The Pharma Innovation Journal 2020; SP-9(4): 123-125

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.03
TPI 2020; SP-9(4): 123-125

www.thepharmajournal.com
Received: 20-02-2020
Accepted: 22-03-2020

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Knowledge level of sesame cultivators of Sihora block of Jabalpur district

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Abstract
The current study was undertaken in Sihora block of Jabalpur district with minimum sesame productivity among other blocks with the aim to know the knowledge level of sesame cultivation and their association with technological gap in recommended sesame cultivation practices. Through applying ex-post-facto research design and three stage multi sampling 100 sesame cultivators were interviewed. Collected data was scored, classified, analysed and presented in the form of frequency count and percentage and chi-square test was applied to know the association. The findings discovered that out of total sesame cultivators, 53% had medium knowledge level, followed by 38% having high knowledge level and only 09% were found in the low knowledge level of sesame cultivation. Also the association between knowledge level of sesame cultivators and technological gap in recommended sesame cultivation practices found to be significant. Hence, it can be concluded that there was significant association between knowledge level of cultivators and technological gap in sesame cultivation. Since a few studies has been undertaken on sesame in the past, the current study was done particularly to bring the attention towards this oilseed queen to increase the knowledge and adoption of improved sesame cultivation practices and ultimately increase the sesame productivity in the state.

Keywords: Knowledge, Ex-Post-Facto, Technological gap, Association and Sesame

1. Introduction
Sesame, commonly known as Til, is one of the important edible oilseeds cultivated in India with 50% oil and 18-20% protein content in it. Being known as "Poor man's substitute for ghee", a 100gm of sesame seeds provides 592 calories of energy. Also known to be "The queen of oilseeds", it is a rich source of food, nutrition and bio-medicine [1].
Oil percentage is maximum in sesame (50%) as compared to groundnut (45%), soybean (40%), mustard (34%) and sunflower (45%). Among all oilseeds, sesame costs maximum in terms of export- i.e. Rs. 3583.46 crore, groundnut (Rs. 3212.06 crore) and niger (Rs. 113.61 crore.) [2]. Minimum Support Price for sesame is maximum among all oilseed crops i.e. groundnut, sunflower, niger, soybean and mustard which is Rs.4600, Rs.4000, Rs.3750, Rs.3600, Rs.2500 per quintal, respectively. It has more growth rate in last 3 year's Minimum Support Price which is 48% as compared to that of groundnut which is 40% [3]. In the world market for sesame, India has a reputation of being a net exporter. The country is one of the largest exporters of sesame, exporting between 5 lakh to 6 lakh metric tonnes of sesame annually. As the production in India is sufficient to satisfy the domestic consumption demand, around 25% of the total production is exported to different countries (Sesame: Economic importance and production-2016). Sesame requires minimum seed rate, mostly grown as rainfed crop and takes only 85-90 days to get harvest. It can be taken in zaid season when the land and farmers both are fallow after the harvest of rabi produce.
It is cultivated over an area of 16.73 lakh hectares with a production of about 6.85 lakh tones and an average yield of 409 kg/ha in India [4]. It is mainly grown in Chhatarpur, Tikamgarh, Sidhi, Shahdol, Morena, Shivpuri, Sagar, Damoh, Jabalpur, Mandla, East Nimar and Seoni district of Madhya Pradesh with an average yield of 387 kg/ha. Jabalpur occupies 1000 ha of area with 530 tones of production and 500kg/ha average yield for this crop. Sesame covers 20 ha area, 75 quintals of production with 375 kg/ha productivity in Sihora block of Jabalpur district.
The study is done to know the knowledge level of sesame cultivators and the association between this variable and technological gap in recommended sesame cultivation practices. Although the All India Coordinated Research Project (AICRP) in undergoing in the state at the university headquarter, the productivity of sesame was found to be minimum in the Sihora

block among the all other blocks of the district [5]. Not only this the production of sesame got confined to the Bundelkhand area in the state in spite of favorable climatic conditions in the district. Hence, the reason behind such case was made to know through the study by finding the technological gap in the undertaking and recommended practices.

2. Materials and Method

The present research was carried in Sihora block of Jabalpur district due to minimum productivity of sesame in the block among other blocks. The total geographical area of the block is 49,268 ha with 28,247 ha net sown area and 144% cropping intensity [6]. To seek the answers of the questions, an ex-post facto design was used and the samples of the study were selected by three stage sampling. Hundred sesame cultivators from 10 villages of the block were selected randomly to constitute the sample.

The structured interview schedule was used as an instrument of data collection, which was prepared on the basis of objectives and various variables considered in the present study.

Knowledge level as independent and technological gap in sesame cultivation as dependent were decided to be the variables of the study.

The collected data were scored, classified, analyzed and presented in the form of frequency count and percentage in the tables. In order to ascertain the association between the two variables, chi-square test was applied.

3. Results and Discussion

Table 1: Distribution of sesame farmers according to their knowledge level

S. No.	Categories	Frequency	Percentage
1	Low (1 to 12 score)	09	09.00
2	Medium (13 to 24 score)	53	53.00
3	High (25 to 36 score)	38	38.00
Total		100	100.00

The data of the table 1 shows that out of total sesame growers, 53.00 per cent sesame growers had medium knowledge level, followed by 38.00 per cent had high knowledge level and only 09.00 per cent were found in the low knowledge level of sesame cultivation.

Thus, it may be concluded that more than fifty per cent of sesame growers (53.00%) had medium knowledge level.

Table 2: Distribution of sesame farmers according to their knowledge level in different package of practices

S.No	Package of practices	Level of knowledge		
		No	Partial	Complete
1	**Field preparation**			
1.1	Type of soil	-	-	100
1.2	Ploughing	12	30	58
1.3	Farm Yard Manure	60	09	31
2	**Seed and sowing management**			
2.1	High Yielding Varieties	47	09	44
2.2	Seed rate	40	28	32
2.3	Seed treatment	33	07	60
3	**Fertilizer management**			
3.1	NPK	39	18	43
3.2	Sulphur	51	07	42
3.3	Biofertilizer	63	07	30
4	Weed management	46	09	45
5	**Plant protection management**			
5.1	Insect identification	04	02	94
5.2	Insect control	37	13	50
5.3	Disease identification	63	05	32
5.4	Disease control	65	05	30
6	**Harvesting**			
6.1	Crop duration	-	03	97
6.2	Method of harvesting	-	-	100
6.3	Threshing and winnowing	-	-	100

The data of the table 2 shows that in field preparation practice, 100.00 per cent respondents had complete knowledge of type of soil, 58.00 per cent had complete knowledge of ploughing and only 31.00 per cent had complete knowledge of farm yard manure. With respect to seed and sowing management, 44.00 per cent had complete knowledge of high yielding varieties, 32.00 per cent had complete knowledge of seed rate, while 60.00 per cent had complete knowledge of seed treatment. In case of fertilizer management, 43.00 per cent had complete knowledge of NPK, 42.00 per cent had complete knowledge of sulphur application and 30.00 per cent had complete knowledge of biofertilizers. In weed management practice, 46.00 per cent had no knowledge and 45.00 per cent had complete knowledge. With respect to plant protection practice, a huge majority (94.00%) had complete knowledge of insect identification, 50.00 per cent had complete knowledge of insect control, 63.00 per cent had no knowledge of disease identification and 65.00 per cent had no knowledge of disease control. In the harvesting practice, a huge majority of the respondents (97.0%) had complete knowledge about crop duration and cent per cent respondents had complete knowledge of method of harvesting, threshing and winnowing.

Table 3: Association between knowledge of practices of sesame growers and technological gap in sesame cultivation

S. No.	Knowledge level	Technological Gap			Total
		Low	Medium	High	
1	Low (1 to 12 score)	01 (11.00)	08 (88.89)	00 (00.00)	09 (100.00)
2	Medium (13 to 26core)	05 (09.43)	47 (88.68)	01 (01.89)	53 (100.00)
3	High (27 to 38 score)	26 (68.42)	12 (31.58)	00 (00.00)	38 (100.00)
Total		32	67	01	100

(Figures in parentheses indicate percentage)

As the cell frequencies were less than five; therefore, it was pooled for the purpose of calculating chi-square test and table be as follows

S. No.	Knowledge level	Technological Gap		Total
		Low	Medium + High	
1	Low	06	56	62
2	Medium + high	26	12	38
Total		32	68	100

χ^2 = 37.363, Significant at 0.05% level of significance with 1d. f. Table value = 3.841

The data in Table 3 shows the association between knowledge level of growers and their technological gap in sesame cultivation. It is clear from the data of the table that out of 09 growers, who were having low knowledge level followed by, 11.00 per cent had low technological gap, 88.89 per cent medium and 00.00 per cent had high technological gap. While, out of 53 growers who were having medium knowledge level, followed by 09.43 per cent had low technological gap, 88.68 per cent medium and 01.89 per cent had high technological gap. Whereas out of 38 sesame growers who had high knowledge level, 68.42 per cent had low technological gap, 31.58 per cent had medium technological gap and 00.00 per cent had high technological gap in sesame cultivation.

The chi-square value 37.363 was found significant at 0.05 level of probability with 1 degree of freedom. Hence, it can be concluded that there was association between knowledge of practices of growers and technological gap in sesame cultivation.

The knowledge regarding improved sesame production technology was found to be significantly associated with technological gap of sesame growers. Thus, the null hypothesis H_0 that there is no significant association between knowledge level and technological gap, is rejected. The reason for such finding is perhaps the adoption of improved technologies recommended by the scientists are known to the farmers. The farmers must possess the correct, reliable and sufficient knowledge about the package of cultivation. The observation of Singh (2007) [7], Kapse *et al.* (2007) [8], Patel *et al.* (2010) [9], Dixit *et al.* (2005) [10] and Machhar *et al.* (2015) [11] confirm the present finding [7-11].

Conclusion

The majority (53%) of sesame cultivators had medium knowledge of sesame production practices. This might be due to low extension participation, poor mass media exposure, irregular visits of RAEOs and lack of trainings on improved sesame production technology.

The knowledge regarding improved sesame production technology was found to be significantly associated with technological gap of sesame cultivators. The reason for such finding is perhaps the adoption of improved technologies recommended by the scientists are known to the farmers.

Acknowledgement

A deep sense of gratitude and profound thanks is expressed to the Department of Extension Education, J.N.K.V.V. Jabalpur and the University for their Immense Help in guidance and providing facilities for conducting the research.

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