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SC Chavhan
M.Sc. (Agri.) Student,
Department of Extension
Education, Dr. PD KV, Akola,
Maharashtra, India

SP Lambe
Associate Professor, Department
of Extension Education, Dr. PD
KV, Akola, Maharashtra, India

SA Gawande
Assistant Professor, Department
of Extension Education, Dr. PD
KV, Akola, Maharashtra, India

PK Wakle
Associate Professor, Department
of Extension Education, Dr. PD
KV, Akola, Maharashtra, India

Correlates of adoption behaviour of recommended cultivation practices by Ajwain growers

SC Chavhan, SP Lambe, SA Gawande and PK Wakle

Abstract
The present study was purposively conducted in three Panchayat Samities of Akola district of Maharashtra state. 10 respondents from each village were selected from 12 villages, so 120 respondents for study.

The exploratory design of social research was used in the present study. The data was collected by personally interviewing the respondents with the help of pretested and well-structured interview schedule subjected to appropriate statistical analysis. Data were collected on personal, socio-economic, situational, communicational and psychological characteristics of the respondents.

Findings revealed that, maximum number of respondents were in middle age group and educated up to secondary school level, possessed semi-medium land holding, annual income ranging from Rs. 50,000 to Rs. 1,50,0 Majority of respondents were having area under Ajwain up to 1 ha. More than half of the respondents had market accessibility above 20 km. Higher proportion of the respondents had medium level of sources of information, economic motivation and scientific orientation. Risk preference comes under high level category. Majority of Ajwain growers were observed in medium level of adoption behaviour.

Findings of relational analysis revealed that age, education and land holding were positively and significantly correlated at 0.05 level of probability. The variables such as annual income, area under Ajwain, sources of information, economic motivation, scientific orientation and risk preference were positively and highly significant at 0.01 level of probability. Whereas market accessibility had shown non significant correlation with adoption behaviour.

Keywords: Ajwain, adoption behaviour, correlate, recommended practises

Introduction

India is well known as "Land of Spices" across the world since long back. There are about 20 seed spices grown in India. We have been cultivating these precious spices for fulfilling our various needs since ages. The seed spices have emerged as one of the important group of spice crop in India. India is the largest producer, consumer and exporter of seed spices in the world. The seed spices account for about 41.00 per cent and 17.00 per cent of the total area and production of spices in the country.

The seed spices classified in two categories *i.e.* major seed spices and minor seed spices, according to that Ajwain is under the minor category. Ajwain is annual herbaceous plant bearing the greyish brown fruits (seeds) which constitute the spice. It belongs to the family 'Apiaceae' comprising 270 genera and species, mostly grow in the temperate regions of the world except for a few species which are cultivated in tropics, especially India and North Africa. It is generally grown in August-September and harvested in Feb-March.

Ajwain seeds per 100 gm contains protein (17.10%), fats (21.80%), minerals (07.90%), fibers (21.20%) and carbohydrates (24.60%). It also contains calcium, thiamine, riboflavin, phosphorus, iron and niacin. The seeds have been used since a years, as they consists number of medicinal properties. Ajwain works great for the acidity; it is the best digestive ingredient, that's why it is added in buttermilk (chas) and lassi after having the meal. It is mostly used in Indian cooking for flavoring, seasoning and imparting aroma in variety of food items and beverages. Ajwain has strong, dominant and distinctive taste and flavor, that's why few seeds are enough to bring exotic fragrance to the vegetarian and non-veg food. Ajwain is highly used clinically and medically because of its curative and effective healing properties. The oil is the outcome of Ajwain seeds, containing 02.50 to 05.00 per cent of essential oil, which is the best treatment for rheumatic pains. The total export of seed spices in raw as well as value added product realizing foreign exchange worth Rs. 327 crores (Meena *et al.* 2010). From South Indian Ajwain seeds, almost pure thymol has been isolated (98.00%), but the leaf oil was found to be composition of monoterpenoids and sesquiterpenoids, cadinene (43.00%), longifolene (11.00%), thymol (05.00%), camphor (03.00%) and others (Farooq *et al.* 1953,

Corresponding Author:
SC Chavhan
M.Sc. (Agri.) Student,
Department of Extension
Education, Dr. PD KV, Akola,
Maharashtra, India

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Ajwain is grown in Iran, Egypt, Afghanistan and chiefly in India (largely in Uttar Pradesh, Bihar, Madhya Pradesh, Punjab, Rajasthan, West Bengal, Tamil Nadu and Andhra Pradesh, etc). Though the plant is cultivated, it is indigenous to Egypt where it grows as common weed in the fields. This herb is commercially cultivated in large scale in Madhya Pradesh, Andhra Pradesh, Gujarat, Bihar, Maharashtra, Uttar Pradesh, Rajashthan. Ajwain is also cultivated extensively in backyard gardens in India.

In India, the major Ajwain producing states are Rajasthan and Gujarat, where Rajasthan produces about 90.00 per cent of India's total production. In India, the estimated area under Ajwain crop is 0.25 lakh ha. with the production of 0.22 lakh MT and productivity 0.90 MT/ha. It is widely cultivated in Udaipur and Chittorgarh region of Rajasthan and Gujarat state during rabi season.

Ajwain crop has been increasing year after year in the Vidarbha region of Maharashtra and especially in the saline tract of Akola district. As per the estimate of State Department of Agriculture, it spread over more than 1410.80 hector in Vidarbha, area under Ajwain is 2241 hectares with annual production of 7089 tonnes and average productivity is 01.37 tonnes per hector. As far as the soil and climate of Vidarbha region is concerned, cultivation of Ajwain crop have a potential to increase the area in Vidarbha region of Maharashtra state.

Methodology

An exploratory design of social research was used for the present investigation. Out of seven Panchayat Samiti in Akola district, three talukas namely, Akola, Akot and Balapur were purposively selected for the study on the basis of maximum area under Ajwain cultivation. A sample of 10 Ajwain growers from each village was selected purposively considering the higher area under this crop. Thus, a sample of 120 Ajwain growers was selected purposively from the four villages of selected three Panchayat Samiti. The data was collected using the interview schedule. The present study was undertaken with the following objectives :

1. To study the personal, socio-economic, situational, communicational and psychological characteristics of Ajwain growers
2. To study the adoption behaviour of recommended cultivation practices by Ajwain growers
3. To study the relationship of selected characteristics of Ajwain growers with their adoption behaviour

Results and Discussion

The findings of the study as well as relevant discussion have been summarized under the following heads:

Profile of Ajwain growers

The selected characteristics of Ajwain growers have been summarized in Table 1.

Table 1: Distribution of profile of Ajwain growers

SI. No.	Profile of black gram growers		Respondents (n=120)	
			Frequency	Percentage (%)
1	Age	Young	43	35.83
		Middle	49	40.84
		Old	28	23.33
2	Education	Illiterate	00	00.00
		Primary school	14	11.67
		Middle school	20	16.67
		Secondary school	41	34.16
		Higher secondary school	31	25.83
		College and above	14	11.67
4	Land holding	Marginal	08	06.67
		Small	34	28.33
		Semi-medium	74	61.67
		Medium	04	03.33
		Large	00	00.00
5	Annual income	Up to Rs. 50,000	00	00.00
		Rs. 50,001 to Rs.1,00,000	46	38.33
		Rs. 1,00,001 to Rs. 1,50,000	46	38.33
		Rs. 1,50,001 to Rs. 2,00,000	15	12.50
		Above 2,00,000	13	10.84
6	Area under Ajwain	Up to 1 ha	98	81.66
		1.01 to 3 ha	20	16.67
		Above 3 ha	02	01.67
7	Market accessibility	Own village 0 Km	18	15.00
		Distance up to 0.1 to 10.0 Km	06	05.00
		Distance up to 10.1 to 20.0 Km	35	29.17
		Above 20.0 Km	61	50.83
8	Sources of information	Low	13	10.83
		Medium	91	75.84
		High	16	13.33
9	Economic motivation	Low	10	08.33
		Medium	86	71.67
		High	24	20.00
10	Scientific Orientation	Low	14	11.67
		Medium	85	70.83
		High	21	17.50
11	Risk orientation	Low	20	16.67

		Medium	33	27.50
		High	67	55.83

From Table 1, it has been observed that majority of the respondents (40.84%) were from middle age i.e. between 36 to 50 years of age. The old age farmers did not take initiative in adoption of recommended cultivation practices. Similar findings were reported by Tekale (2015) [6] and More *et al.* (2016), and the respondents adopting recommended cultivation practices had formal schooling up to middle school level (34.16%) These findings supported the observations of Chandurkar (2015) [2].

Majority of respondents (61.67%) belonged to semi-medium category of land holding. This findings therefore, supports findings of Anita Bare (2017) [1] and Darange (2018) [4]. The distribution of the farmers according to their annual income presented in Table 1. It was concluded that majority of the respondents (38.33%) possessed annual income Rs.50,001 to Rs.1,00,000 Maximum percentage of the respondents i.e. 81.66 per cent had Up to 1 ha area under Ajwain cultivation.

From Table 1, it has been observed that majority of the respondents (75.84%) were medium level of in respect of use of information sources. Similar findings were observed by Chavan *et al.* (2016) [2].

It leads to conclude that higher percentage of Ajwain growers (71.67%) had medium level of economic motivation. These findings were confirmed by the observations Yewatkar (2018) [7] and Sanodiya *et al*. (2019) [5]. and higher percentage of Ajwain growers (70.83%) had medium level of scientific orientation. 27.50per cent Ajwain growers had medium level of risk orientation category. These findings were confirmed by the observations of Chandurkar (2015) [2].

Adoption behaviour
The Adoption behaviour was conceptualized as sum total of knowledge, attitude and adoption of recommended cultivation practices of Ajwain. The adoption behaviour index was taken as an average of knowledge, attitude and adoption indices as given below.

$$\text{Adoption behaviour index} = \frac{\text{Knowledge index+ Attitude index+ Adoption index}}{3}$$

The respondents were then categorized on the basis of equal interval method as indicated below.

Table 2: Distribution of respondents according to their adoption behaviour

Sr. No.	Adoption behaviour	Respondents (n=120)	
		Frequency	Percentage
1	Low (Up to 33.33)	08	06.67
2	Medium (33.34 to 66.66)	95	79.17
3	High (Above 66.66)	17	14.16
	Total	120	100.00

The distribution in Table 2 revealed that, majority (79.17%) of the respondents exhibited medium level of adoption behaviour about recommended cultivation practices of Ajwain. Whereas, 14.16 per cent were observed in high level of adoption behaviour and 06.67 per cent of the respondents belonged to low level of adoption behaviour.
From the above findings, it can be concluded that, majority of the respondents were observed in medium level of adoption behaviour.

Correlates and determinants of adoption behaviour
An attempt was made to study the adoption behaviour comprising of knowledge, attitude and adoption. The correlation coefficient of adoption behaviour with independent variables have been depicted in Table 27.

Table 3: Rank correlation coefficient of selected characteristics of the respondents with their adoption behaviour

SI. No.	Variable	Adoption behaviour 'r' value
1	Age	0.1977*
2	Education	0.2309*
3	Land holding	0.2327*
4	Annual income	0.3071**
5	Area under Ajwain	0.4226**
6	Market accessibility	0.1606NS
7	Sources of information	0.3484**
8	Economic motivation	0.2981**
9	Scientific orientation	0.3331**
10	Risk preference	0.3479**

NS- Non-significan
*- Significant at 0.05 level of probability
**- Significant at 0.01 level of probability

It could be seen from the Table 3, that amongst selected annual income, area under Ajwain, sources of information, economic motivation, scientific orientation and risk preference were positively and highly significant with adoption behaviour of recommended cultivation practices of Ajwain. The variables such as age, education and land holding were positively and significantly correlated with adoption behaviour of recommended cultivation practices of Ajwain. Therefore, the null hypothesis was rejected for these variables. The variable such as market accessibility was non-significant with adoption behaviour of recommended cultivation practices of Ajwain. Therefore, the null hypothesis was accepted for this variable.

Conclusion
The study was planned to investigate adoption behaviour of Ajwain growers about recommended cultivation practices. It was also thought to be worth while to ascertain the constraints faced by Ajwain growers about recommended cultivation practices. The findings of present study revealed that characteristics such as age, education, land holding, annual income, area under Ajwain, sources of information, economic motivation, scientific orientation and risk preference were positively and significantly correlated with adoption behaviour of Ajwain growers about recommended cultivation practices (0.05 and 0.01 level of probability) respectively. While market accessibility had non-significant relationship with adoption behaviour. In the findings it has been revealed that great majority of respondents (100.00%) faced the constraints such as fluctuation of market prices of Ajwain followed by unavailability of improved variety (83.33%) and low market rates for Ajwain (75.00%), The other constraints faced by the respondents were less technical knowledge about seed treatment (66.67%), higher charges of commission agent (58.33%) and lack of storage facility (41.67%).

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