



KNOWLEDGE OF MUSTARD GROWERS TOWARDS IMPROVED CULTIVATION PRACTICES IN SIRSA DISTRICT OF HARYANA

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Abstract: Increasing living standard of people arises the need for increased production of oilseed in country. But per capita availability of oil is very low, thus to increase the production of oil seed the farmers should adopt the new technology. Meanwhile, the research gap should be identified and rectified to increase the production. Thus, the knowledge and adoption level of respondents was studied to understand the complexity of technology adoption. Descriptive research design was adopted for the study. 120 respondents from six villages namely, Alanoor, Bhadra, Chamal, Dadu, Ffagu and Jamal of Sirsa block of Sirsa district in Haryana. The findings reported that majority of the respondents were middle aged, literate with middle school, had a land holding of 2.5-5 acres, nuclear family, agriculture as their major occupation along with service as their subsidiary occupation, medium level of annual income, had membership in more than one organization, medium level of risk orientation, medium level of knowledge, medium level of adoption.

Keywords: Mustard growers, Knowledge, Socio-economic profile, Improved cultivation practices

Introduction

Agriculture acts as key sector of Indian economy by contributing 28.00 per cent GDP. The fast growing population is putting tremendous pressure on the agricultural production in the country. The production per unit area is very low in comparison to other countries of the world. The oilseed sector has been an important area of concern and interventions for Indian policy makers in the post-reforms period when India became one of the largest importers of edible oils in the world, importing about half of domestic requirement in the 1990s (Sharma, 2014). The pre-requisites for agricultural development are the successful transfer of appropriate technology



from the scientists to the farmers. It has been realized that there is wide gap between what is achieved at the research stations and what farmers know and apply in the field.

Efforts have been made to transfer the technologies through various agencies of government of India and state government. China, India and Pakistan grow about 90% of the world production of mustard. India contributes about 8-9 per cent of world's oilseeds production and is the fourth largest edible oil economy in the world. Oilseeds account for about 1.5 per cent of GDP and 8 per cent of values of all agricultural products. However, India ranks 3rd in production of mustard. Total mustard area was 280.50 lakh ha, production of 327.49 lakh tones and yield of 1168 kg/ha, respectively during 2013-14 with an increase in more than 63 per cent in production and more than 29 per cent increase in yield than 2008-09. However, the area, production and productivity of oil seeds sharply declined to 258.24 lakh ha, 273.80 lakh tones and 1060 kg/ha respectively during 20-21 mainly due to delayed and deficit rainfall.

India is one of the largest producers of rape seed and mustard in the world. India's contribution in the world rape seed and mustard is around 16.2 million tones which accounts for about 18 per cent of the oil seed production of the country. Mustard is the major rabi oil seed crop in India and important next to groundnut both in area and production. Mustard belong to genus brassica of the family brassicaceae. The oil seed brassica composed of four species, *B. compestris*, *B. rapa*, *B. juncea* (Indian Mustard), *B. napus*. Amongst oil seed crops grown in India, Brassica rank second in acreage with about 6.86 million hectare. Rape seed/mustard production is second rank and areas are first rank in India, etc.

Rape seed mustard oil is used primarily for cooking but there are species valued for vegetable fodder condiments and medicinal purpose. The oil obtained from various types varies from 30-40 percent. Rapeseed mustard is grown in as many as states in India. Although rapeseed-mustard is cultivated in 13 states of the country, bulk of the production takes place in four states including Rajasthan (45%), Uttar Pradesh (13%), Haryana (11%) and West Bengal



(8%) (Directorate of Rapeseed Mustard Research, 2015). In terms of rapeseed productivity, global ranking of India is 28 (Bhardwaj, 2013). Patel (2011) reported that majority of respondents had medium level of risk orientation, scientific orientation and economic motivation.

Statement of problem

The requirement of oilseed in country is rapidly increasing because of increasing population and people's living standard. But, per capita availability of oil is very low in India. Hence, the goal is to increase the farm production which can be achieved only, if the scientific agricultural technology is efficiently adopted at proper time and stage by the farmers, at their farm level. Due to complexity in different technology sometimes farmers find it hard to understand or remember all the operations as a result of which they lag behind in adoption of recommended package of practices. Thus, there arises a need to understand the knowledge level and adoption behaviour of mustard growers, to improve adoption thereby increasing the production and productivity of mustard. With this context, the following objectives of the study were formulated;

1. To assess the socio-economic profile of respondents.
2. To determine the knowledge of the respondents towards improved mustard cultivation practices.

Methodology

Descriptive research design is adopted in the study since the phenomenon was already occurred. This is appropriate as it aims to describe a population, situation or phenomenon accurately and systematically. Sirsa district of Haryana is selected purposely for the study because maximum area come under mustard and also the researcher belong to the area is well conversant with language, geography, agriculture and other aspect of the area. In Sirsa district of Haryana, there were 7 blocks. Out of which Sirsa block has been selected purposively because



maximum area come under mustard cultivation. In Sirsa block, there were 185 villages. Out of which 6 villages were selected namely, Alanoor, Bhadra, Chamal, Dadu, Fagu and Jamal. From the selected 6 villages of Sirsa block, 20 respondents were selected from each village. Thus, 120 respondents were selected from these 6 villages constitute the respondents of the study.

Results and discussion

The socio-economic profile of the respondents were studied under various characteristics and the results were presented under table.1.

Table.1. Socio-economic profile of the respondents (n=120)

S. No.	Characteristics	Category	Frequency	Percentage
1	Age (in years)	Young (<35)	25	20.83
		Middle(36-55)	67	55.83
		Old (>55)	28	23.34
2	Education	Illiterate	26	21.70
		Literate (can read only)	14	11.70
		Primary school	6	5.0
		Middle school	36	30.0
		High school	26	21.70
		Intermediate	8	6.70
		Graduate and above	4	3.30
3	Occupation	Agriculture	40	33.33
		Agriculture +Services	54	45.00
		Agriculture +Labour	24	20.00
		Agriculture + Business	2	1.70
4	Family type	Nuclear family	98	81.70
		Joint family	22	18.30



5	Land holding	<2.5 acres	14	11.70
		2.5-5 acres	98	81.70
		>5 acres	8	6.60
6	Annual income	Low (upto 50,000)	24	20.00
		Medium (50,000 – 1 lakh)	74	61.70
		High (above 1 lakh)	22	18.30
7	Social participation	No membership in any organization	42	35.00
		Membership in one organization	24	20.00
		Membership in more than one organization	50	41.70
		Office bearer	4	3.30
8	Risk orientation	Low	6	5.0
		Medium	82	68.30
		High	32	26.70

From table.1, it can be interpreted that more than half of the respondents were middle aged (55.83%), followed by old age (23.34%) and young age (20.83%). Majority of the respondents were literate with middle school (30%) education, followed by equal proportion of respondents were illiterate (21.70%) and high school level of education (21.70%), followed by literate (can read only) (11.70%), Intermediate (6.70%), primary school (5%) and only 3.30 per cent were graduate and above. Majority of the respondents (81.70%) had a land holding of 2.5-5 acres, followed by land holding of less than 2.5 acres (11.70%) and only 6.60 per cent of the respondents had a land holding of more than 5 acres. Most of the respondents (81.70%) had nuclear family, followed by 18.30 per cent of the respondents had joint family.



Nearly half of the respondents (45%) had agriculture as their major occupation along with service as their subsidiary occupation, followed by only agriculture (33.33%) as their main occupation, 20 per cent of respondents had agriculture + labour as their main occupation and only 1.70 per cent consider agriculture + business as their occupation. More than half of the respondents (61.70%) had medium level of annual income, followed by low (20%) and high (18.30%) level of annual income. Nearly half of the respondents (41.70%) had membership in more than one organization, followed by 35 per cent of respondents had no membership in any organization, 20 per cent had membership in one organization and only 3.30 per cent of respondents were office bearer. Majority of the respondents (68.30%) had medium level of risk orientation, followed by high (26.70%) and low (5.0%) level of risk orientation. Similar findings also reported by Vaidya (2011), Bhumia (2013), Chouhan *et.al.*, (2013), Daur *et.al.*, (2014), Sharma *et.al.*, (2014), Singh *et.al.*, (2014), Sharma *et.al.*, (2015), Bagheril and Shabanali (2016), Hulgur (2018) and Dhore (2019).

The knowledge level of the respondents towards cultivation practices is identified, categorized and presented in table.2.

Table.2. Distribution of respondents based on their knowledge level towards improved cultivation practices

(n=120)

S. No.	Statement	Response					
		Fully correct		Partially correct		Not correct	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1.	Field preparation: <ul style="list-style-type: none"> • Traditional method- 2-3 times ploughing • Use of zero tillage machine • Surface seeding method • Seed driller 	34	28.30	46	38.40	40	33.30



2.	Improved variety: I. PBR 210 II. Sriram1666	15	12.50	75	62.50	30	25.00
3.	Seed and its treatment: I. Carbendazim II. Trichoderma viride III. Pseudomonas florescens IV. Rhizobium V. Thiram VI. Captan	29	24.17	57	47.50	34	28.33
4.	Sowing time • September last • October first	8	6.60	98	81.70	14	11.70
5.	Spacing I. 30X10cm	12	10.00	73	60.83	35	29.17
6.	Fertilizers: NPK : 40:25:ZnSO4	14	11.67	77	64.17	29	24.17
7.	Irrigation: I. 0 times II. 1 times III. 2 times IV. 3times V. 5times	21	17.50	59	49.17	38	31.67
8.	Weeding and hoeing operations: I. 2 times II. 3 times III. 4 times	27	22.50	62	51.7	31	25.83
9.	Weed control: I. Vernolate II. Acetochlor III. Alachlor IV. Pendimethaline	12	10.00	57	47.50	51	42.50



10.	Diseases: I. Stem rot II. Pod and Stem blight III. Brown spot IV. Downy mildew	17	14.16	84	70.00	19	15.83
11.	Harvesting: I. 80-90days II. 90-100days III. 100-110days IV. 110-120days	24	20.00	69	57.50	27	22.50
12.	Yield: I. 35-40quintal/ha II. 20-25quintal/ha III. 15-20quintal/ha IV. 25-35quintal/ha	15	12.50	72	60.00	33	27.50
13.	Soil: I. Loamy II. Sandy Loamy III. Clay	12	10.00	63	52.50	45	37.50
14.	Weed control: I. Pre-emergent II. post emergent	6	5.00	83	69.17	31	25.83
15.	Soil Ph I. 6.0 II. 6.5	28	23.33	47	39.17	45	37.50

From table.2, it was reported that 28.30 per cent , 38.40 per cent and 33.30 per cent of respondents had fully correct, partially correct and no correct knowledge on field preparation. Whereas, 12.50 percent, 62.50 per cent and 25 per cent of respondents had fully correct, partially correct and no correct knowledge on improved variety. 24.17 percent, 47.50 per cent and 28.33 per cent of respondents had fully correct, partially correct and no correct knowledge on seed and its treatment. 6.60 percent, 81.70 per cent and 11.70 per cent of respondents had fully correct,



partially correct and no correct knowledge on sowing time. 10 percent, 60.83 per cent and 29.17 per cent of respondents had fully correct, partially correct and no correct knowledge on spacing.

Meanwhile, 11.67 percent, 64.17 per cent and 24.17 per cent of respondents had fully correct, partially correct and no correct knowledge on fertilizers. 17.50 percent, 49.17 per cent and 31.67 per cent of respondents had fully correct, partially correct and no correct knowledge on irrigation. 22.50 percent, 51.70 per cent and 25.83 per cent of respondents had fully correct, partially correct and no correct knowledge on weeding and hoeing operations. 10 percent, 47.50 per cent and 42.50 per cent of respondents had fully correct, partially correct and no correct knowledge on weed control. 14.17 percent, 70 per cent and 15.83 per cent of respondents had fully correct, partially correct and no correct knowledge on diseases.

Eventually, 20 percent, 57.50 per cent and 22.50 per cent of respondents had fully correct, partially correct and no correct knowledge on harvesting. 12.50 percent, 60 per cent and 27.50 per cent of respondents had fully correct, partially correct and no correct knowledge on yield. 10 percent, 52.50 per cent and 37.50 per cent of respondents had fully correct, partially correct and no correct knowledge on soil. 5 percent, 69.17 per cent and 25.83 per cent of respondents had fully correct, partially correct and no correct knowledge on weed control. 23.33 percent, 39.17 per cent and 37.50 per cent of respondents had fully correct, partially correct and no correct knowledge on soil pH.

The overall knowledge level of the respondents towards cultivation practices is identified, categorized and presented in table.3.



Table.3. Overall knowledge level of respondents towards improved cultivation practices

(n=120)

S. No.	Category	Frequency	Per cent
1	Low	12	10.00
2	Medium	60	50.00
3	High	48	40.00

From table.3, it could be learnt that half of the respondents had medium level of knowledge (50%), followed by high (40%) and low (10%) level of knowledge.

The relationship between socio-economic profile and knowledge level of respondents towards improved cultivation practices was studied and presented in table.4.

Table.4. Association between socio-economic profile and knowledge level of respondents towards improved cultivation practices

S. No.	Characteristics	'r' value	Regression co-efficient	Standard error	t-value
X ₁	Age	0.012*	1.326*	0.596	0.031*
X ₂	Education	0.729	0.580	2.373	0.808
X ₃	Occupation	0.354	5.408	7.942	0.499
X ₄	Land holding	0.541	4.065	5.590	0.471
X ₅	Annual Income	0.027*	6.372**	0.000	0.131**
X ₆	Social participation	0.404**	-3.805*	1.774	0.037*



X ₇	Risk orientation	0.022*	3.863*	1.894	0.047*
X ₈	Family type	0.857	-2.986	0.000	0.620

R² = 0.459

F=2.732

a= 151.677

NS = Not Significant; * = Significant at 5%, ** = Significant at 10%.

From table.4, it can be seen that socio-economic characteristics like age, annual income and risk orientation had positive and significant association with the knowledge level of respondents towards improved cultivation practices at 5 per cent level of significance; social participation had positive and significant association with the knowledge level at 10 per cent level of significance. Meanwhile, education, occupation, land holding and family type had non-significant association with the knowledge level of respondents towards improved cultivation practices.

CONCLUSION

Majority of the respondents were middle aged, literate with middle school, had a land holding of 2.5-5 acres, nuclear family, agriculture as their major occupation along with service as their subsidiary occupation, medium level of annual income, had membership in more than one organization, medium level of risk orientation, medium level of knowledge. Socio-economic characteristics like age, annual income, social participation and risk orientation had positive and significant association; education, occupation, land holding and family type had non-significant association with the knowledge level of respondents towards improved cultivation practices.



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