per cent soybean growers had completely adopted some of the recommended cultivation practices like seed rate, sowing methods, harvesting and threshing operations. Majority of the soybean growers had completely adopted recommended soil type (65.14 per cent), preparatory tillage like ploughing (69.72 per cent), harrowing and FYM application (1.65 per cent and 44.04 per cent, respectively), improved varieties (74.31 per cent), spacing *i.e.* row to row and plant to plant (93.58 per cent and 91.74 per cent, respectively), time of sowing (92.66 per cent), intercultural operations like hoeing and first weeding operation (74.31 per cent and 89.91 per cent, respectively), water management *i.e.* at 50 per cent flowering stage (89.91 per cent) and pod development stage (82.52 per cent) and recommended average yield (91.74 per cent), respectively. Bhosale (2003) and Patil (2002) have also conducted investigation in this regards.

#### Conclusion:

So, it was suggested that the extension agencies must provide the authentic information of recommended cultivation practices of soybean. The demonstrations on pest and disease control measures and seed treatment should be conducted as farmers field to explain the

**Table 3: Distribution of soybean growers by their adoption of improved cultivation practices of soybean (n=109)**

Sr. No.	Soybean cultivation practices	Complete adoption		Partial adoption		No adoption	
		F	P	F	P	F	P
1.	Soil type (Medium black, well drained)	71	65.14	38	34.86	00	00
2.	Preparatory tillage						
	Two ploughings	76	69.72	26	23.85	07	06.43
	2-3 harrowing	89	65	20	18.35	00	00
	F.Y.M. application (10 t/ha.)	48	44.04	35	32.11	26	23.85
3.	Improved varieties						
	(JS-335, PKV-1, JS-80, PK-472, DS-228)	81	74.31	00	00	28	25.69
4.	Seed rate (75-80 kg/ha.)	109	100.0	00	00	00	00
5.	Spacing						
	Between two row (30 cm)	102	93.58	07	06.42	00	00
	Between two plants (10 cm)	100	91.74	09	08.26	00	00
6.	Seed treatment						
	<i>Rhizobium</i> 250 g/ 10 kg of seed	18	16.51	00	00	91	83.497
	PSB 250 g/ 10 kg of seed	22	20.18	00	00	87	9.8270
	<i>Trichoderma</i> 5 g/ 1 kg of seed	32	29.36	00	00	77	0.64
7.	Sowing methods						
	Drilling	109	100	00	00	00	00
	Dibbling	03	02.75	00	00	106	97.25
	Broadcasting	00	00	00	00	109	100
8.	Time of sowing (15 June to 15 July)	101	92.66	00	00	08	07.34
9.	Recommended dose of fertilizers						
	Nitrogen (75 kg/ha)	32	29.36	77	70.64	00	00
	Phosphorus (100 kg/ha)	21	19.27	78	71.56	10	09.17
10.	Intercultural operation						
	Hoeing (2-3 times)	81	74.31	28	25.69	00	00
	Weeding -1	98	89.91	11	09	00	00
	Weeding -2	28	25.69	00	00	81	74.31
11.	Chemical weed management						
	(Baseline- 24t/ha, Butachlor (50 EC-1.5-2 kg/ha,) Aquachlor (2 kg/ha)	10	09.17	28	25.69	71	65.14
12.	Water management						
	50 per cent flowering stage	98	89.91	11	10.09	00	00
	Pod development stage	90	82.57	19	17.43	00	00
13.	Intercropping						
	Soybean + Tur	42	38.53	00	00	67	61.47
	Soybean + Maize	11	10.09	00	00	98	89.91
	Soybean + Cotton	19	17.43	00	00	90	82.57
14.	Crop protection						
	(Prophanophos 50EC-1250ml/500lit of water for thrips, leaf eating caterpillar)	21	19.27	88	80.73	00	00
15.	Harvesting (90 to 120 DAS)	109	100	00	00	00	00
16.	Threshing (sundrying, threshing, winnowing, seed should contain moisture less than 10-12%)	109	100	00	00	00	00
17.	Average yield -25-30 qt/ha	100	91.74	09	08.26	00	00

F: frequency, P: per cent

technological know-how as well as the benefits of the practices so that farmers will get knowledge of these practices and can motivate to practice than on their field.

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