



Adoption of Ajwain (*Trachyspermum ammi*) Production Technology in Neemuch District of Madhya Pradesh

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ABSTRACT

The present study was conducted by selecting 100 growers from 10 villages from Neemuch and Manasa tehsils of Neemuch district of Madhya Pradesh state to ascertain the adoption level of farmers about recommended cultivation practices of ajwain. The results revealed that maximum farmers (55%) fell under medium knowledge level. Likewise, majority of respondent (85.0%) were included under highest extent level of adoption for the practice of sowing under irrigated condition. Lowest extent of adoption was observed for blight disease control measures applied (14%). Out of ten characteristics studied age, education, area under ajwain crop, irrigation facilities, social participation, sources of information and scientific orientation, were positively and significantly correlated with knowledge and adoption level. Likewise, land holding was positively and significantly correlated only with knowledge and non-significantly correlated with adoption. The annual income was non-significantly correlated with both knowledge and adoption.

Key Words: Adoption, Disease control, Knowledge, Production , Technology.

INTRODUCTION

India is the world's largest producer, consumer and exporter of seed spices which are being cultivated widely in the country over different agro-climatic zones. The Indian system of medicine has identified 1,500 medicinal plants, out of which 500 species are mostly used in preparation of drugs. Another use of seed spices are for flavouring, seasoning and imparting aroma in variety of food items and beverages. There are about 20 seed spices grown in India, therefore known as land of spices. The seed spices classified in two categories that are major seed spices and minor seed spices, according to that ajwain (*Trachyspermum ammi*) comes under the minor categories. The current productivity of ajwain crop is 619kg/ha. It is widely cultivated in M.P., Rajasthan and Gujarat state. Ajwain producing districts of Madhya Pradesh are Neemuch, Mandsaur. Neemuch is chief Ajwain growing district of the state with respect to maximum area (7465 ha) and production (30250 q). Kaur and Sharma (2017) emphasized that policy intervention

and good price remuneration with assured market for alternative crops is the only key. Though each state government has its own agricultural policy, it is largely the central government funds and policies which define a state's focus. Further, varietal characteristics, seed source and its cost, extension activities, package of practices of a variety and marketing are some of the important factors in adoption of a newly released variety in a particular area (Manan *et al*, 2018).

Seed spices are not only cash crops but can be termed as dynamic crop commodities particularly in the view of their great export potentiality. Generally, there is a time lag between origin of a new technology and its adoption. Improved technology of ajwain cultivation has not been fully adopted by farmers and it is mainly grown in traditional manner. There is an urgent need to fully adopt the improved production technology of ajwain so that production and income of the farmers can be raised. Within a short span, area under ajwain has increased in Neemuch district but there is possibility

for increasing the yield of the ajwain crop by the adoption of improved ajwain technology. Keeping the above facts in view the present study was undertaken to find out the extent of adoption and to note the difference between peripheral and distant farmers with respect to adoption of improved ajwain production technology.

MATERIALS AND METHODS

The present research study was conducted in Neemuch district of Madhya Pradesh. There are 3 tehsils in Neemuch district of Madhya Pradesh out of which Manasa and Neemuch tehsil were selected on the basis of maximum area under ajwain cultivation. Six peripheral and six distant villages were selected from the identified tehsil on the basis of maximum area under ajwain cultivation. For selection of respondents, 100 ajwain growers (50 farmers from peripheral villages and 50 farmers from distant villages) were randomly selected from identified villages for data collection. Data were collected with the help of interview schedule developed for the study purpose through face to face contact method. To get the overall view of adoption level the respondents were divided into three groups on the basis of calculated mean and SD of the adoption scores obtained by the respondents. The data were analyzed, tabulated and interpretations were made in the light of objectives of study. Suitable statistical measures like mean, percentage, standard deviation, “Z” test, rank order correlation were used in this study.

RESULTS AND DISCUSSION

The results of the overall view of adoption level are presented in Table 1.

Data (table 1) depicted that majority (55.0%) of the total respondents were in the medium adoption group, whereas 30.0 per cent respondents were in low adoption group and remaining 15.0 per cent ajwain growers to be observed in the high level of adoption group about ajwain production technology. Further, it was observed that in high adoption group, 22.0 per cent respondents were found to be from peripheral farmers categories followed by 8.0 per cent respondents from distant farmers' category. In the medium adoption group, 58.0 per cent respondents from peripheral farmers category and 52.0 per cent respondents from distant farmers category. Whereas in the low adoption group 20.0 per cent respondents were from peripheral farmers group and 40.0 per cent from distant farmers categories. It could be concluded that peripheral farmers possessed more level of adoption of ajwain production practices than distant farmers. It can be further concluded that 80.0 per cent respondents from peripheral categories were to be observed either from medium or from high adoption group. Whereas 92.0 per cent distant farmers adopted ajwain technology medium to lower level in the study area. These findings were similar with the finding of More *et al* (2015) who reported that that near about cent per cent of respondents had high knowledge of cultivation practices recommended

Table 1. Distribution of respondents on the basis of their level of adoption of improved ajwain production technology. **N=100**

Sr. No	Level of Adoption	Peripheral Farmers (n=50)		Distant Farmers (n=50)		Total	
		F	%	F	%	F	%
1	Low	10	20	20	40	30	30
2	Medium	29	58	26	52	55	55
3	High	11	22	4	8	15	15
	Total	50	100	50	100	50	100

F=Frequency, % = Percent

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for ajwain likewise; soil type, seed rate and sowing type, sowing time, spacing, weed management and intercultural operation, time of harvesting and stage of harvesting whereas minimum knowledge about recommended varieties (27.0%), seed treatment (17.0%), plant protection (33.0%), fertilizer application (13.0%). Similar findings were reported by Kanwat *et al* (2012) and Goudappa *et al* (2012).

Table 2 depicted the adoption of recommended improved variety seed with the 38.33 and 31.45 MPS by peripheral and distant farmers who have adopted improved varieties like Lam selection – 1, Gujarat Ajwain – 1 in the study area respectively. Likewise the peripheral and distant Ajwain growers adopt 68.20 and 41.33 MPS recommended techniques of field preparation of ajwain, respectively. The extent of adoption was 53.83 and 32.91 MPS among peripheral and distant farmers about adoption of techniques of nitrogenous fertilizer application.

The reason being as most of the farmers were able to prepare the field as per recommended technology. High adoption during sowing time was also observed as temperature is maintained and being appropriate as well as favourable during 15 sept-15 oct. for germination of ajwain. On the other hand application of phosphatic fertilizer, the extent of adoption was 41.66 and 25.30 MPS among the peripheral and distant of farmers, respectively. Whereas the adoption about recommended potassic fertiliser was observed 25.50 and 18.66 MPS among the peripheral and distant of farmers, respectively.

The study further revealed that the extent of adoption about recommended sowing time under rainfed condition was 56.58 and 40.83 MPS among the peripheral and distant ajwain growers, respectively. Likewise the peripheral and distant ajwain growers had extent of adoption about recommended sowing time under irrigated condition

Table 2 . Extent of adoption of production practices by Ajwain growers. (N=100)

Sr. No	Practice	Peripheral farmers		Distant Farmers		Total	
		MPS	R	MPS	R	MPS	R
1	Month of Sowing under irrigated condition	91.33	I	78.67	I	85	I
2	Field Preparation	68.20	II	41.33	II	54.79	II
3	Month of Sowing under rainfed condition	56.58	III	40.83	III	48.70	III
4	Depth of Sowing	55.15	IV	37.50	IV	46.32	IV
5	Nitrogen Fertilizer Application	53.83	V	32.91	V	43.37	V
6	Precaution taken during harvesting of Crops	48.20	VI	29.40	VIII	38.8	VI
7	Number of Irrigation given	44.16	VII	26.66	IX	35.41	VIII
8	Phosphatic Fertilizer Application	41.66	VIII	25.30	X	33.48	X
9	Optimum Seed Rate adoption	40.83	IX	32.83	VI	36.83	VII
10	Improved Varieties	38.33	X	31.45	VII	34.89	IX
11	Aphid Control measures applied	26.66	XI	22.33	XI	24.49	XI
12	Potassic Fertilizer Application	25.50	XII	18.66	XII	22.08	XII
13	Powdery Mildew control measures applied	22.91	XIII	14.45	XIII	18.68	XIII
14	Line Spacing Maintained	20.58	XIV	12.50	XIV	16.54	XIV
15	Blight Control measures applied	18.48	XV	9.52	XV	14	XV
		$(r_s)=0.0908^{**}$					

MPS = Mean percent score, ** Significant at 1 % level

was 91.33 and 78.67 MPS among the peripheral and distant of farmers, respectively and ranked first by both the categories of respondents. It was found that extent of adoption about recommended seed rate was 40.93 and 32.83 MPS among the peripheral and distant of farmers, respectively. It was noted that majority of respondents were using recommended seed rate of 2 to 2.5 kg/ha for ajwain cultivation in the study area.

It was found that adoption of row to row spacing was maintained by 20.58 and 12.50 among the peripheral and distant of farmers, respectively. It was also found that recommended depth of sowing of ajwain with 55.15 and 37.50 MPS among the peripheral and distant of farmers, respectively. This aspect was ranked fourth by both the categories of farmers. Line sowing is not preferred by the farmers because the seed size is small and lighter in weight. Further, the extent of adoption of recommended number of irrigations were given to crop with 44.016 and 26.66 MPS among the peripheral and distant of farmers, respectively. Aphid control measures were applied by 26.66 and 22.33 MPS among the peripheral and distant of farmers, respectively.

Powdery mildew control measures were applied by 22.91 and 14.45 MPS among the peripheral and distant of farmers, respectively and was ranked 13th by both the categories of farmers. The blight control measures were applied with recommended pesticides with 18.48 and 9.52 MPS peripheral and distant farmers. Recommended precautions were adopted during harvesting of crop with 48.20 and 29.40 MPS among the peripheral and distant of farmers, respectively. The reason being that since there is sudden attack of blight and the farmers were unaware about the identification of disease resulting in major loss in the crop. The maximum and minimum adoption in peripheral farmers was 18.48 to 91.33 MPS while in case of distant farmers the adoption was 9.52 to 78.67 MPS for all the improved ajwain cultivation practices. Further, it was noted that peripheral farmers had

more adoption than distant farmers about most of the ajwain cultivation practices still there is a gap in the adoption of improved ajwain production technology. To improve the extent of adoption in both the categories of farmers' intensive and timely training programmes should be organized in the study area. Further, it was revealed that the calculated rank order correlation (r_s) value was 0.0908 which was found to be statistically significant at 1 percent level of significance. Thus it can be inferred that there was a significant correlation between ranks assigned to extent of adoption of improved ajwain cultivation practices by peripheral and distant farmers. The present findings were in line with the findings of Choudhary and Punjabi (2012) who found that practice-wise adoption level of respondents revealed that respondents had highest adoption in the practices of irrigation management and harvesting methods of sweet potato. While poor adoption was found in insect-pest and disease control aspects in sweet potato crop.

CONCLUSION

It was found that 55.00 MPS of the total respondents possessed medium adoption level about ajwain production practices. It was observed that 85 MPS peripheral and distant farmers complete sowing operations in the recommended period. Under rainfed conditions 48.70 MPS farmers of both the categories complete their sowing operations. 46.32 MPS peripheral and distant farmers use recommended sowing depth. Powdery mildew control measures were adopted only by 18.68 MPS farmers of both the categories. The aphid control measures were applied by 24.49 MPS peripheral and distant farmers

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