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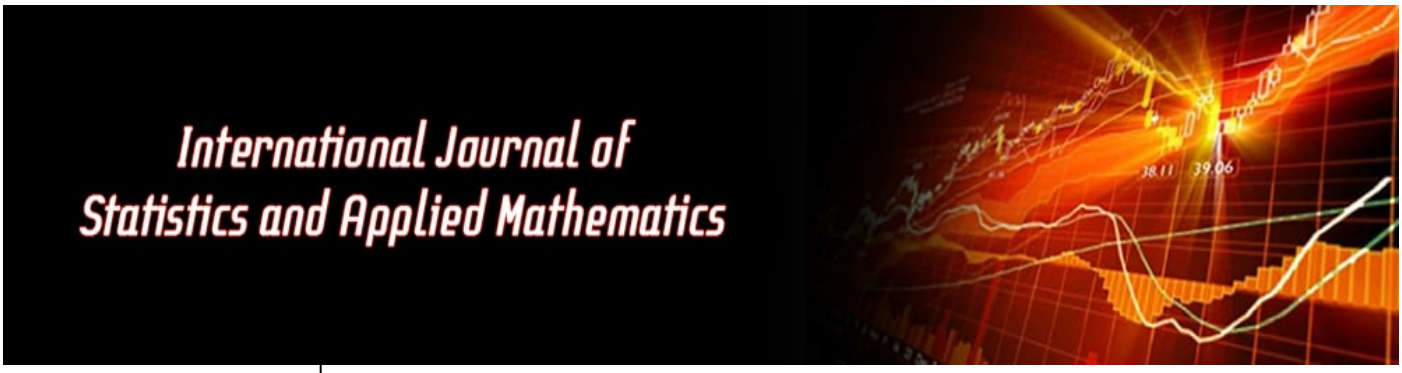

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Correlates of technological gap in cultivation of Ajwain crop by farmers of Amravati and Buldhana district

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Abstract
The study on "Technological Gap in Cultivation of Ajwain Crop" was purposively conducted in Amravati and Buldhana district of Maharashtra state. An exploratory research design was adopted for the study. A purposive sample of 120 Ajwain growers from villages of Daryapur and Shegaon taluks of Amravati and Buldhana districts respectively were drawn and the data were collected with the help of structured interview schedule and used for drawing the conclusions. In case of coefficient of correlation, it is found that out of 12 independent variables land holding, availability of irrigation, sources of information innovativeness and knowledge are negatively significant at 0.01 level of probability. The variables education, area under Ajwain, experience in Ajwain cultivation, annual income, economic motivation and market orientation were found to be negatively significant at 0.05 level of probability.

Keywords: Correlates, technological gap, Ajwain

Introduction
Ajwain is classified under the minor category of seed spices. An annual herbaceous plant called Ajwain produces the seeds that make up the spice, which are greyish brown in colour. It is a member of the 'Apiaceae' family, which includes 270 genera and species and grows primarily in temperate climates with the exception of a few species that are grown in tropical climates, particularly in India and North Africa. Typically, it is planted in August to September and harvested in February to March.

Ajwain is a crop that thrives in cold climates and is primarily grown in India during the rabi season. In several areas of the country, it is also grown as a kharif crop. An environment that is dry and a little cool is optimal for healthy plant growth and blossoming. Avoiding extreme humidity is desirable, especially after flowering. Numerous diseases and pest insects thrive in the perpetually cloudy and soggy conditions. It requires weather with a relative humidity of 60 to 70% during its development stage and a temperature range of 15 to 27 ^{0}C when the seeds are forming. The crop has a moderate amount of drought resilience because it may be grown during both the Kharif and rainy seasons.

Despite growing well in a variety of soil conditions, Ajwain thrives on loamy, well-drained soils. If there is adequate drainage, organically rich clay-loam soil may also be used. But the crop cannot be properly supported by sandy or grave soils. When rain provides water for agriculture, the thick soils are ideal because of their excellent moisture retention. Despite the fact that the crop can handle salt, neutral soils with a pH range of 6.5 to 7.5 consistently produce more of the crop with better-quality leaves.

Objectives
To study the relationship of selected characteristics of Ajwain growers and technological gap

Methodology
An exploratory design of social research was used in the present study.The study was undertaken in Daryapur and Shegoan Taluk of Amravati and Buldhana districts respectively.

In Amravati district, out of 14 talukas, Daryapur taluk was selected and in Buldhana district, out of 13 talukas, Shegoan taluka was selected purposively because in these taluk, maximum area comes under Ajwain crop. The present study was conducted on a sample of 120 Ajwain growers in Buldhana and Amaravati districts of Shegoan and Daryapur taluk respectively with 60 respondents from each taluk. Thus, six villages from each taluk were selected on the basis of maximum area under Ajwain crop. Ten farmer having productive fields was selected from each village randomly. Thus, total 120 Ajwain growers was selected for study. The data were collected by contacting the selected farmers personally on their farms and homes, as per their convenience. The help of Sarpanch and village leader was taken for approaching to farmers. Before actually procuring the information, the researcher introduced himself and explained about the objectives and purpose of present study.

Technological Gap

It is the difference between the maximum obtainable score of adoption of improved cultivation practices and actual obtained score of improved cultivation practices by the Ajwain growers.

The obtained score of technological gap of individual respondent was converted into technological gap index with the help of following formula

$$\text{Technological Gap index} = \frac{R - A}{R} X\ 100$$

Where,

R = Maximum obtainable score of adoption of all recommended and improved cultivation practices of Ajwain growers.

A = Actual obtained score of adoption of recommended and improved cultivation practices of Ajwain growers

Coefficient of correlation

The relationship between independent and dependent variable will be calculated with the help of given formula.

$$r = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{\sqrt{\left(\sum X^2 - \frac{(\sum X)^2}{n}\right)\left(\sum Y^2 - \frac{(\sum Y)^2}{n}\right)}}$$

Where,

r = Coefficient of correlation

ΣX = Sum of the score of variable X

ΣY = Sum of the score of variable Y

ΣXY = Sum of products of 'X' and 'Y' variables

ΣX^2 = Sum of the square of 'X' variable

ΣY^2 = Sum of the square of 'Y' variable

n = Total number of respondents

Results and Discussion

Table-1 reveals the percentage of respondents having technological gap and high technological gap for the improved practices in Ajwain cultivation for each practice. Out of the total 120 respondents, it was observed that majority of the respondents showed technological gap in case of Application of fertilizer (62.50%),variety (57.50%), control measures for disease (56.67%), control measure for pest (54.17%), pre-emergence weedicide (51.67%), Application of FYM (49.17%), spacing (45.00%), seed rate (41.67%), Harrowing (31.17%), Hoeing and weeding (35.84%), ploughing (30.83%), Yield (27.50%), Land (23.34%), sowing time (22.50%), harvesting (27.67%) and threshing(8.34%). The reason for this result could be because of high cost and difficulty in procurement of FYM, lack of knowledge, unwillingness and ignorance of the farmers towards the adoption of improved production technology.

Table 1: Distribution of the respondents according to their practice wise extent of technological gap in adoption of improved cultivation practices of Ajwain

Sl. No	Improved Cultivation Practices of Ajwain	Technological gap Respondents (N=120)
1.	Land Heavy to medium soils and sandy soil	28 (23.34)
2.	Land preparation i) Ploughing	37 (30.83)
	ii)Harrowing 2- 3	47 (39.17)
	Mean	42 (35.00)
3.	Variety AA-01-19	69 (57.50)
4.	Seed rate (4 to 5 kg/ha)	50 (41.67)
5.	Sowing time First week of October to last week of November In case of saline soil – 1st fortnight	27 (22.50)
6.	Spacing 60 x 45 cm and 45 x 45	54 (45.00)
7.	Application of FYM 20-30 cartloads/ha	59 (49.17)
8.	Application of Fertilizer N: P: K – 80:40:40 Kg/ha	75 (62.50)
9.	Weed control a) Hoeing and 2-3 weeding	43 (35.84)
	b) Pre emergence weedicide (Pendimethaline1.0 kg/ha after sowing)	62 (51.67)
	Mean	53 (43.75)
10.	Control measures for Pest 1) Aphids: Spray confidor 10ml/10lt of water 2)Jassids: Spray Imidachloropid 0.005%	65 (54.17)
11.	Control Measures for Disease 1) Powdery mildew: Dusting with sulphur (0.1%) twice at flowering stage at 15 days interval	68 (56.67)
12.	Harvesting a) After sowing 140 to 150 days and seed becomes brown in umbels	26 (21.67)
13.	Threshing By besting stick or Threshing machine	10 (8.34)
14.	Yield 12-14 q/ha	33 (27.50)

Table 2: Distribution of respondents according to technological gap level

Sl. No.	Technological gap level	Respondents (N=120)	
		Frequency	Percentage
1.	Low	35	29.17
2.	Medium	62	51.67
3.	High	23	19.16
	Total	120	100.00

It is evident from the table 2 that, 51.67 per cent of the respondents were observed under medium level of technological gap of improved Ajwain cultivation practices, followed by 29.16 per cent of the respondents were found in low level of technological gap. whereas, 19.16 per cent respondents were noticed under high level of technological gap about Ajwain cultivation practices.

These findings are similar with the findings of Sorate (2011) [6] and Parihar A. S (2018) [3].

Correlation co-efficient between selected characteristics and technological gap of turmeric production technology

The collected data were tabulated and computed to assess the existence of relationship between selected characteristics of the famers and technological gap. From the data in Table 2, it is evident that the independent variables namely land holding, availability of irrigation, source of information, innovativeness and knowledge were found to be negatively significant with the technological gap at 0.01 level of probability. Whereas, the variables education, area under Ajwain, experience in Ajwain cultivation, annual income, economic motivation, market orientation were found to be negatively significant at 0.05 level of probability.

The correlation coefficient of technological gap with personal, socio- economic, situational, communication and psychological characteristics of the respondents have been depicted in table 3.

Table 3: Correlation co-efficient between selected characteristics and technological gap of Ajwain growers

Sl. No.	Variables	'r' value
1.	Age	0.150
2.	Education	-0.217*
3.	Landholding	-0.241**
4.	Area under Ajwain	-0.203*
5.	Experience in Ajwain cultivation	-0.205*
6.	Annual Income	-0.225*
7.	Availability of Irrigation	-0.243**
8.	Sources of Information	-0.254**
9.	Economic motivation	-0.210*
10.	Innovativeness	-0.246**
11.	Market orientation	-0.187*
12.	Knowledge	-0.315**

** - Significant at 0.01 level of probability

* - Significant at 0.05 level of probability

The variable Education, area under Ajwain cultivation, experience in Ajwain cultivation, annual income, economic motivation, market orientation were also negatively correlated with the technological gap at 0.05 level of probability.

The above result indicated that, most of the characteristics of the respondents have influence on technological gap level. It is quite logical that the respondents with higher level of education, possessing land, higher annual income, more area under Ajwain, more experience in Ajwain cultivation, Availability of irrigation, more source of information and higher knowledge about improved technologies for Ajwain cultivation having medium level of technological gap.

Conclusion

On the basis of findings of the Ajwain growers it can be concluded that, the independent variables namely land holding, availability of irrigation, source of information, innovativeness and knowledge were found to be negatively significant with the technological gap at 0.01 level of probability. Whereas, the variables education, area under Ajwain, experience in Ajwain cultivation, annual income, economic motivation, market orientation were found to be negatively significant at 0.05 level of probability.

References

1. Anonymous. Economic analysis of Ajwain (*Trachyspermum ammi*) production in Akola district. RRC Report, Department of Agricultural Economics and Statistics, Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola; c2012.
2. More GB. Knowledge and adoption of production technology by *Ajwain* (*Trachyspermum ammi*) growers. Master of Science in Agriculture (M.Sc. Agri.) Thesis, Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola; c2014.
3. Parihar AS. Technological gap in Guava (*Psidium guajava*) cultivation in Buldhana District. Master of Science in Agriculture (M.Sc. Agri.) Thesis, Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola. (M.S.); c2018.
4. Shital CC. Adoption behavior in Ajwain (*Trachyspermum ammi*) growers about recommended cultivation practices. Master of Science in Agriculture (M.Sc. Agri.) Thesis (Unpublished), Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola; c2019.
5. Singh P, Singh K. Technological gap in *rapeseed* (*Brassica napus*) and mustard (*Brassica juncea*) cultivation in Bharatpur. Agricultural Extension Review. 2002;7:10-13.
6. Sorate PT. Technological gap in cultivation of Grape (*Vitis vinifera*) in Akola district. Master of Science in Agriculture (M.Sc. Agri.) Thesis (Unpublished), Department of Extension Education, Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola; c2011.
7. Zadake SN. Technological gap in *grape* (*Vitis vinifera*) production practices. Master of Science in Agriculture (M.Sc. Agri.) Thesis, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani; c2016.