"KNOWLEDGE AND ADOPTION OF CORIANDER PRODUCTION TECHNOLOGY"

BY

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B.Sc. (Agri.)

DEPARTMENT OF EXTENSION EDUCATION
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JUNAGADH AGRICULTURAL UNIVERSITY
JUNAGADH - 362 001

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Dedicated to my Family, without whose loving support this thesis would not been completed and to my all Colleagues Friends, without whose encouragement it would not have been started, specially to my friend Late Bhavesh G. Nandaniya

Sandip......
"KNOWLEDGE AND ADOPTION OF CORIANDER PRODUCTION TECHNOLOGY"

A 
THESIS SUBMITTED TO 
JUNAGADH AGRICULTURAL UNIVERSITY 
in partial fulfilment and requirements 
for the award of the degree 
of 
MASTER OF SCIENCE 
(Agriculture)

By 
KUMBHANI SANDIPKUMAR RAMJIBHAI 
B.Sc. (Agri.)

AGRICULTURAL EXTENSION 

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Abstract
ABSTRACT

TITLE OF THESIS

KNOWLEDGE AND ADOPTION OF CORIANDER PRODUCTION TECHNOLOGY

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2009

MAJOR SUBJECT

AGRICULTURAL EXTENSION

KEY WORDS

Knowledge, Adoption, Constraints, Age, Education, Social participation, Extension contact, Annual income, Size of land holding, Irrigation potentiality, Cropping intensity, Risk orientation, Extension participation, Innovativeness, Market orientation, Exposure to information sources.

(An abstract of the dissertation submitted to Junagadh Agricultural University, Junagadh in the partial fulfillment of the requirements for the degree of Master of sciences in Agricultural Extension)
The gap between know how already attained and their application in field is still large despite of considerable advancement in coriander production technology. Coriander is the important spices crop of the Junagadh district. However, majority of the coriander growers did not know and had not yet adopted recommended coriander production technology, due to lack of technical knowledge and several constraints experienced by them in adoption of recommended coriander production technology. Keeping the above fact in view, the study entitled “Coriander growers’ knowledge and adoption about coriander production technology” was undertaken with following specific objectives of

(1) To study the personal and socio-economic profile of respondents, (2) To measure the knowledge level of respondents about coriander production technology, (3) To know the extent of adoption of coriander production technology, (4) To ascertain the association of knowledge about coriander production technology with their selected characteristics, (5) To ascertain the association of adoption about coriander production technology with their selected characteristics, (6) To identify constraints faced by respondents in adoption of coriander production technology, (7) To seek the suggestions from the respondents to over come the constraints in adoption of coriander production technology.

In order to realize the above objectives, a sample of 160 coriander growers, representing 8 villages of two talukas (Manderada and Keshod) of Junagadh district was drawn by using random sampling techniques. To measure the coriander growers’ knowledge about recommended coriander production technology a teacher made knowledge test was developed and
used. To identify the coriander growers’ extent of adoption of recommended coriander production technology, the adoption index was developed and used. The adoption quotient developed by Chattopadhyay (1974) was used with slight modification. The data were collected with the help of structured schedule by personal interview method. The data were compiled analyzed and interpreted in the light of specific objectives.

**Findings**

About one half (45.63 per cent) of the coriander growers belonged to middle age group, while more than one half (50.62 per cent) of the coriander growers were from medium education group, medium size of land holding (63.12 per cent) and medium annual income (60.00 per cent).

Whereas, (65.62 per cent) and (68.75 per cent) respondents had medium coriander crop intensity and production, respectively. Medium marketing orientation (61.87 per cent), medium exposure to information sources (60.00 per cent), medium exposure to information source (60.00 per cent), medium social participation (55.00 per cent), medium extension participation (54.37 per cent), medium irrigation potentiality (48.12 per cent) and medium risk orientation (39.37 per cent) and medium innovativeness (39.37 per cent).

About (65.62 per cent) of the respondents had medium knowledge level about the recommended coriander production technology, followed by (17.51 per cent) high and (16.87 per cent) low level of knowledge about recommended coriander production technology, respectively.
About (61.87 per cent) of the coriander growers had medium adoption index, followed by (14.37 per cent) and (23.75 per cent) with high and low level of adoption of the recommended coriander production technology, respectively.

The data revealed that in case of farmers, it was observed that the first rank was occupied by improved variety (87.16 per cent), followed by irrigation (86.74 per cent), harvesting (81.68 per cent), chemical fertilizers (81.00), weed control (76.66 per cent), plant protection measures (76.41 per cent), were ranked second, third, fourth, fifth, sixth, respectively. While packing was the seventh rank (76.16), following by FYM/compost fertilizers (73.27 per cent), seed rate (72.80 per cent), selling (72.28 per cent), sowing time (69.49 per cent), preparatory tillage (67.50 per cent), method of sowing (62.91 per cent), storage (61.20 per cent), grading (53.91 per cent), seed treatment (50.78 per cent), and soil testing (32.50 per cent) were ranked eighth, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, respectively.

There was negative and significantly associated with the knowledge about recommended coriander production technology and age of respondents. While marketing orientation was negative and non significant associated with the knowledge of recommended coriander production technology and there was no significant association with the knowledge about recommended coriander production technology and their annual income.

Remaining all characteristics of the respondents like education, social participation, extension contact, size of land holding, irrigation potentiality, coriander crop intensity, risk
orientation, extension participation, innovativeness, exposure to information source and production were positively significant associated with the knowledge of recommended coriander production technology.

There was no significant association with the adoption about recommended coriander production technology and their annual income, size of land holding.

All other characteristics of the respondents like education, social participation, extension contact, irrigation potentiality, coriander crop intensity, risk orientation, extension participation, innovativeness, exposure to information source and production were positively significant associated with the adoption of recommended coriander production technology. While, Age was negative and significantly associated with the adoption about recommended coriander production technology respectively. Where as marketing orientation was negative and non significant associated with the adoption about recommended coriander production technology.

Some important constraints faced by coriander growers were: Inadequate and irregular power supply, Weight and quality loss during storage and transport, High charges of electricity, Inadequate storage facilities, Lack of marketing infrastructure facilities, Lack of post harvest management facilities, Fluctuation of coriander price in the market.

Some of important suggestions expressed by more than 60.00 per cent of the respondents to overcome the constraints in adoption of recommended coriander production technology were:
Irrigation sources should be increased, Remunerative price should be given to coriander growers, Market facilities should be strengthened, Regular supply of electricity for irrigation purpose should ensured, Inputs should be made available at subsidized rate.

Date: 19/11/2009
Place: Junagadh

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(Kumbhani Sandip kumar R.)

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Date: 04/03/2010

This is to certify that the thesis entitled "KNOWLEDGE AND ADOPTION OF CORIANDER PRODUCTION TECHNOLOGY" submitted by Mr. KUMBHANI SANDIP KUMAR RAMJIBHAI to Junagadh Agricultural University, Junagadh in partial fulfillment of the requirements for the degree of M.Sc.(Agri.) in the subject of AGRICULTURAL EXTENSION after recommendation by the external examiner, embodies bonafide research work carried out by Mr. KUMBHANI SANDIP KUMAR RAMJIBHAI under my guidance and supervision and that no part of this thesis has been submitted for any other degree. The assistance and help received during the course of investigation have been fully acknowledged.

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Date: 19/11/2009

(Kumbhani S.R)
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Introduction
CHAPTER I

INTRODUCTION

Coriander (*Coriandrum sativum* L.) is an annual aromatic herb, grown for its leaves, seed, essential oil and oleoresin. Coriander, also known as cilantro and Chinese parsley is a member of family Apiaceae (Umbelliferae). Its name is derived from the Greek world ‘Koris’ meaning bedbug because of the unpleasant fetid bug-like odour of the green herb and unripe fruits, it was eventually loaned to Latin *Coriandrum*. Coriander has originated in the Mediterranean region from where it had moved eastward to Asia (Nawata *et al.*, 1995). It is commonly known as "Dhana" or "Dhana". India has been known as the "home of the spices" from very ancient times. Spices play pivotal role in human dietary as they give an agreeable flavour and aroma to food and add greatly to the pleasure of eating (Alyaduraj, 1966). They also constitute an important group of agricultural commodities which are virtually indispensable in culinary art.

Coriander is used since long as coriander seeds were found in Egyptian tombs of 960 BC. Further, Persia grew coriander 3000 years ago and it added fragrance to hanging gardens of Babylon. In 3rd century BC, Romans also found coriander seed as an excellent seasoning for popular foods.

India also exports coriander seeds but the quantity is negligible compared to demand levels in major consuming countries like USA, Saudi Arabia and Germany (Raju, 1990). However, among seed spices, coriander export quantum is the
highest, followed by cumin seed. But value wise, cumin seeds stand first, followed by coriander.

Coriander is well known for its uses as medicine, oil, perfumery and culinary purposes, consumed in large quantities and earns a large sum of foreign exchange.

It is probably the first spice to be used by man as common flavouring substance. The stem leaves and fruits have a pleasant aromatic odour. The pleasant aroma of the fruits is due to the linalool containing essential oil (Pruthi, 1976). Which is used for medicinal and flavouring beverages and its residues are used for cattle feed. High quality coriander seed has essential oil content between 0.4 and 1.4 percent. The finest quality oils contain 60 to 70% linalool, a compound which produces much of the characteristic coriander flavor. The coriander seed contains an extractable vegetable oil fraction which may be blended with the essential oil (to form an oleoresin) for use in food and other non-food products.

The entire young plant is used in preparing chutney. Whereas, the leaves are used for flavouring the curries, sauces and soups. The dry fruits are extensively used in preparation of curry powder, pickling spices, sausaces, seasoning and dhanadal. It is also considered to be carminative, diuretic, stomachacaic, tonic, antibilious, refrigerant and aphrodisiac (Murty and Sridhar, 2001). It is also served as a flavouring agent for bakery preparations and in tobacco products.

Coriander is mainly a crop of tropics and sub-tropics. The countries cultivating coriander on sizeable area are Morocco,
Romania, France, Spain, Pakistan, Turkey, India, Mexico, Argentina and to some extent England and USA (Nethaji et al., 1979).

India is the largest producer of coriander with a production of almost 90 per cent of the total world supply. The crop occupied an area of 10694 ha during 2007-2008 and production of 19789 (M.T) under Indian conditions (Spices Board, 2007-08).

Among the different states, which cultivate the coriander in India, Andhra Pradesh ranks the top position with regard to production and acreages. Other important states growing the crop are Madhya Pradesh, Tamilnadu, Orissa, Karnataka, Bihar, Uttar Pradesh and Haryana (Anon., 1992). Gujarat state occupied about 10694 hectares area with production of 19789 M.T. Among the four zones of Gujarat state, Junagadh zone occupied 3490 hectares producing 5422.5 M.T of coriander seeds (Anonymous, 2007-2008).

One of the important factors responsible for low yield of any crop is improper time of sowing exerts a distinct effect on growth; check severe competition of weeds and to some extent helps the crop to escape from powdery mildew and aphid infestation. The optimum time of which is the temperature during the growing season.

In Gujarat, coriander crop is grown in Rabi season in the month of October-November. But systematic work has not been carried out in respect of finding out the proper time of sowing of this crop. Therefore, the proper sowing time for coriander has to be worked out for getting normal production.
1.1 **Statement of the Problem**

Among all the spices crops, coriander is the important spices crop in Junagadh district. Considering the area and production of coriander crop in Gujarat state, Junagadh ranked second, while kutch district ranked first having an area of 4605 ha and production 10591 metric tones of coriander. In Junagadh district, the area under coriander cultivation is 3490 ha and production is 5422.5 metric tones (Anon, 2007-2008).

**Table- 1** District wise area & production of coriander in the year 2007-2008.

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<td>Production (00' M.T)</td>
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**Source:** Taluka wise area and production coriander in Junagadh district, Deputy Director of Agriculture in Junagadh District in Junagadh (2007-2008).

The knowledge and adoption of improved technology are
positively and significantly related with yield (Patel, 1995). In this situation there is a great scope to boost up and stabilize the coriander production by adoption of improved coriander production technology in the area under study.

Moreover, there are some constraints or problems in the adoption of recommended coriander production technology, which hampers the production. Hence, it is also necessary to know that which are the problems of coriander growers and how to overcome them.

Taking into the consideration the above facts it was considered worthwhile to take up the research problem entitled “Coriander growers’ knowledge and adoption of coriander production technology” with some objectives.

1.2 Practical utility of the Research problem

Coriander is rabi spices crop in India, particularly in Gujarat state. It is consumed almost by all families in daily diet round the year. Coriander is one of the most important spices and condiments chiefly used for home consumption and for earning foreign exchange.

A wide gap exists between the potential and average production per hectare in Gujarat. It is due to lack of knowledge and adoption of improved coriander production technology. Simultaneously, some constraints in the coriander production technology. The finding of this problem was helpful to raise the Coriander production.

Very few research studies have so far been conducted and reported on this important aspect. Hence, an attempt was made
to ascertain the factors responsible for knowledge and adoption. The constraints in adoption of recommended coriander production technology and suggestion to overcome the same are ascertained to evolve conceptual mode of coriander production technology.

The finding of this study will be helpful to the extension agency, policymakers and administrators in dissemination of improved coriander production technology among the farming community.

Further, the study will be helpful in developing appropriate extension strategy for manipulating the different independent variables related with knowledge and adoption of important coriander production technology. Looking to the above fact, the present study “coriander growers’ knowledge and adoption of coriander production technology” was carried out.

1.3 Objectives

The main objective of the study was to explore the knowledge and adoption of coriander growers. In view of this main objective; following specific objectives were formulated.

1. To study the personal and socio-economic profile of respondents.
2. To measure the knowledge level of respondents about coriander production technology.
3. To know the extent of adoption of coriander production technology.
4. To ascertain the association of knowledge about coriander
production technology with their selected characteristics.

5. To ascertain the association of adoption about coriander production technology with their selected characteristics.

6. To identify constraints faced by respondents in adoption of coriander production technology.

7. To seek the suggestions from the respondents to overcome the constraints in adoption of coriander production technology.

1.4 Limitations of the study

Keeping in view the time and other available resources with the investigator, the study was undertaken with the following limitations:

1. The study was restricted to selected area of the Junagadh district of Gujarat State only.

2. The study was restricted to only 160 respondents of 2 talukas of Junagadh district.

3. The study was based on individuals' perceptions and expressed opinion of the respondents.

4. The study was limited to only coriander crop production technology.
Review of Literature
CHAPTER –II

REVIEW OF LITERATURE

The main objective of the study was to explore the knowledge and adoption of coriander growers. In view of this main objective; following specific objectives were formulated.

2.1 Personal and socio-economic profiles of respondents.

2.2 Knowledge level of respondents about coriander production technology.

2.3 Extent of adoption of respondents coriander production technology.

2.4 Association of knowledge about coriander production technology with their selected characteristics.

2.5 Association of adoption about coriander production technology with their selected characteristics.

2.6 Constraints faced by respondents in adoption of coriander production technology.

2.7 Suggestions from the respondents to overcome the constraints in adoption of coriander production technology.

2.1 SELECTED CHARACTERISTICS OF THE FARMERS

2.1.1 AGE

Age is an important determinant of a person’s behavior. Since, it is related to his likes, dislikes, interest and personal views.
Javia (2004) reported that nearly three-fifth of the
groundnut growers 61.00 per cent belonged to middle age group,
whereas, 26.00 per cent and 13.00 per cent of the groundnut
growers belonged to young and old age group, respectively.

Savaliya (2004) revealed that more than half 51.66 per
cent of the cattle owners were in middle age whereas, 25.84 per
cent and 22.50 per cent of the respondents were in old and
young age group, respectively.

Sharma *et al.* (2005) revealed that majority 76.56 per cent
of the respondents were in middle age group followed by young
age group 13.15 per cent and old age group 10.29 per cent.

Tavethiya (2006) revealed that 49.00 per cent of cumin
growers were in middle age group whereas, 19.00 per cent and
32.00 per cent of the respondents were in old and young age
group, respectively.

Kamani (2007) revealed that 70.00 per cent of the organic
farmers were found in middle age group. While 20.72 per cent
were of young age group. Remaining 9.28 per cent farmers were
found in old age group.

Anilkumar (2008) reported that majority 57.00 per cent of
the farm womens belonged to middle age group followed by
21.00 per cent and 22.00 per cent in old and young age group,
respectively.

Jadeja (2008) reported that majority 45.00 per cent of the
neem owners belonged to middle age group followed by 31.00
per cent and 24.00 per cent in old and young age group,
respectively.
2.1.2 EDUCATION

Education is a process of bringing desirable changes in the human behavior in terms of knowledge, skill and attitude. It is a process of imparting and acquiring knowledge and habit through instruction and study.

Verma (2000) stated that nearly half i.e. 44.44 per cent of the respondents were educated up primary level, while 24.22 per cent and 23.05 per cent respondents belonged to illiterate and secondary education level group, respectively. Only 8.59 per cent of the respondents had higher education.

Jadav (2001) inferred that 50.00 per cent of the onion growers were educated up to secondary level, whereas 35.83 per cent of the respondents were educated up to primary level and 14.16 per cent were educated above the secondary level.

Javia (2004) reported that 59.00 per cent groundnut growers had the primary education, 18.00 per cent had the secondary level of education, while 16.00 per cent and 07.00 per cent respondents belonged to illiterate and higher education level group, respectively.

Savaliya (2004) reported in his study that 53.33 per cent of the cattle owners were educated up to primary level whereas, 23.33 per cent of the respondents were illiterate, 17.50 per cent of the cattle owners were educated up to secondary level and only 5.84 per cent of the respondents were educated up to higher secondary.

Chavada (2005) indicated that 42.00 per cent Bt cotton growers had the primary education, 30.67 per cent had the secondary education, while 14.67 per cent had the higher
secondary education level and 8.66 per cent had illiterate and 4.00 per cent college level of education.

Tavethiya (2006) indicated that 60.00 per cent of the respondents were either illiterate or educated up to primary level (up to 7th standard). Only about 40.00 per cent respondents were educated up to secondary and above higher secondary level.

Bharad (2007) indicated that 57.50 per cent of the respondents possessed primary level of education, whereas 28.00 and 05.50 per cent of the respondent had secondary and higher secondary level of education, respectively. The Bachelor’s degree was possessed by only 7.00 per cent. It is interesting to note that only 2.00 per cent of the respondents were illiterate.

Anilkumar (2008) summarized that more than half 51.33 per cent of the respondents were educated up to primary level. Whereas, 16.67 per cent of the respondents were educated up to secondary level, 25.00 per cent were illiterate and only 05.00 per cent of the respondents were educated above higher secondary level.

Jadeja (2008) summarized that more than half 64.00 per cent of the neem owners educated up to primary level. Whereas, 10.00 per cent of the respondents were educated up to secondary level, 20.00 per cent were illiterate and only 06.00 per cent of the respondents were educated above higher secondary level.
2.1.3 SOCIAL PARTICIPATION

Chchodavadia (2001) indicated that majority of demonstrating farmers 73.08 per cent had medium social participation, and 19.23 per cent had high and 07.69 per cent had low social participation, while non-demonstrators farmers majority 67.31 per cent respondents were found in medium social participation, while 19.23 per cent had low and 13.46 per cent had high social participation.

Javia (2004) revealed that majority 68.00 per cent of the respondents had medium social participation followed by low 19.00 per cent social participation, whereas only 13.00 per cent of the respondents had high social participation.

Chavada (2006) reported majority 61.11 per cent of the respondents had medium social participation followed by low 16.67 per cent and high 22.22 per cent social participation.

Tavethiya (2006) concluded that 54.00 per cent of cumin growers had medium social participation followed by high 25.00 per cent, low social participation 21.00 per cent, respectively.

Bharad (2007) revealed that more than 84.50 per cent of the respondents had medium social participation followed by high 8.50 per cent and low 7.00 per cent social participation.

Makwana (2007) revealed that majority of 66.67 per cent the Gir maldharis had low social participation followed by medium 20.83 per cent and high social participation 12.50 per cent, respectively.
Anilkumar (2008) reported that 60.00 per cent of the respondents had medium social participation, followed by low 21.67 per cent and high 18.33 per cent social participation.

Jadeja (2008) reported that 60.00 per cent of the respondents had medium social participation, followed by low 18.00 per cent and high 16.00 per cent social participation.

2.1.4 ANNUAL INCOME

Verma (2000) reported that 44.53 per cent of the groundnut growers belonged to the annual income group of Rs. 20,001 to 40,000, while 28.51 and 23.05 per cent of the respondents belonged to the income group of more than Rs. 40,000 and Rs. 10,001 to 20,000, respectively.

Jadav (2001) revealed that 46.67 per cent of onion growers had medium annual income group, while 23.33 per cent and 30.00 per cent of the onion growers were from the low and high annual income group, respectively.

Sahoo (2004) found that 8.33 per cent had annual income up to Rs. 20,000, 8.33 per cent had an income of Rs. 20,000 to 30,000 and 83.34 per cent had an annual income of more than Rs. 30,000.

Chavada (2006) reported that that 50.00 per cent of the respondents had medium annual income Rs. 15,000 to 25,000. While, 26.67 and 23.33 per cent of them had lower and high annual income, respectively.

Kamani (2007), revealed that 61.43 per cent of the organic farmers had medium annual income followed by 25.00 per cent and 13.57 per cent with high and low income, respectively.
Anilkumar (2008) found out that 28.33 per cent of the farm women belonged to the annual income group of Rs. 20001 to Rs. 40000, while 13.17 and 44.17 per cent of the respondents belonged to the income group of more than Rs. 80000 and Rs.40001 and Rs, 80000, respectively. Only 14.17 per cent of the respondents were in the income group of up to Rs. 20000.

2.1.5 EXTENSION CONTACT

Dangar (1996) indicated that majority 70.00 per cent of the chiku growers had medium extension contact. Whereas, 14.00 per cent had low and 16.00 per cent had high extension contact, respectively.

Jadav (2001) concluded that majority 64.17 per cent of the onion growers had medium extension contact, whereas 17.67 per cent had low and 18.16 per cent had high extension contact, respectively.

Barad (2004) indicated that 64.17 per cent of the garlic growers had medium extension contact whereas, 17.50 per cent and 18.33 per cent respondents had a low and high extension contact, respectively.

Tavethiya (2006) revealed that majority 71.00 per cent of the cumin growers had medium extension contact, whereas, 14.00 per cent and 15.00 per cent respondents had low and high extension contact, respectively.

Anilkumar (2008) indicated that majority 55.00 per cent of the farm women had medium extension contact, whereas, 30.00 per cent had low and 15.00 per cent had high extension contact, respectively.
Jadeja (2008) indicated that majority (66.00 per cent) of the neem growers had medium extension contact. Whereas, 18.00 per cent had low and 16.00 per cent had high extension contact, respectively.

2.1.6 SIZE OF LAND HOLDING

Chhodavadia (2001) observed that about half percent of demonstrating farmers 48.08 per cent and non-demonstrating farmers 51.92 per cent belonged to small size of land holding followed by medium and large size of land holding.

Sahoo (2004) observed that 33.34 per cent of the groundnut growers had more than 2 ha of land whereas, 20.00 per cent of the respondents had less than 1 ha land and 46.66 per cent more than 4 ha of land, respectively.

Barad (2004) observed that more than half 54.17 per cent of the garlic growers had medium size of land holding, whereas, 27.50 per cent and 18.33 percent of the respondents possessed small and large size of land holding, respectively.

Tavethiya (2006) revealed that about one third 66.00 per cent of cumin growers had medium size of land holding whereas, 11.00 per cent and 23.00 per cent respondents possessed small and large size of land holding, respectively.

Bharad (2007) observed that 60.50 per cent of the mango growers had a medium size of land holding. Remaining 31.00 per cent and 8.50 had small and big size of land holding, respectively.

Kamani (2007) stated that 32.14 per cent and 22.86 per cent of the organic farmers were medium and semi medium farmers, respectively. The organic farmers with small, large and
marginal holding were 18.58 per cent, 16.42 per cent and 10.00 per cent, respectively.

Anilkumar (2008) found that 63.33 per cent of the farm womens had a medium size of land holding whereas, 17.50 per cent and 14.17 per cent had small and big size of land holding, respectively.

Jadeja (2008) stated that (34.00 per cent) of the neem owners were small size of land holding. The neem owners with medium, large and marginal holding were 21.00 per cent, 28.00 per cent and 17.00 per cent, respectively.

2.1.7 IRRIGATION POTENTIALITY

Kanani (1998) stated that one –third 33.33 per cent of the respondents possessed 26 to 50 per cent irrigation facility and 31.67 per cent possessed 51 to 75 per cent irrigation facility, while only 18.33 and 16.67 per cent of the respondents possessed up to 25 per cent and 76 to 100 per cent irrigation facility, respectively.

Verma (2000) stated that majority of the groundnut growers 64.06 per cent had medium irrigation facility followed by low irrigation facility 25.78 per cent. Only 10.16 per cent of the respondents had high irrigation facility.

Jadav (2001) revealed that 17.50 per cent of onion growers had low irrigation potentiality, whereas 59.17 per cent and 23.33 per cent of the respondents were having medium and high irrigation potentiality, respectively.

Tavethiya (2006) observed that 38.00 per cent of the respondents possessed up to 25.00 per cent irrigation facility
and 30.00 per cent possessed 26.00 to 50.00 per cent irrigation facilities while only 20.00 per cent and 12.00 per cent of respondents possessed 51.00 to 75.00 per cent and 76.00 to 100.00 per cent irrigation facilities, respectively.

Bharad (2007) revealed that 64.00 per cent of the mango growers had a medium level of irrigation facility. While 31.50 per cent and 4.50 per cent were in the category of less and more irrigation facilities, respectively.

2.1.8 CROPPING INTENSITY

Verma (2000) found that more than half i.e. 55.09 per cent of the respondents fall in the category of medium cropping intensity, while 25.38 per cent and 19.53 per cent of the respondents fall in the category of high and low cropping intensity groups, respectively.

Jadav (2001) revealed that more than half of the onion growers 57.50 per cent had medium onion cropping intensity, whereas 22.50 per cent and 20.00 per cent respondents with high and low onion cropping intensity, respectively.

Bharad (2007) indicated that 60.00 per cent of the mango growers had medium cropping intensity, whereas 6.00 per cent and 34.00 per cent had low and high level of cropping intensity, respectively.

Kamani (2007) found that majority of the organic farmers 61.43 per cent had medium level of cropping intensity. On the other hand, 25.00 per cent organic farmers had low cropping intensity. Remaining 13.57 per cent organic farmers had high level cropping intensity.
Satasiya (2008) indicated that majority of demonstrating farmers 63.63 per cent had medium cropping intensity, and 16.36 per cent had high and 20.00 per cent had low cropping intensity, while non-demonstrators farmers majority 58.18 per cent respondents were found in medium cropping intensity, while 9.09 per cent had low and 32.72 per cent had high cropping intensity, respectively.

2.1.9 RISK ORIENTATION

Kanani (1998) indicated that more than fifty per cent (53.33 per cent) respondents were from medium risk orientation group.

Verma (2000) found that majority of the groundnut growers 64.45 per cent were in the category of medium risk preference, followed by high 21.09 per cent and low 14.46 per cent categories of respondents.

Jadav (2001) indicated that majority 72.50 per cent of the onion growers were from the medium risk orientation group; followed by 16.67 and 10.83 per cent respondents were from low and high risk orientation group, respectively.

Sahoo (2004) found that 62.50 per cent of the respondents were from medium risk orientation group, whereas 30.84 and 6.66 per cent of the respondents belonged to low and high.

Patel (2005) observed that slightly more than two third 67.78 per cent of organic farmers had medium level of risk orientation, while 24.44 per cent and 7.78 per cent of them had high and low level of orientation, respectively.

Chavada (2006) indicated that majority 80.56 per cent of the respondents were from medium risk orientation group,
where as 12.22 per cent and 7.22 per cent of respondents belonged to low and high level of risk orientation, respectively.

Tavethiya (2006) clearly indicated that 56.00 per cent respondents were belonged to medium risk orientation group, followed by 28.00 per cent and 16.00 per cent respondents were from high and low risk orientation, respectively.

Kamani (2007) reported that slightly more than two third 67.15 per cent of organic farmers had medium level of risk orientation, while 24.48 per cent and 8.57 per cent of them had high and low level of orientation, respectively.

Satasiya (2008) indicated that majority of demonstrating’ farmers 78.18 per cent had medium risk orientation, and 5.45 per cent had high and 16.36 per cent had low risk orientation, while non-demonstrators farmers majority 70.90 per cent respondents were found in medium risk orientation, while 10.90 per cent had low and 18.18 per cent had high risk orientation, respectively.

2.1.10 EXTENSION PARTICIPATION

Kanani (1998) indicated that 64.17 per cent of the groundnut growers had medium extension participation, whereas, 20 per cent and 15.83 per cent of them had high and low extension participation, respectively.

Verma (2000) revealed that about three forth 73.83 per cent of the groundnut growers had medium extension participation, whereas 15.23 per cent and 10.54 per cent of the respondents had low and high extension participation, respectively.
Chhodavadia (2001) indicated that majority demonstrating 84.62 per cent and non-demonstrating 71.15 per cent respondents belonged to medium extension participation. The few demonstrators 09.61 per cent and non-demonstrators 03.85 per cent fall in high extension participation group, respectively.

Jahagirdar and Sundararasyamy (2003) revealed that majority 70.00 per cent of the respondents had low extension participation followed by 30.00 per cent had high extension participation.

Sahoo (2004) revealed that 72.50 per cent of the respondents had medium extension participation, whereas 5.00 and 22.50 per cent of the respondents had low and high extension participation, respectively.

Chavada (2006) reported that 61.11 per cent of the respondents had medium extension participation, whereas 25.56 per cent and 13.33 per cent of the respondents had low and high extension participation, respectively.

Bharad (2007) revealed that 50.00 per cent of the mango growers had medium extension participation, whereas 33.50 per cent and 16.50 per cent of them had high and low extension participation, respectively.

Kamani (2007) revealed that 74.28 per cent of organic farmers had medium level of extension participation followed by 15.72 per cent and 10.00 per cent of them had high and low level of extension participation, respectively.

Makwana (2007) reported that more than one half 53.33 per cent of the Gir maldharis were from medium extension participation group.
Jadeja (2008) revealed that 58.00 per cent of the neem owners had medium extension participation, whereas 23.00 per cent and 19.00 per cent of them had high and low extension participation, respectively.

2.1.11 INNOVATIVENESS

Kanani (1998) concluded that 46.67 per cent of the respondents had medium innovativeness, followed by 38.33 per cent and 15.00 per cent with high and low innovativeness, respectively.

Javia (2004) stated that majority of groundnut growers 62.00 per cent had medium level of innovativeness followed by low 21.00 per cent and high 17.00 per cent level of innovativeness, respectively.

Chavada (2005) revealed that 84.66 per cent of Bt cotton growers had medium level of innovativeness, followed by 8.67 and 6.67 of respondents belonged to high and low category, respectively.

Tavethiya (2006) revealed that about 41.00 per cent of the cumin grower were found to have high innovativeness, whereas 37.00 and 22.00 per cent of them medium and low innovativeness, respectively.

Kamani (2007) found that about 45.71 per cent of the organic farmers were found to have high innovativeness whereas, 35.72 and 18.57 per cent of them medium and low innovativeness, respectively.

Bharad (2007) revealed that the majority 55.00 per cent of mango growers had best level of innovativeness followed by
average 29.00 per cent and poor 16.00 per cent level of innovativeness of mango growers.

Jadeja (2008) found that about 42.00 per cent of the neem owners were found to have high innovativeness whereas, 40.00 and 18.00 per cent of them medium and low innovativeness, respectively.

Satasiya (2008) indicated that majority of demonstrating farmers 43.63 per cent had medium innovativeness, and 32.72 per cent had high and 23.63 per cent had low innovativeness, while non-demonstrators farmers majority 36.36 per cent respondents were found in medium innovativeness, while 29.09 per cent had low and 34.54 per cent had high innovativeness, respectively.

### 2.1.12 Market Orientation

Prajapati and Patel (2000) revealed that nearly two thirds of the potato growers 65.00 per cent were found in medium category of market orientation. Remaining 19.00 per cent and 16.00 per cent of the potato growers were in high and low category of market orientation, respectively.

Javia (2004) concluded that 62.00 per cent of the groundnut growers were found in medium category of market orientation followed by low 21.00 per cent and high 17.00 per cent, respectively.

Patel (2005) reported that 50.00 per cent organic farmers had low level of market orientation, followed by 40.00 per cent and 10.00 per cent who had medium and low level of market orientation, respectively.
average 29.00 per cent and poor 16.00 per cent level of innovativeness of mango growers.

Jadeja (2008) found that about 42.00 per cent of the neem owners were found to have high innovativeness whereas, 40.00 and 18.00 per cent of them medium and low innovativeness, respectively.

Satasiya (2008) indicated that majority of demonstrating farmers 43.63 per cent had medium innovativeness, and 32.72 per cent had high and 23.63 per cent had low innovativeness, while non-demonstrators farmers majority 36.36 per cent respondents were found in medium innovativeness, while 29.09 per cent had low and 34.54 per cent had high innovativeness, respectively.

2.1.12 MARKET ORIENTATION

Prajapati and Patel (2000) revealed that nearly two thirds of the potato growers 65.00 per cent were found in medium category of market orientation. Remaining 19.00 per cent and 16.00 per cent of the potato growers were in high and low category of market orientation, respectively.

Javia (2004) concluded that 62.00 per cent of the groundnut growers were found in medium category of market orientation followed by low 21.00 per cent and high17.00 per cent, respectively.

Patel (2005) reported that 50.00 per cent organic farmers had low level of market orientation, followed by 40.00 per cent and 10.00 per cent who had medium and low level of market orientation, respectively.
Kamani (2007) reported that 50.00 per cent organic farmers had low level of market orientation, followed by 38.57 per cent and 11.43 per cent who had medium and low level of market orientation, respectively.

Chauhan (2008) reported that 64.38 per cent trained farmers had medium level of market orientation, followed by 19.98 per cent and 15.54 per cent who had high and low level of market orientation, respectively.

2.1.13 EXPOSURE TO INFORMATION SOURCES

Kalsariya (1993) found that 66.67 per cent of the hybrid cotton growers had medium level of exposure to information sources, whereas, 20.00 and 13.33 per cent had low and high level of exposure to information, respectively.

Manju (1996) found that 55.00 per cent of the respondents had regular exposure to different information sources, whereas 35.00 per cent had occasional exposure and 10.00 per cent had no exposure to information sources.

Jadav (2005) stated that 60.50 per cent of the mango orchard growers had medium level of exposure to information, whereas 24.00 and 15.50 per cent of them had low and high level of exposure to information, respectively.

Tavethiya (2006) found that 60.00 per cent of the cumin growers had medium exposure to information sources, whereas 20.00 per cent of the respondents had low and 20.00 per cent of the respondents had high exposure to information sources.

Bharad (2007) found that 53.50 per cent of the mango growers had medium level of exposure to information, whereas
43.50 per cent and 3.00 per cent of them had high and low level of exposure to information, respectively.

Anilkumar (2008) found that 53.33 per cent of the farm women had medium level of exposure to information, whereas 20.84 per cent and 25.83 per cent of them had high and low level of exposure to information, respectively.

2.1.14 PRODUCTION

Sharma et al. (1988) found that participant farm family of lab to land programme had higher yield of high yielding varieties of wheat in the farmers of non-adopted villages.

Vanparia (1994) observed that there was a significant difference between the groundnut yield of contact and non contact groundnut growers.

Chavada (2005) observed that there was a significant different between production of Bt. cotton and non Bt. Cotton production cotton growers.

2.2 KNOWLEDGE LEVEL OF THE FARMERS ABOUT CROP PRODUCTION TECHNOLOGY.

Knowledge of the farmers plays an important role in adoption of improved agricultural technology. English and English (1961) defined knowledge as “body of understood information possessed by an individual or by a culture.”

Verma (2000) found that majority of the respondents 69.92 per cent had medium knowledge of groundnut production technology, whereas 16.41 and 13.67 percent respondents had
low and high level of knowledge, respectively, regarding
groundnut production technology.

Sagwal and Malik (2001) reported that 55.00 per cent of
the respondents had high level of knowledge about essential
production practices and the remaining 45.00 per cent had
medium level of knowledge regarding essential production
practice of rice.

Chaudhury et al. (2002) revealed that 51.67 per cent of the
farmers possessed high level of knowledge about maize
production technology, whereas 48.33 per cent of the
respondents had low level of knowledge.

Gakkhar et al. (2003) inferred that majority of beneficiaries
60.00 per cent had higher level of knowledge, whereas 43.40 per
cent of the non-beneficiaries had lower level of knowledge.

Barad (2004) concluded that 65.00 per cent of garlic
growers were medium knowledge whereas, 15.00 per cent of low
and 20.00 per cent of high knowledge about recommended garlic
production technology, respectively.

Javia (2004) stated that majority of groundnut farmers
64.00 per cent had medium level of knowledge followed by 21.00
per cent and 15.00 per cent with low and high knowledge about
recommended groundnut production technology, respectively.

Patel (2005) stated that majority of groundnut growers
71.00 per cent had medium level of knowledge followed by 19.00
per cent and 10.00 per cent with high and low levels of
knowledge about organic farming practices.

Chavada (2005) concluded that 81.33 per cent of Bt.
cotton growers had medium level of knowledge followed by 10.67
per cent high and 8.00 pre cent low level of knowledge about distinctive feature of Bt cotton, respectively.

Tavethiya (2006) revealed 60.00 per cent of the cumin growers were medium level knowledge whereas; equal number of cumin growers i.e. 20.00 per cent each had high and low levels knowledge about recommended cumin production technology.

Bharad (2007) revealed that the majority of the 72.00 per cent respondents had average level of knowledge regarding improved mango production technology followed by best 21.00 per cent and poor 7.00 per cent level, respectively.

Anilkumar (2008) found that 54.16 per cent of the Farm Women had medium level of knowledge whereas, 20.83 per cent had high and 25.00 per cent had low level of knowledge about improved animal husbandry practices.

Satasiya (2008) revealed that 67.27 per cent of the demonstrator farmers had medium level of knowledge where as, 9.09 per cent had low and 23.63 per cent had high level of knowledge about castor production technology while in case of non-demonstrator farmers 60.00 per cent had medium level of knowledge while 23.63 per cent and 11.10 per cent had low level and high level of knowledge respectively.

Jadeja (2008) revealed that 73.00 per cent of the respondents had medium level of knowledge where as, 13.00 per cent had low and 14.00 per cent had high level of knowledge about indigenous scientific practices.
2.3 EXTENT OF ADOPTION OF RECOMMENDED CROP PRODUCTION TECHNOLOGY

Adoption is a decision to continue full use of an innovation. Adoption is a mental process through which individual passes from first hearing about an innovation to final adoption. It is also a decision making process.

Mundwa and Patel (2000) observed that nearly two-third of the respondents of the wheat production technology of rainfed 63.33 per cent had medium level of adoption. The remaining 16.67 per cent and 20.00 per cent of respondents had high and low level of adoption.

Patel et al. (2000) revealed that the 77.50 per cent of the cotton growers had medium level of adoption of the dry farming technology of cotton. There were 12.50 and 10.00 per cent of the cotton growers had low and high level of adoption, respectively.

Vekaria et al. (2000) revealed that majority 69.05 per cent of the groundnut growers were under the category of medium adopters, while 15.71 and 15.24 per cent of the respondents were found under low and high adopter categories, respectively.

Prajapati et al. (2002) opined that majority of the chilli growers 70.00 per cent had moderately adopted the recommended chilli cultivation technology. There were 20.83 and 9.17 per cent of the farmers having low and high level of adoption, respectively.

Singh (2003) observed that 50.00 per cent of farmers belonged to low adoption category, 44.05 per cent had medium adoption and only 5.95 per cent of the farmers belonged to higher adoption category.
Barad (2004) concluded that 63.33 per cent of the garlic growers were medium adopters whereas, 20.00 per cent and 16.17 per cent of respondents high and low adoption group, respectively.

Javia (2004) revealed that majority of respondents 61.00 per cent were in medium level of adoption category followed by 20.00 per cent and 19.00 per cent in high and low adoption categories, respectively.

Sahoo (2004) concluded that majority of respondents 71.66 per cent belonged to medium adoption category followed by 15.84 per cent and 12.50 per cent from high and low adoption categories, respectively.

Tavethiya (2006) indicated that 58.00 per cent of the cumin growers were medium adoption of improved cumin production technology. A considerable 22.00 and 20.00 per cent of respondents were in high and low adoption group, respectively.

Bharad (2007) indicated that majority of the respondents 66.50 per cent possess medium level of extent of adoption followed by high 20.50 per cent and low 13.00 per cent extent of adoption of recommended mango production technology.

Anilkumar (2008) indicated that 50.00 per cent of the Farm Women were medium adopters. Whereas, 30.00 per cent were low and 20.00 per cent were high adopters of the dairy practices, respectively.

Satasiya (2008) revealed that 69.10 per cent of the demonstrator farmers had medium level adoption. Remaining 20.00 per cent and 10.90 per cent of them had high and low...
extent of adoption, respectively. In case of non-demonstrator farmers 65.45 per cent were found with medium level of adoption, where as 21.81 per cent and 12.74 per cent had low and high level of adoption of castor production technology, respectively.

2.4 ASSOCIATION OF DEPENDENT VARIABLE (KNOWLEDGE) WITH INDEPENDENT VARIABLE (SELECTED CHARACTERISTICS OF FARMERS)

2.4.1. AGE AND KNOWLEDGE

Nurzaman et al. (2001) found that there was a negative and significant relationship between age and knowledge of farmers about integrated pest management.

Barad (2002) revealed that there was positive and significant association between age of the cattle owners and their extent of knowledge about traditional veterinary practices.

Jadav et al. (2003) observed that there was negative and significant association between onion growers’ knowledge of recommended onion production technology and their age.

Chavada (2005) observed that there was negative and non-significant association between extent of knowledge of farmers and their age.

Tavethiya (2006) concluded that there was negative and significant association between extent of knowledge of farmers and their age.

Anilkumar (2008) concluded that there was positive and significant linear association between extent of knowledge of respondents and their age.
Satasiya (2008) concluded that there was negative and significant association between extent of knowledge of farmers and their age.

Chauhan (2008) concluded that there was negative and significant association between extent of knowledge of farmers and their age.

Jadeja (2008) concluded that there was positive and significant association between extent of knowledge and their age.

2.4.2 EDUCATION AND KNOWLEDGE

Barad (2002) observed that there was negative and significant association between education of the cattle owners and their extent of knowledge of traditional veterinary practices.

Temkar and Chauhan (2002) revealed that extent of knowledge regarding Artificial Insemination was significantly correlated with the education of the respondents.

Sahoo (2004) inferred that there was positive and significant association between extent of knowledge of groundnut growers and their education level.

Chavada (2005) concluded that there was positive and significant correlation with their knowledge of Bt cotton growers about distinctive features of Bt cotton.

Tavethiya (2006) concluded that there was positive and significant linear association between extent of knowledge of farmers and their education.

Anilkumar (2008) revealed that there was positive and significant association between extent of knowledge of Farm Women and their education.
Satasiya (2008) concluded that there was positive and significant association between extent of knowledge of farmers and their education.

Chauhan (2008) concluded that there was positive and significant linear association between extent of knowledge of farmers and their education but untrained farmers had lower education than trained farmers.

Jadeja (2008) inferred that there was positive and significant association between farmers’ extent of knowledge about use of different parts of neem and their education.

### 2.4.3 SOCIAL PARTICIPATION AND KNOWLEDGE

Karkar (1998) revealed that there was significant association between knowledge level of BF’s and NBF’s pertaining to Rainfed Agricultural Technology and their social participation.

Chhodavadia (2001) reported that there was positive and highly significant correlation between the social participation and level of knowledge of groundnut –pigeon pea relay cropping system.

Jadav (2001) pointed out that there was positive and significant association between onion growers’ knowledge of recommended onion production technology and their social participation.

Barad (2004) concluded that there was positive and significant association between knowledge of garlic growers about recommended garlic production technology and their social participation.

Chavada (2005) concluded that there was positive and significant association between Bt cotton growers’ knowledge
about distinctive features of Bt cotton and their social participation.

Tavethiya (2006) revealed that there was positive and significant association between cumin growers’ knowledge of recommended cumin production technology and their social participation.

Anilkumar (2008) revealed that there was positive and significant association between Farm Women knowledge of dairy practices and their social participation.

Chauhan (2008) indicated that there was positive and significant association between extent of the trained farmers and their social participation.

2.4.4 ANNUAL INCOME AND KNOWLEDGE

Kanani (1998) reported that knowledge level of groundnut growers was not related with their annual income.

Patil et al. (1998) reported that there was a positive and significant correlation between annual income with their knowledge about lime production technology.

Chhodavadia (2001) revealed that there was highly significant relationship between income of the respondents and their knowledge level of groundnut –pigeon pea relay cropping system.

Sahoo (2004) found that there was no significant relationship between level of knowledge of the groundnut growers and their annual income.
Patel (2005) revealed that found that there is no significant relationship between level of knowledge of the respondents and their annual income.

Tavethiya (2006) indicated that there was non significant relationship between extent of knowledge and their annual income.

Satasiya (2008) found that there is no association between level of knowledge of demonstrator and non-demonstrator farmers and their annual income.

Chauhan (2008) inferred that there was no significant relation observed between extent of knowledge and their annual income.

Jadeja (2008) concluded that there was no association between farmers’ extent of knowledge about use of different parts of neem and their annual income.

2.4.5 EXTENSION CONTACT AND KNOWLEDGE

Nurzaman et al. (2001) reported that there was positive and significant relationship between extension contact and knowledge of farmers about integrated pest management.

Jadav (2001) shown that extension contact of the respondents was positively and significantly associated with their knowledge.

Barad (2004) indicated that there was a positive and significant association between garlic growers’ knowledge of recommended garlic production technology and their extension contact.

Tavethiya (2006) indicated that there was a positive and significant association between cumin growers’ knowledge of
recommended cumin production technology and their extension contact.

Makwana (2007) revealed that there was no association between Gir *maldhari* knowledge and their extension contact.

Anilkumar (2008) revealed that there was no association between Farm Women knowledge and their extension contact.

Jadeja (2008) inferred that there was positive and significant association between the farmers’ extent of knowledge about use of different parts of neem and their extension participation.

### 2.4.6 SIZE OF LAND HOLDING KNOWLEDGE

Kumbhare (2000) found that the size of land holding was positive and non-significantly correlated with the knowledge possessed by castor growers about improved castor production technology.

Jadav (2001) reported that land holding of onion growers found to have non-significantly association with knowledge of farmers about recommended onion production technology.

Sahoo (2004) observed that there was no association between extent of knowledge of respondents and their size of land holding.

Patel (2005) said that there was positive and significant association between extent of knowledge of the respondents and their size of land holding.

Anilkumar (2008) concluded that there was no association between Farm Women knowledge about dairy practices and their size of land holding.
Satasiya (2008) observed that there was no relationship between knowledge of castor production practices and size of land holding of the respondents.

Chauhan (2008) inferred that there was no relationship between knowledge of organic farming practices and size of land holding of the respondents.

Jadeja (2008) concluded that there was no association between farmers' extent of knowledge about use of different parts of neem and their size of land holding.

2.4.7 IRRIGATION POTENTIALITY AND KNOWLEDGE

Dangar (1996) concluded that there was no association between chiku grower's extent of knowledge of improved chiku cultivation practices and their irrigation potentiality.

Karkar (1998) revealed that there was positive and significant association between the level of knowledge of BF's and NBF's and their irrigation potentiality.

Jadav (2001) indicated that there was positive and significant association between onion growers' knowledge and their irrigation potentiality.

Chavada (2005) concluded that there was positive and significant association between knowledge of Bt cotton growers and their irrigation potentiality.

Tavethiya (2006) concluded that there was positive and significant association between cumin growers' knowledge of cumin production technology and their irrigation potentiality.
Chauhan (2008) indicated that there was positive and significant association between organic farmers' knowledge and their irrigation potentiality.

2.4.8 CROPPING INTENSITY AND KNOWLEDGE

Vanparia (1994) reported that there was no significant difference between groundnut crop intensity and level of knowledge of contact and non-contact groundnut growers.

Jadav (2001) revealed that there was the positive significant association between onion crop intensity and knowledge of recommended onion crop technology.

Chavada (2005) concluded that there was positive and significant association between knowledge of Bt cotton growers and their cropping intensity.

Tavethiya (2006) concluded that there was association between cumin crop intensity and knowledge at recommended cumin technology. It is obvious that with increase in crop intensity the knowledge also increased.

Satasiya (2008) concluded that there was positive and significant association between crop intensity and knowledge in demonstrator farmers.

2.4.9 RISK ORIENTATION AND KNOWLEDGE

Ahire et al. (1999) showed that risk orientation was positively and significantly related to the knowledge about improved grape cultivation.

Chhodavadia (2001) indicated that associations between the risk preference and knowledge level of groundnut-pigeon pea
relay cropping system by both the groups of respondents were positive and highly significant.

Chavada (2005) concluded that there was positive and significant association between knowledge of Bt cotton growers and their risk orientation.

Tavethiya (2006) found that there was significant relationship between cumin growers’ knowledge of recommended cumin production technology and their risk orientation.

Satasiya (2008) concluded that there was positive and significant association between knowledge of castor growers and their risk orientation.

Chauhan (2008) inferred that there was significant relationship between extent of knowledge and their risk orientation.

2.4.10 EXTENSION PARTICIPATION AND KNOWLEDGE

Loganandhan (2002) reported that organic farmers were found better in participation of extension activities, and utilization of information sources.

Makwana (2007) found that there was no association between Gir maldharis knowledge and their extension contact.

Jadeja (2008) inferred that there was positive and significant association between the farmers’ extent of knowledge about use of different parts of neem and their extension participation.

Satasiya (2008) reported that there was a positive and significant association between the knowledge of the respondents about castor production technology and their extension participation.
2.4.11 INNOVATIVENESS AND KNOWLEDGE

Patil et al. (1998) reported that there was a positive and significant correlation between innovativeness with their knowledge about lime production technology.

Kanani (1998) indicated that there was positive and non-significant association between the knowledge about indigenous practices of groundnut growers and their innovativeness.

Patel (2005) found that there was positive and significant association between the level of knowledge of farmers’ in relation to organic farming practices and their innovativeness.

Tavethiya (2006) inferred that there was positive and significant association between the level of knowledge of farmers and their innovativeness.

Satasiya (2008) inferred that there was positive and significant association between the level of knowledge of farmers and their innovativeness.

Chauhan (2008) inferred that there was positive and significant association between the level of knowledge of farmers and their innovativeness.

2.4.12 MARKET ORIENTATION AND KNOWLEDGE

Baidiyavadra (1993) inferred that there was positive and highly significant relationship between groundnut growers’ extent of knowledge of improved groundnut cultivation technology and their market orientation.

Amir (1996) reported that market orientation was positively and significantly associated with the extent of
knowledge about improved summer groundnut production technology.

Dhorajia (1996) concluded that there was positively and highly significant relationship between the market orientation of castor growers and level of knowledge of IPM in castor cultivation.

Kumbhare (2000) concluded that there was positive and highly significant relationship between castor growers’ extent of knowledge of improved castor production technology and their market orientation.

Chauhan (2008) reported that market orientation was negative and non significant associated with the extent of knowledge about organic farming practices.

### 2.4.13 EXPOSURE OF INFORMATION SOURCES AND KNOWLEDGE

Manju (1996) inferred that there was non significant relationship between the extent of knowledge about indigenous coconut cultivation practices and their exposure to information sources.

Sahoo (2004) inferred that there was positive and significant association between level of knowledge and their exposure to information sources.

Tavethiya (2006) inferred that there was positive and significant association between the level of knowledge and their exposure to information sources.

Makwana (2007) inferred that there was negative association between the level of knowledge and their exposure to information sources.
Anilkumar (2008) inferred that there was no association between the level of knowledge and their exposure to information sources.

2.4.14 PRODUCTION AND KNOWLEDGE

Chavada (2005) inferred that there was positive and significant association between the level of knowledge and their production of Bt. Cotton.

2.5 ASSOCIATION OF DEPENDENT VARIABLE (ADOPTION) WITH INDEPENDENT VARIABLE (SELECTED CHARACTERISTICS OF FARMERS).

2.5.1 AGE AND EXTENT OF ADOPTION

Jadav et al. (2003) revealed that age was negatively and significantly associated with onion growers’ adoption of recommended onion production technology.

Sahoo (2004) reported that there was positive and non-significant relationship between age of respondents and their adoption of eco-friendly practices in groundnut.

Kotadiya (2006) concluded that there was negative and significant association between age and adoption of beneficiary farmers and negative and non-significant correlation in case of non-beneficiary farmers.

Tavethiya (2006) concluded that there was negative and significant association between cumin growers’ adoption of recommended cumin production technology and their age.
Makwana (2007) revealed that there was positive and significant association between Gir *maldharis* adoption of improved animal husbandry practices and their age.

Kamani (2007) found that the age had negative and significant relationship with level of adoption indicated that as the age of organic farmer increases the extent of adoption decreases and vice versa.

Anilkumar (2008) concluded that there was positive and significant association between Farm Women adoption of dairy practices and their age.

**2.5.2 EDUCATION AND EXTENT OF ADOPTION**

Chaudhary *et al.* (2001) highlighted the positive and significant association between education of respondents and adoption of improved rice cultivation technology.

Singh (2002) reported that education had positive and significant relationship with adoption of pulse crops in arid zone.

Jadav *et al.* (2003) inferred that education had positive and significant association with onion growers’ adoption of recommended onion production technology.

Singh (2003) revealed that there was a positive and significant correlation between education of respondents and adoption of bajra production technology.

Patel (2005) suggested that education was significantly and positively related with adoption of organic farmers.

Tavethiya (2006) concluded that there was positive and significant association between cumin growers’ adoption of recommended cumin production technology and their education.
Kamani (2007) inferred that there was positive and highly significant correlation between extent of adoption of the respondents and their education.

Anilkumar (2008) concluded that there was positive and significant association between extent of adoption and education.

Satasiya (2008) inferred that there was positive and highly significant correlation between extent of adoption of the respondents and their education.

2.5.3 SOCIAL PARTICIPATION AND EXTENT OF ADOPTION

Jadav (2001) inferred that social participation had positive and significant association with onion growers’ adoption of recommended Onion production technology.

Bhatt (2002) inferred that social participation was associated significantly with the adoption of improved wheat production technology in case of trained respondents. While in case of untrained respondents, social participation was not associated with their extent of adoption.

Barad (2004) concluded that there was positive and significant association between garlic growers’ adoption of recommended garlic production technology and their social participation.

Tavethiya (2006) inferred that was positive and significant association between cumin growers’ adoption of recommended cumin production technology and their social participation.

Makwana (2007) inferred that social participation had positive and significant association with Gir maldharis adoption of improved animal husbandry.
Anilkumar (2008) inferred that there was no association between Farm Women adoption of dairy practices and their social participation.

Satasiya (2008) concluded that there was positive & significant association between adoption of recommended castor production technology and social participation.

2.5.4 ANNUAL INCOME AND EXTENT OF ADOPTION

Chavada (1998) opined that there was non-significant association between the extent of adoption of groundnut based inter/relay crop growers about improved groundnut based inter/relay crop production technology and their annual income.

Gomase et al. (1998) inferred that annual income was significantly and positively related with adoption of recommended cultivation practices of Kagzi lime growers.

Chhodavadia (2001) opined that there was no association between the extent of adoption of demonstration an non-demonstrators pertaining to groundnut pigeon pea relay cropping system and their annual income.

Kamani (2007) found that there was no association between farmers’ level of adoption towards organic framings practices on their annual income.

Makwana (2007) opined that annual income was positive and significant related with adoption of Gir maldharis.

Anilkumar (2008) concluded that there was positive and significant association between annual income and extent of adoption of Farm Women dairy practices.
Sataiya (2008) reported that there was no association between farmers level of adoption for castor production practices on their annual income.

Chauhan (2008) inferred that there was no association between farmers level of adoption towards organic framings practices on their annual income.

2.5.5 EXTENSION CONTACT AND EXTENT OF ADOPTION

Danger (1996) inferred that Chiku growers’ extent of adoption about improved Chiku cultivation practices was positively and significantly associated with their extension contact.

Jadav (2001) reported that there was highly significant relationship between onion growers’ adoption of recommended Onion production technology and their extension contact.

Barad (2004) concluded that there is significant relation between garlic growers’ adoption of recommend garlic production technology and their extension contact.

Tavethiya (2006) concluded that there is significant relation between cumin growers’ adoption of recommended cumin production technology and their extension contact.

Anilkumar (2008) concluded that there was no association between Farm Women adoption of dairy practices and their extension contact.

2.5.6 SIZE OF LAND HOLDING AND EXTENT OF ADOPTION

Patel (1995) concluded that there was non significant but positive association observed between the size of land holding and extent of adoption of DGGs and NDGGs about GPT.
Gomase et al. (1998) showed that the size of land holding was significantly and positively related with the adoption of recommended cultivation of Kagzi lime.

Jadav (2001) reported that there was no association between onion growers' adoption of recommended onion production technology and their size of land holding.

Ranganathan et al. (2001) opined that there was a non-significant correlation between size of land holding and the adoption level of farmers about organic farming in rice cultivation.

Sahoo (2004) concluded that there was no association between extent of adoption and their size of land holding.

Tavethiya (2006) concluded that there is no association between cumin growers' adoption of recommended cumin production technology and their size of land holding.

Anilkumar (2008) concluded that there is no association between Farm Women adoption of dairy practices and their size of land holding.

Satasiya (2008) concluded that there is no association between castor growers' adoption of recommended castor production technology and their size of land holding.
2.5.7 IRRIGATION POTENTIALITY AND EXTENT OF ADOPTION

Dangar (1996) concluded that there was no association between chiku grower’s extent of adoption of improved chiku cultivation practices and their irrigation potentiality.

Jadav (2001) revealed that there was an association between onion grower’s extent of adoption of recommended onion production technology and their irrigation potentiality.

Barad (2004) concluded that there was positive and significant association between garlic growers’ adoption of recommended garlic production technology and their irrigation potentiality.

Tavethiya (2006) concluded that there was positive and significant association between adoption of recommended cumin production technology and their irrigation potentiality.

Kamani (2007) revealed that there was significant relationship between irrigation potentiality and extent of adoption of organic farming practice.

Satasiya (2008) indicated that the irrigation potentiality of the demonstrator respondents was positively and significantly related with their adoption for recommended castor production practices.

Chauhan (2008) revealed that there was significant relationship between irrigation potentiality and extent of adoption of organic farming practice.
2.5.8 CROPPING INTENSITY AND EXTENT OF ADOPTION

Desai and Rao (1986) found that participant farmers irrespective of their cropping intensity maintained a significant higher mean adoption level as compared to non-participant farmers.

Jadav (2001) concluded that there was highly significant association between onion growers’ adoption of recommended onion production technology and their onion crop intensity.

Barad (2004) concluded that there was positive and significant association between garlic growers’ adoption of recommended garlic production technology and their garlic crop intensity.

Tavethiya (2006) indicated that there is positive and significant association between cumin growers’ adoption of recommended cumin production technology and their cumin crop intensity.

Satasiya (2008) revealed that there is positive and significant association between castor growers’ adoption of recommended castor production technology and crop intensity.

2.5.9 RISK ORIENTATION AND EXTENT OF ADOPTION

Patel (1995) concluded that there was positive and highly significant association found between extent of adoption of DGGs and their risk preference. In case of NDGGs the extent of adoption of GPT was not significantly associated with their risk preference.
2.5.8 CROPPING INTENSITY AND EXTENT OF ADOPTION

Desai and Rao (1986) found that participant farmers irrespective of their cropping intensity maintained a significant higher mean adoption level as compared to non-participant farmers.

Jadav (2001) concluded that there was highly significant association between onion growers’ adoption of recommended onion production technology and their onion crop intensity.

Barad (2004) concluded that there was positive and significant association between garlic growers’ adoption of recommended garlic production technology and their garlic crop intensity.

Tavethiya (2006) indicated that there is positive and significant association between cumin growers’ adoption of recommended cumin production technology and their cumin crop intensity.

Satasiya (2008) revealed that there is positive and significant association between castor growers’ adoption of recommended castor production technology and crop intensity.

2.5.9 RISK ORIENTATION AND EXTENT OF ADOPTION

Patel (1995) concluded that there was positive and highly significant association found between extent of adoption of DGGs and their risk preference. In case of NDGGs the extent of adoption of GPT was not significantly associated with their risk preference.
Jadav (2001) revealed that risk orientation was significantly associated with onion growers’ adoption of recommended onion production technology.

Sahoo (2004) revealed that risk orientation was negative and non-significantly associated with groundnut growers’ adoption of recommended eco-friendly practices.

Tavethiya (2006) indicated that there was positive and significant association between cumin growers’ adoption of recommended cumin production technology and risk orientation.

Kamani (2007) found that the risk orientation had positive and significant relationship with extent of adoption.

Satasiya (2008) indicated that the risk orientation of the demonstrator respondents was positively and significantly related with their adoption for recommended castor production practices.

Chauhan (2008) indicated that the risk orientation had positive and significant relationship with extent of adoption.

2.5.10 EXTENSION PARTICIPATION AND EXTENT OF ADOPTION

Jadav (2001) reported that there was high and significant relationship between onion growers’ adoption of recommended Onion production technology and their extension participation.

Ranganathan et al. (2001) opined that there was a positive and significant correlation of extension participation with the adoption level of farmers about organic farming in rice cultivation.
Bhatt (2002) indicated that extent of adoption of trained respondents was significantly associated with their extension participation. While non-significant but positive association was observed in case of untrained respondents.

Sahoo (2004) revealed that there was positive and significant association between groundnut growers’ of extent of adoption and their extension participation.

Tavethiya (2006) revealed that there was positive and significant association between cumin growers’ adoption of recommended cumin production technology and their extension participation.

Kamani (2007) found that extension participation of the respondents played a significant role in developing favorable adoption towards organic farming practices.

Makwana (2007) reported that extension participation was non significant related with adoption of *Gir maldharis*.

Satasiya (2008) concluded that there was positive & significant association between adoption of recommended castor production technology and extension participation.

### 2.5.11 Innovativeness and extent of adoption

Manju (1996) inferred that there was non significant relationship between innovativeness of the respondents and extent of adoption in indigenous coconut cultivation practices.

Loganandhan (2002) found that organic farmers had lower degree of innovation proneness than conventional farmers.

Sahoo (2004) revealed that there was positive and significant association between extent of adoption and their innovativeness.
Tavethiya (2006) revealed that there was positive significant association between cumin growers’ adoption of recommended cumin production technology and their innovativeness.

Kamani (2007) found that the innovativeness of the respondents was positively and significantly related with their adoption towards organic farming practices.

Satasiya (2008) inferred that the innovativeness of the demonstrator respondents was positively and significantly related with their adoption for recommended castor production practices.

Chauhan (2008) inferred that the innovativeness of the respondents was positively and significantly related with their adoption towards organic farming practices.

2.5.12 MARKET ORIENTATION AND EXTEND OF ADOPTION

Prasad and Sundarswamy (2000) observed positive and significant relationship of market orientation with adoption of dry farming technology.

Kamani (2007) reported that there was no association between market orientation and extent of adoption.

Chauhan (2008) observed that there was found negative and non significant revealed that there was no association between market orientation and extent of adoption.

2.1.13 EXPOSURE OF INFORMATION SOURCES AND EXTENT OF ADOPTION

Manju (1996) inferred that extent of adoption of indigenous coconut cultivation practices possessed a positive
and significant relationship with exposure to information sources.

Tavethiya (2006) revealed that there was positive and significant association between cumin growers’ adoption of recommended cumin production technology and their exposure to information sources.

Makwana (2007) inferred that there was no association between Gir maldharis adoption of improved animal husbandry and their exposure to information sources.

Anilkumar (2008) reported that there was no association between Farm Women adoption of dairy practices and their exposure to information sources.

2.1.14 PRODUCTION AND ADOPTION

Research review was not available

2.6 CONSTRAINTS FACED BY CROP GROWERS IN ADOPTION OF IMPROVED CROP PRODUCTION TECHNOLOGY.

Constraints in the adoption of agricultural technology should be studied critically for the speedy transfer of technology. Because of it plays an important role in adoption of new agricultural technology just as weeds in the flow of water in an irrigation channel. So for increasing extent of adoption of improved agricultural technology, it is necessary to minimize the constraints in adoption process, as far as possible. The views and findings of different investigators are presented as under:

Kanani (1998) found that the major constraints in adoption of indigenous practices of groundnut were; illiteracy,
lack of incentives or awards for adoption of indigenous practices, lower returns as compared to modern technologies, and lack of awareness about indigenous practices.

Jadav (2001) revealed that majority of the onion growers expressed lack of irrigation (75.00 per cent), problem in onion storage (73.33 per cent), low price of onion in the market (71.66 per cent), high price of fertilizer (67.50 per cent), inadequate and irregular power supply (66.66 per cent), high cost of pesticides (65.00 per cent) and poor economic condition (60.00 per cent).

Prajapati et al. (2002) concluded that lack of knowledge about recommended variety of chilli and unavailability of fertilizers in time and in adequate quantity were the major constraints faced by farmers in adoption of chilli production technology.

Meena and Sisodia (2005) revealed that lack of skill in using modern irrigation system and long juvenile period as related to technological constraints, high cost of establishment of orchard, lack of credit facilities in area related to economic constraints, lack of storage facilities in area, lack of preservation industries in area as related to storage and marketing constraints, erratic rainfall, high temperature during May-June as related to natural constraints and poor economic condition of farmer as related to general constraint as perceived by farmers in adoption of guava production technology.

Tavethiya (2006) observed in constraints were inadequate and irregular power supply (82.00 per cent), weight and quality loss during storage and transportation (78.00 per cent), high charges of electricity (77.00 per cent), inadequate storage
facilities (75.00 per cent), lack of market infrastructure facilities (71.00 per cent), lack of post harvest management facilities (70.00 per cent), fluctuation of cumin price in the market (69.00 per cent).

Kotadiya (2006) observed that majority (87.50 per cent) of the BF's expressed that lack of awareness about recent recommendations of IMPT, insufficient guidance about after care of orchard (66.40 per cent), lack of publicity about scheme IHDP (53.12 per cent), lack of credit facility (50.00 per cent), insufficient staff of the state department to visit all the BF's (43.75 per cent), difficult process of getting subsidy (31.25 per cent), lack of awareness about the scheme IHDP (25.00 per cent) and delaying in providing subsidy which is granted (21.88 per cent) were the major constraints faced by the BF's in taking benefit of IHDP.

Kamani (2007) found that certain situations like fragmented holding, less consumers awareness both organic food products, lack of faith among consumer etc. were the common constraints perceived by the farmers.

Satasiya (2008) concluded that High price of improved seeds (Rank I), high cost of threshing/harvesting (Rank II), lack of irrigation facility (Rank III), non availability of finance in time (Rank IV), high price of chemical fertilizers (Rank V), high price of herbicides and high price of fungicides/Pesticides (Rank VI), lack Of Knowledge About Critical Stages (Rank VII), high cost of labour (Rank VIII), non-availability of Extension workers in villages as per time schedule (Rank IX), unawareness about the recommendation of pesticides/fungicides (Rank X).
2.7 SUGGESTION TO OVERCOME THE CONSTRAINTS IN ADOPTION OF IMPROVED CROP PRODUCTION TECHNOLOGY.

The coriander growers faced some constraints in adoption of improved coriander production technology. At the same time, they have some suggestions offered by the farmers are very important in the sense that, these suggestions may be useful in developing strategy for minimizing the constraints.

The expert views of various investigators, sociologist, economist and technology in this respect are reproduced as under:

Dangar (1996) stated that the most important suggestions expressed by the chiku growers to overcome the constraints in adoption of improved chiku cultivation practices were: regular electric power supply should be made available (85.00 per cent), exploration of additional irrigation facility (78.00 per cent), crop insurance scheme should be introduced (75.00 per cent), training should be imparted to the fruit growers in relation to the best orchard management (69.00 per cent), agricultural input should be subsidized (65.00 per cent), organization of demonstration on improved technology of chiku cultivation (56.00 per cent).

Verma (2000) concluded the most important suggestions offered by the majority of the groundnut growers as per rank order were:

1. The government at remunerative price should purchase groundnut.
2. Inputs should be made available at subsidized rate.
3. Multiple resistance variety should be developed.
4. Soil testing facilities should be made available at field level by organizing camps.
5. Subsidies should be given to increase farm mechanization.
6. Production and availability of the seed of improved varieties should be ensured.
7. There must be regular electric supply at the time of critical irrigation.

Jadav (2001) concluded that the most important suggestions expressed by the onion growers to overcome the constraints for the adoption of improved onion production practices were: provision of irrigation water (90.00 per cent), remunerative price should be given to onion growers (83.33 per cent), sufficient and regular electricity should be provided (74.16 per cent), provision of storage facility (70.00 per cent), all inputs should be made available (55.00 per cent) and sufficient and timely credit facility should be made available (55.00 per cent).

Jadav (2005) reported that out of suggestions given by the respondents to overcome the constraints in adoption of improved mango production technology, the most important eight suggestions expressed by more than 60.00 per cent were,

1. Regular electric power supply should be made available.
2. Crop insurance scheme should be introduced in mango crop.
3. Effective control measures of pests and diseases should be evolved.
4. Price of pesticides and fertilizers should be low.
5. Co-operative society for mango should be constituted.
6. Training should be given to the fruit growers in relation to the best orchard management.
7. Remunerative minimum prices should be fixed by the Government.

Satasiya (2008) revealed that important suggestions offered by the majority (77.27 per cent) respondents were: Cost of harvesting/threshing should be reduced (Rank I), farmers should be protected by crop insurance, if crops fails (Rank II), inputs should be made available at subsidized rate (Rank III), Remunerative price should be made available to the castor growers for their products (Rank IV).
Theoretical Orientation

3.1.2 Dependent variables

3.1.2.1 Knowledge

Knowledge is the body of understood information possessed by an individual or by a culture. It is that part of a person’s information which is established fact (English and English, 1961). Knowledge is considered as those behaviour and test situations, which emphasize the remembering, either by recognition or recall of ideas, material or phenomena (Bloom et al., 1955). Knowledge is the function of an innovation decision process when “the individual is exposed to an innovation existence and gains some understanding of its functions.” There are three components of the knowledge viz.,

1. “Awareness knowledge” which refers to the information that innovation exists.
2. “How to knowledge” which refers to the information needed to use an innovation properly.
3. “Principle knowledge” which comprises the functioning. Principles underlying the innovation (Rogers and shoemaker, 1971)

Taking a clue from the foregoing discussion, in this study the knowledge considered as a body of “understood information” and “how to knowledge” possessed by the
farmers about coriander product. The farmers can utilize their information and know-how in attitude of coriander production technology.

Majority of the farmers had medium level of knowledge regarding groundnut production technology (Verma, 2000). Majority of the garlic growers had medium level of knowledge (Barad, 2004). Majority of the groundnut growers had medium level of knowledge (Patel, 2005). Majority of the Farm Women had medium level of knowledge improved animal husbandry practices (Anilkumar, 2008).

3.1.2.2 Adoption

According to Rogers (1962), adoption process is the mental process through which an individual passes from first hearing about an innovation to its final adoption. It is also a decision making process, as adoption of an innovation requires a decision by an individual. The adoption could take place any where on the “Continuum” from unawareness to complete knowledge. The innovation adoption process has two components.

1] The symbolic adoption in which the idea is accepted.
2] The use of adoption in which the material component of practices of innovation is accepted.

In some of the studies, the use of adoption of recommended “package of practices” have been regarded as use of adoption (Gunawardana et al.1980)

Majority of the respondents were medium adopters of recommended production technology (Vekaria et al. 2000; Barad, 2004; Sahoo, 2004; Tavethiya, 2006; Bharad, 2007; Anilkumar, 2008; Satasiya, 2008).
3.1.3 **Association**

It is envisaged that the extent of association between two variables (independent and dependent) provides the strength and direction and effects of one variable on the other variable and independent variable, which are included in present study. Attempts are being made to ascertain the extent of association between the variables and their direction. As regards to the association between selected characteristics of the farmers and their knowledge level, it was observed that age was significantly associated with knowledge level (Nurzaman *et al.* 2001 and Tavethiya, 2006), education was significantly association with knowledge level (Sahoo, 2004; Chavada, 2005 and Jadeja, 2008), social participation was significantly associated with knowledge level (Karkar, 1998; Jadav, 2001; Chavada, 2005 and Tavethiya 2006), annual income was not significantly associated with knowledge level (Sahoo, 2004; Patel, 2005 and Tavethiya, 2006), extension contact was significantly associated with knowledge level (Nurzaman *et al.* 2001; Barad, 2004 and Jadeja, 2008), size of land holding was significantly associated with knowledge level (Patel, 2005), irrigation potentiality was significantly associated with knowledge level (Karkar, 1998 and Tavethiya, 2006), cropping intensity was significantly associated with knowledge level (Jadav, 2001 and Satasiya, 2008), risk orientation was significantly associated with knowledge level (Ahire *et al.*, 1999 and Tavethiya, 2006), extension participation was significantly associated with knowledge level (Jadeja, 2008), innovativeness was significantly associated with knowledge level (Patel, 2005 and
market orientation was negative and non significantly associated with knowledge level (Chauhan 2008), and exposure to information sources was significantly associated with knowledge level (Sahoo, 2004 and Tavethiya, 2006), production significantly associated with knowledge level (Chavada, 2005).

As regards to the association between selected characteristics of the farmers and their extent of adoption, it was observed that age was significantly associated with extent of adoption (Jadav et al., 2003; Kotadiya, 2006 and Kamani, 2007), education was significantly associated with extent of adoption (Chaudhary et al. 2001; Patel 2005 and Anilkumar 2008), social participation was significantly associated with extent of adoption (Jadav, 2001; Bhatt, 2002 and Makwana 2007), annual income was non significantly associated with extent of adoption (Chavada, 1998; Chhodavadia, 2001 and Kamani, 2007), extension contact was significantly associated with extent of adoption (Danger, 1996; Jadav, 2001 and Tavethiya, 2006), size of land holding was not significantly associated with extent of adoption (Jadav, 2001 and Sahoo, 2004), irrigation potentiality was significantly associated with extent of adoption (Jadav, 2001; Kamani, 2007 and Chauhan 2008), cropping intensity was significantly associated with extent of adoption (Desai and Rao, 1986; Jadav, 2001 and Tavethiya, 2006), risk orientation was significantly associated with extent of adoption (Jadav, 2001; Tavethiya, 2006 and Satasiya, 2008), extension participation was significantly associated with extent of adoption (Jadav, 2001; Ranganathan et al. 2001 and Sahoo, 2004), innovativeness was significantly associated with extent of adoption (Sahoo,
2004 and Kamani, 2007), market orientation was negative and non significantly associated with extent of adoption (Kamani, 2007 and Chauhan, 2008), exposure to information sources was significantly associated with extent of adoption (Manju, 1996 and Tavethiya, 2006).

3.1.4 Constraints

The difficulties or problems faced by respondents while adoptions of recommended agricultural production technology were considered as constraints.

Major constraints in adoption of indigenous practices of groundnut were; illiteracy, lack of incentives or awards for adoption of indigenous practices, lower returns as compared to modern technologies, and lack of awareness about indigenous practices (Kanani, 1998). Lack of irrigation, problem in onion storage, low price of onion in the market, high price of fertilizer, inadequate and irregular power supply, high cost of pesticides and poor economic condition (Jadav, 2001). High price of improved seeds, high cost of threshing/harvesting, lack of irrigation facility, non availability of finance in time, high price of chemical, fertilizers, herbicides, fungicides/Pesticides, lack Of Knowledge About Critical Stages, high cost of labour, non-availability of Extension workers in villages as per time schedule, unawareness about the recommendation of pesticides/fungicides (Satasiya, 2008).
3.1.5 Suggestions

The ways and means or opinions as suggested by the respondent farmers to overcome constraints in adoption of improved production technology were considered as the suggestions in this study.

As regards suggestions to overcome the constraints in adoption of recommended fruit production technology were: Regular power supply should be made available, irrigation facilities to be provided by government, crop insurance scheme should be introduced, training should be given to the fruit growers, ensure the supply of fertilizer mixture, insecticides, pesticides and growth regulators (Danger, 1996). Provision of irrigation water, remunerative price should be given to onion growers, sufficient of regular electricity should be supplied (Jadav, 2001).

3.2 THE PARADIGM

The conceptual framework given in the preceding section may be presented paradigmatically which has been developed during the course of study. The models shown in Fig. 1 & 2 are tentative and generalized one. The final form of such a model will be suggested at the end of this thesis in the chapter of “summary and conclusions” on all the aspects based on objectives of the study.
Fig 1. Factors associated with coriander growers' extent of knowledge of recommended coriander production technology. (Tentative paradigm.)
Coriander growers’ extent of adoption with respect to recommended coriander production technology.

Factor Associated with

Independent Variables

Age
Education
Social Participation
Extension Contact
Annual income
Size of Land holding
Irrigation Potentiality
Cropping intensity
Risk orientation
Extension Participation
Innovativeness
Market orientation
Exposure to information
Production

Dependent Variables

Adoption

Fig 1. Factors associated with coriander growers’ extent of adoption of recommended coriander production technology. (Tentative paradigm.)
Research Methodology
CHAPTER IV
RESEARCH METHODOLOGY

Methodology deals with the methods and procedures followed in carrying out this study. It describes and classifies methods were used for measuring the dependent and independent variables as well as techniques followed for collection and analysis of data.

4.1 Identification of the problem
4.2 Sources of the data
4.3 Area of the study
4.4 Research design
4.5 Sampling technique
4.6 Operationalization of concepts
4.7 Measurement of variables
  4.7.1 Independent variables
  4.7.2 Dependent variables
4.8 Tools of data collection and field procedures
4.9 Analysis of the data

4.1 IDENTIFICATION OF THE PROBLEM

Coriander is one of the most important spices crops of Gujarat state in general and particularly of Junagadh district. Coriander cultivation area in Junagadh district is 3490 ha with 5422.5 M.T of production. Although its average yield per hectare is low as compared to other districts in the state.

Keeping this important criterion in view, present study was undertaken. The idea of research problem is discussed with
Major advisor, Committee Member, Scientists of Department of Agronomy and other experts working at Junagadh Agricultural University, Junagadh.

4.2 SOURCES OF THE DATA

The basic information regarding the study was gathered from the records of Gram and Taluka Panchayat, Office of District Agricultural Officer and several coriander growers.

The secondary data and other relevant information for the study was collected from published reports, papers, reference books and periodicals on the subject published by different authors and agencies and discuss with experts.

4.3 AREA OF THE STUDY

Decision was taken to carry out the study in an area having the most suitable conditions from the point of view of successful coriander cultivation. Keeping this in view, the Mendarada and Keshod talukas of Junagadh district purposively selected for the coriander production technology.

1.) The area has ideal condition for successful coriander cultivation.
2.) Soil and climate are very favorable for successful coriander cultivation.
3.) Similar research study was not conducted in the area under study.
4.) The researcher being familiar with the farming condition of the area.
4.4 RESEARCH DESIGN

This study was conducted by using an ex-post facto research design. It is systematic empirical enquiry in which the scientist does not have direct control over the independent variables because their manifestations have already occurred or they are inherently not manipulated (Kerlinger, 1969).

4.5 SAMPLING TECHNIQUES

Random sampling technique was used for the study. The sampling technique is described as under:

4.5.1 Selection of the Talukas

Out of 14 talukas of Junagadh district, 2 talukas were selected purposively.

4.5.2 Selection of the Villages

Four villages from each selected talukas were by taken random sampling method.

Table – 3 Selected talukas, villages and respondents

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Name of Talukas</th>
<th>Name of Villages</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mendarada</td>
<td>Araniyala</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barvada</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Samadhiyala</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vaspada</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Keshod</td>
<td>Sondarada</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kevdra</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nani-Ghansari</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pipali</td>
<td>20</td>
</tr>
</tbody>
</table>
fig: 3 Map of Junagadh District

SELECTED VILLAGE

Mendarada
1. Araniyala
2. Barvada
3. Samadhiyala
4. Vasapda

Keshod
1. Sondarada
2. Kevdra
3. Nani-Ghansari
4. Pipali
4.5.3 Selection of the Respondents

The list of farmers of all the selected villages was prepared from the record of Village Panchayat. Then 20 respondents were selected from each selected villages by random sampling method. Thus total 160 respondents were selected for the study.

4.6 Operationalization of the Concepts

The various terms used in this study need to be defined so as to clarify the concept in the particular content, in which they were used.

4.6.1 Knowledge

It is the body of understood information possessed by an individual.

4.6.2 Adoption

It is the degree of use of recommended coriander production technology by coriander growers as recommended by the state Department of Agriculture and Gujarat/Junagadh Agricultural University.

4.6.3 Constraints

This refers to them items of difficulty faced by the farmers in adoption of new farm technology.

4.6.4 Age

It refers to the years of the respondents on the date of interview rounded off to the nearest years.
4.6.5 Education

It is the ability of farmers to read and write or formal education received up to a certain standard. It is the level of literacy of the farmer.

4.6.6 Social participation

It refers to the participation of a respondent in local organizations (formal or informal).

4.6.7 Extension contact

It is defined as the degree to which an individual coriander grower comes in contact with VLWs and AEOs for seeking the guidance and to what extent he received information from state department of agriculture and Gujarat/Junagadh Agricultural University existed at village or taluka level.

4.6.8 Annual income

This indicates the total annual income expressed in rupees earned by the respondents from both farming and allied fields put together.

4.6.9 Size of land holding

It is the number of hectares of land an individual farmer possesses and cultivates.

4.6.10 Irrigation potentiality

It is the potentialities of irrigation in the part of the total area for which irrigation facility possesses by respondents.
4.6.11 Cropping intensity

It is in percentage of proportion of total coriander cropped area to the size of cultivable holding. It is the proportion of total coriander area.

4.6.12 Risk orientation

It is the degree to which respondents are oriented towards the risk and uncertainty in their occupation.

4.6.13 Extension participation

It is defined as the degree to which an individual farmer comes to participate with VLWs and AEOs for seeking the guidance and to what extent he received information from state department of agriculture and Junagadh Agricultural University existed at village or taluka level.

4.6.14 Innovativeness

Innovativeness is operationally defined as the degree to which a farmer is relatively earlier in adopting new ideas.

4.6.15 Market orientation

It referred to the Judgment taken by individual farmer to sell his produce for better price by analyzing the various prevailing in infrastructure and market intelligentsia.

4.6.16 Exposure to information sources

This refers to an individual’s contact with varies sources of information i.e. his/her mere exposures to varies sources and influence or interaction or internalization of the message from those sources.
### 4.7 MEASUREMENT OF VARIABLES

#### 4.7.1 MEASUREMENT OF INDEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Variables</th>
<th>Measurement Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>Structure schedule developed</td>
</tr>
<tr>
<td>2</td>
<td>Education</td>
<td>Scale developed by Trivedi (1963)</td>
</tr>
<tr>
<td>3</td>
<td>Social participation</td>
<td>Scale developed by Subramaniam (1986)</td>
</tr>
<tr>
<td>4</td>
<td>Extension contact</td>
<td>Structure schedule developed</td>
</tr>
<tr>
<td>5</td>
<td>Annual income</td>
<td>Scale developed by Pareek and Trivedi (1963)</td>
</tr>
<tr>
<td>6</td>
<td>Size of land holding</td>
<td>Structure schedule developed</td>
</tr>
<tr>
<td>7</td>
<td>Irrigation potentiality</td>
<td>Scale developed by Geethakutty (1993)</td>
</tr>
<tr>
<td>8</td>
<td>Cropping intensity</td>
<td>Scale developed by Singh (1981)</td>
</tr>
<tr>
<td>9</td>
<td>Risk orientation</td>
<td>Scale developed by Singh and Supe (1969)</td>
</tr>
<tr>
<td>10</td>
<td>Extension participation</td>
<td>Scale developed by Siddaramaiah and Jalihal (1983)</td>
</tr>
<tr>
<td>11</td>
<td>Innovativeness</td>
<td>Scale developed by Singh (1977)</td>
</tr>
<tr>
<td>12</td>
<td>Market orientation</td>
<td>Scale of Samantha (1977)</td>
</tr>
<tr>
<td>13</td>
<td>Exposure to information sources</td>
<td>Structure schedule developed</td>
</tr>
<tr>
<td>14</td>
<td>Production</td>
<td>Structure schedule developed</td>
</tr>
</tbody>
</table>
4.7.1.1 Age

The age was taken as the completed number of years of the coriander growers on the date of interview and rounded up to the nearest years. The respondents were categorized into three groups.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Age Group</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Young age group = Up to 35 years</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Middle age group = 36 to 50 years</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Old age group = Above 50 years</td>
<td>3</td>
</tr>
</tbody>
</table>

4.7.1.2 Education

The education of the respondents was measured as the level of literacy in terms of educational standard that respondents had passed. The respondents were divided into categories on their level of literacy in terms of educational standard one has passed. It was measured with the help of socio-economic status scale developed by Trivedi (1963).

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of education</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Illiterate</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Primary education</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>High school education</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Higher Secondary education</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>Graduate</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Postgraduate</td>
<td>5</td>
</tr>
</tbody>
</table>
4.7.1.3 Social participation

It was measured with the help of the scale developed by Subramaniam (1986) with the necessary modification to suit the present study. The score procedure is given below:

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Social participation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Membership in any organization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No membership</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Membership in each organization</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Frequency of attending meeting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Occasionally</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Regularly</td>
<td>2</td>
</tr>
</tbody>
</table>

To obtain the final score for social participation of each respondent the score given for membership were multiplied with the scores given for attending meeting and were added up for all the organizations. The respondents were grouped into three categories as under:

Low < Mean – S.D.
Medium Mean ± S.D
High > Mean + S.D

4.7.1.4 Annual income

This indicates the total annual income expressed in rupees earned by the respondents from both farm and non-farm enterprises put together. The actual income in monetary term was taken into account on the basis of annual income the
respondents were grouped into three categories. Scale developed by Pareek and Trivedi (1963).

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Annual income</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (up to Rs. 40,000)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Medium (Rs 40,001 to 80,000)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>High (Above Rs. 80,000)</td>
<td>3</td>
</tr>
</tbody>
</table>

4.7.1.5 Extension contact

To measure extension contact of the coriander growers, the score was assigned to them on the basis of frequency of their contact with various extension workers as well as type of extension contact. The scores assigned to various frequencies of contacts were weekly (5), fortnightly (4), monthly (3), half yearly (2), yearly (1) and not at all (0). The score, thus assigned to each type of extension workers to whom respondents contacted were summed up the score, thus obtained was considered as an index of respondents contact with extension workers. According to the score obtained by respondents the mean ($\bar{X}$) and standard deviation (S.D) were worked out and respondents were grouped into three categories as below.

- Low extension contact = Mean – S.D.
- Medium extension contact = Mean ± S.D.
- High extension contact = Mean + S.D.

4.7.1.6 Size of land holding

It was measured with help of structured schedule on the basis of total land possessed by the respondents. On the basis of
land possessed in hectares, the respondents were grouped into three categories.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Size of land holding</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Small size of land holding = Up to 1 ha</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Medium size of land holding = 1 to 2 ha</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Large size of land holding = Above 2 ha</td>
<td>3</td>
</tr>
</tbody>
</table>

**4.7.1.7 Irrigation potentiality**

The extent to which crops are being irrigated was measured by this variable. The scoring procedure developed by Geethakutty (1993) was used with slight modification, *viz*; availability of irrigation water and area covered under irrigation was considered for the purpose. Facility of irrigation sources of the respondents was taken into consideration, as it is an important input for crop production. The detail of categorization and scoring procedure was as follows.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Well only</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Canal only</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Well and canal</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Tube well /Bore well</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Check dam</td>
<td>5</td>
</tr>
</tbody>
</table>
4.7.1.8 **Cropping intensity**

It denotes the intensity of land used by the farmers. In other words it is a ratio of total cropped area to net cultivated area expressed in percentage. This was calculated with the help of formula given by Singh (1981).

\[
\text{Cropping Intensity} = \frac{\text{Total cropped area in ha.}}{\text{Net cultivated area in ha.}} \times 100
\]

The respondents were classified into following three groups on the basis of mean and S.D. viz.

- Low coriander cropping intensity = Mean – S.D.
- Medium coriander cropping intensity = Mean ± S.D.
- High coriander cropping intensity = Mean + S.D.

4.7.1.9 **Risk orientation**

The scale developed by Singh and Supe (1969) was used with slight modification to measure the risk orientation of the respondents.

The scale consisted 6 statements of which two were negative. The respondents were asked to respond on three point continuum rating scale as agree, undecided and disagree giving 3, 2 and 1 score, respectively for positive statements and 1, 2 and 3 score respectively for negative statements. The total score was calculated by summing up the scores obtained for each statement by the respondents.

The respondents were classified into three categories on the basis of mean and S.D. as under.
Low risk orientation  = Mean – S.D
Medium risk orientation = Mean ± S.D.
High risk orientation  = Mean + S.D.

4.7.1.10 Extension participation

This is the extent of contact of a farmer with different extension agencies and their participation in various extension activities or programmes like meetings, seminars etc.

It was measured with the help of extension participation scale developed by Siddaramaiah and Jalihal (1983). Before application of the scale, its reliability was tested and necessary modifications were made.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Extension activities</th>
<th>Yes/No</th>
<th>Weigh -tage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Conducted demonstration on your field?</td>
<td></td>
<td>9.50</td>
</tr>
<tr>
<td>2.</td>
<td>Had discussion with ext. workers?</td>
<td></td>
<td>6.84</td>
</tr>
<tr>
<td>3.</td>
<td>Participated on field days on the farmers’ fields?</td>
<td></td>
<td>6.63</td>
</tr>
<tr>
<td>4.</td>
<td>Participated in ext. meetings?</td>
<td></td>
<td>6.60</td>
</tr>
<tr>
<td>5.</td>
<td>See demonstration plot of your neighbor and had discussion with him?</td>
<td></td>
<td>6.16</td>
</tr>
<tr>
<td>6.</td>
<td>Participated in krushi mela?</td>
<td></td>
<td>4.84</td>
</tr>
<tr>
<td>7.</td>
<td>Visited any agricultural exhibition?</td>
<td></td>
<td>2.79</td>
</tr>
<tr>
<td>8.</td>
<td>Had read ext. publications?</td>
<td></td>
<td>1.89</td>
</tr>
<tr>
<td>9.</td>
<td>Listened radio programmes on agriculture</td>
<td></td>
<td>1.50</td>
</tr>
<tr>
<td>10.</td>
<td>Viewed T.V. Programmes on agriculture</td>
<td></td>
<td>1.50</td>
</tr>
</tbody>
</table>

Actual total score value

Extension Participation Index = \(-\frac{\sum (Yes/No \times Weight)}{Total weight}\) x 100

Possible total score

Respondents were grouped into three categories.
Low extension Participation = Mean – S.D.
Medium extension Participation = Mean ± S.D.
High extension Participation = Mean + S.D.

**4.7.1.11 Innovativeness**

Innovativeness is operationally defined as the degree to which a farmer is relatively earlier in adopting new ideas. The procedure developed by Singh (1977) was used to measure the innovativeness of a farmer. The question was asked is,

“When would you prefer to adopt an improved practice in farming?”

Three responses were given with scoring procedure as follows:
1. As soon as it is brought to my knowledge – 3
2. After I have seen some other farmers using successfully – 2
3. Prefer to wait and take my own time – 1

**4.7.1.12 Market orientation**

It referred to the Judgment taken by individual farmer to sell his produce for better price by analyzing the various prevailing in infrastructure and market intelligentsia. Market orientation of the farmers was measured with the help of items on market scale developed by Samantha (1977) was used with due modification. It consisted of six items. The first, fourth and fifth statement were negative and the rest were positive. The farmers opinions were sought on four continuum viz., strongly agree, agree, disagree and strongly disagree scoring was done by follows.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Negative</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Market orientation score of individual respondents was the sum total of score of all statements included in the scale. High score in this scale would indicate high degree of market orientation. Conceptually, the respondents were categorized into three groups on the basis of mean and S. D. as under.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Category</th>
<th>Mean – S. D.</th>
<th>Mean ± S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low market orientation</td>
<td>Mean – S. D.</td>
<td>Mean ± S. D.</td>
</tr>
<tr>
<td>2.</td>
<td>Medium market orientation</td>
<td>Mean – S. D.</td>
<td>Mean ± S. D.</td>
</tr>
<tr>
<td>3.</td>
<td>High market orientation</td>
<td>Mean – S. D.</td>
<td>Mean ± S. D.</td>
</tr>
</tbody>
</table>

4.7.1.13 Exposure to information sources

This refers to an individual’s contact with varies sources of information i.e. his/her mere exposures to varies sources and influence or interaction or internalization of the message from those sources.

Scores of 0, 1 and 2 were given for responses never, occasionally and regularly respectively for each information sources.

4.7.1.14 Production

The respondents were asked to mention the yield obtain by them in Kg/ha in last year

The respondents were classified into three groups on the basis on mean and S. D. viz,. 

- 79 -
Coriander production.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Category</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low production</td>
<td>Mean – S.D.</td>
</tr>
<tr>
<td>2.</td>
<td>Medium production</td>
<td>Mean ± S.D.</td>
</tr>
<tr>
<td>3.</td>
<td>High production</td>
<td>Mean + S.D.</td>
</tr>
</tbody>
</table>

4.7.2 MEASUREMENT OF DEPENDENT VARIABLES

4.7.2.1 Knowledge

For measurement of knowledge of respondents about coriander production technology, the teacher made test was used.

The respondents were asked whether they know particular coriander production technology or not, for each coriander production practices, total numbers of respondents were calculated accordingly those who know that practice.

A unit score was given to correct and zero to incorrect response. The total score obtained by individual respondent for all the statements was calculated. Then, with the help of mean and standard deviation, the respondents were categorized as under.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low level of knowledge</td>
<td>&gt; Mean – S.D.</td>
</tr>
<tr>
<td>Medium level of knowledge</td>
<td>Mean ± S.D.</td>
</tr>
<tr>
<td>High level of knowledge</td>
<td>&lt; Mean + S.D.</td>
</tr>
</tbody>
</table>
4.7.2.2 ADOPTION

The adoption of improved coriander production technology was divided into 17 different practices by consulting the experts/scientists/extension workers/progressive farmers working in the concern field. The weightage of particular practice was determined by seeking the opinions of the expert scientist/extension workers/progressive farmers. Considering the total score 100 for the weightage of a particular practice was assigned by each experts. The different weightage was given to the each practice. The farmers were asked about the practices they followed on their farm. Their responses were recorded in the schedule. A comprehensive list of all the practices adopted by farmers under above sub heads was then prepared. The responses obtained from different farmers experts were analyzed it and the mean and standard deviation was calculated. The respondents were grouped into three categories on the basis of mean and standard deviation.

- Low adoption = Mean – S.D.
- Medium adoption = Mean ± S.D.
- High adoption = Mean + S.D.

For measuring the adoption of recommended Coriander production practices, the adoption index was developed in using adoption quotient developed by Chattopadhyay (1974) with slight modification.
\[ (e_1/P_1) W_1 + (e_2/P_2) W_2 + \ldots + (e_n/P_n) W_n \]

\[ AQ. = \frac{W_1 + W_2 + \ldots + W_n}{W \times N} \times 100 \]

Where,

- **AQ.** = Adoption quotient
- **e_1..e_n** = Extent of adoption in terms of score obtained by the farmers for particular coriander production practices.
- **P_1..P_n** = Potentiality of the respondents in terms of score obtained for the particular practices.
- **W_1..W_n** = Weightage of the particular practice, for adoption score 1 and non-adoption score 0.
- **W** = Summation of the weightage of all practices included.
- **N** = Number of years for which adoption quotient was calculated.
4.8 TOOLS OF DATA COLLECTION AND FIELD PROCEDURES

4.8.1 Collection of data

The basic information regarding the study was gathered from the records of Village Panchayat, Taluka and office of the District Panchayat, sub divisional Agricultural officers and several coriander growers.

After the primary survey, an interview schedule was prepared in light of objectives and the coriander growers personally interviewed by the investigator.

The secondary data and other relevant information for the study were gathered from the reference books, annual reports, bulletins journals and periodicals on the subject published by different authors, organizations, institutions and agencies.

4.8.2 Construction of interview schedule

To cover all pertinent aspects, in light of the objectives of the study, an interview schedule with questions on all dependent and independent variables was prepared for collection of data. A few modifications were made as a result of pre-testing. The final schedule was translated into vernacular Gujarati language and it was personally introduced to the respondents individually following the principles of interviewing to elicit better responses. The responses were recorded in the schedule itself.

4.9 ANALYSIS OF THE DATA

All the responses were recorded and transferred to master sheet. They were compiled, scored, tabulated and analyzed to
give statistical treatment in such a way that they might give proper answer to the specific objective of the study. The following statistical tools were used for interpreting the data.

4.9.1 Frequency and percentage

Simple averages and percentages methods were extensively used to analyze the collected data.

4.9.2 Mean score

Mean score was calculated for assigning the ranks. The mean score was obtained by total scores of an item divided by the total number of respondents.

4.9.3 Standard deviation

Standard deviation was worked out from the total score obtained by each respondent as per the following formula.

\[
S.D = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n-1}}
\]

Where,

- \(X_i\) = individual score
- \(\bar{X}\) = mean score
- \(n\) = total number of respondents

The maximum and minimum score limits were obtained by the following formula.

\[X_i = \text{Mean} \pm S.D.\]

4.9.4 Coefficient of correlation (r)

To find out the relationship between dependent and independent variables, the Pearson’s product moment method of
computing correlation coefficient, which provides generally accepted means for measuring the relationship, was used (Chandel, 1975).

Following formula was used to calculate the correlation coefficient (Garret, 1967).

\[ r = \frac{SP(x, y)}{\sqrt{SS(x) \cdot SS(y)}} \]

Where,

- \( r \) = Co-efficient of correlation
- \( X \) and \( Y \) = Two variables under study.
- \( SP(x, y) \) = Sum of product of the deviations on \( x \) and \( y \) from their means.
- \( SS(x) \) = Sum of squares of deviations due to ‘\( x \)’ variable.
- \( SS(y) \) = Sum of squares of deviations due to ‘\( y \)’ variable.

For testing the significance of ‘\( r \)’, ‘\( t \)’ value was calculated by using the following formula:

\[ t = \frac{r \sqrt{n - 2}}{\sqrt{1 - r^2}} \]

Where,

- \( t \) = Calculated ‘\( t \)’ value
- \( r \) = Coefficient of correlation
- \( n \) = Total member of observations.

4.10 RESEARCH HYPOTHESIS (IN NULL FORM)

H1: 1.1 There is no association between the coriander growers’ knowledge of recommended coriander production technology and their age.
**H1: 1.2** There is no association between the coriander growers’ knowledge of recommended coriander production technology and their education.

**H1: 1.3** There is no association between the coriander growers’ knowledge of recommended coriander production technology and their social participation.

**H1: 1.4** There is no association between the coriander growers’ knowledge of recommended coriander production technology and their annual income.

**H1: 1.5** There is no association between the coriander growers’ knowledge of recommended coriander production technology and their extension contact.

**H1: 1.6** There is no association between the coriander growers’ knowledge of recommended coriander production technology and their size of land holding.

**H1: 1.7** There is no association between the coriander cumin growers’ knowledge of recommended coriander production technology and their irrigation potentiality.

**H1: 1.8** There is no association between the coriander growers’ knowledge of recommended coriander production technology and their cropping intensity.

**H1: 1.9** There is no association between the coriander growers’ knowledge of recommended coriander production technology and their risk orientation.
H1: 1.10 There is no association between the coriander growers' knowledge of recommended coriander production technology and their extension participation.

H1: 1.11 There is no association between the coriander growers’ knowledge of recommended coriander production technology and their innovativeness.

H1: 1.12 There is no association between the coriander growers’ knowledge of recommended coriander production technology and their market orientation.

H1: 1.13 There is no association between the coriander growers’ knowledge of recommended coriander production technology and their exposure to information sources.

H1: 1.14 There is no association between the coriander growers’ knowledge of recommended coriander production technology and their production.

H2: 1.1 There is no association between the coriander growers’ adoption of recommended coriander production technology and their age.

H2: 1.2 There is no association between the coriander growers’ adoption of recommended coriander production technology and their education.

H2: 1.3 There is no association between the coriander growers’ adoption of recommended coriander production technology and their social participation.
H2: 1.4 There is no association between the coriander growers’ adoption of recommended coriander production technology and their annual income.

H2: 1.5 There is no association between the coriander growers’ adoption of recommended coriander production technology and their extension contact.

H2: 1.6 There is no association between the coriander growers’ adoption of recommended coriander production technology and their size of land holding.

H2: 1.7 There is no association between the coriander cumin growers’ adoption of recommended coriander production technology and their irrigation potentiality.

H2: 1.8 There is no association between the coriander growers’ adoption of recommended coriander production technology and their cropping intensity.

H2: 1.9 There is no association between the coriander growers’ adoption of recommended coriander production technology and their risk orientation.

H2: 1.10 There is no association between the coriander growers’ adoption of recommended coriander production technology and their extension participation.

H2: 1.11 There is no association between the coriander growers’ adoption of recommended coriander production technology and their innovativeness.
H2: 1.12 There is no association between the coriander growers' adoption of recommended coriander production technology and their market orientation.

H2: 1.13 There is no association between the coriander growers' adoption of recommended coriander production technology and their exposure to information sources.

H2: 1.14 There is no association between the coriander growers' adoption of recommended coriander production technology and their production.
Findings and Discussion
CHAPTER V
FINDINGS AND DISCUSSION

This chapter deals with the findings and discussion of the study. The information collected through personal interview from the respondents was classified, tabulated and analyzed in light of the objectives of the study. The facts and findings of the study have been presented under the following heads:

1. To study the personal and socio-economic profile of the respondents.

2. To measure the knowledge level of respondents about coriander production technology.

3. To know the extent of adoption of coriander production technology.

4. To ascertain the association of knowledge about coriander production technology with their selected characteristics.

5. To ascertain the association of adoption about coriander production technology with their selected characteristics.

6. To identify constraints faced by respondents in adoption of coriander production technology.

7. To seek the suggestions from the respondents to overcome the constraints in adoption of coriander production technology.
Probable reason might be that most of the respondents were middle aged. Due to lack of proper educational facilities in area under study they could not get higher education. So, majority of the respondents were educated up to primary level.

This finding was in conformity with the findings of Verma (2000), Javia (2004), Barad (2007) and Anilkumar (2008).

5.1.3 SOCIAL PARTICIPATION

From the data of Table-4(3) it can be concluded that 55.00 per cent of the coriander growers had medium social participation followed by high 12.50 per cent and low social participation 32.50 per cent, respectively.

It is known that there are many co-operative organizations in our state Gujarat. Most of villages of Junagadh district having at least two co-operative society *viz.*, service cooperative society and milk producers co-operative society. Majority farmers were the members of both the co-operative societies. Moreover, farmers were found members of out side organizations *viz.*, many taluka panchayat, district panchayat, farmers club, etc.

This result was supported by Javia (2004), Tavethiya (2006), Makwana (2007) and Anilkumar (2008).

5.1.4 ANNUAL INCOME

The data regarding annual income of coriander growers were furnished in Table-4(4). The table indicated that 60.00 per cent of the respondents had medium income about Rs 40,000 to 80,000. About 16.88 per cent of the respondents were from high income. Whereas, 23.12 per cent of the respondents had income of below Rs 40,000, respectively.
The probable reason for this might be that coriander is cash, irrigated, *rabi* crop and farmers are getting assured good yield. Therefore, majority respondents’ viz., 60.00 per cent and 16.88 per cent were from the category of medium and high-income group, respectively.

The finding was in line with Jadav (2001) and Javia (2004), Chavada (2006) and Kamani (2007).

5.1.5 EXTENSION CONTACT

On the basis of data presented in Table-4(5) that majority 59.38 per cent of the coriander growers had medium extension contact whereas, 21.87 per cent and 18.75 per cent respondents had high and low extension contact, respectively.

The probable reason for this finding might be due to the visit of extension person to coriander growers and other extension projects prevailing in the area under study.

This finding was in line with the findings of Barad (2004), Tavethiya (2006) and Anilkumar (2008).

5.1.6 SIZE OF LAND HOLDING

The data in Table-4 (6) revealed that about 63.12 per cent of coriander growers had medium size of land holding whereas, 16.88 per cent and 22.00 per cent respondents possessed small and large size of land holding, respectively.

This might be due to the fact in rural areas yet joint family system is prevailing.

This finding is in conformity with the findings of Barad (2004), Tavethiya (2006), Bharad (2007) and Anilkumar (2008).
Table 4. Distribution of the respondents according to their selected characteristics  

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>No. of respondents</th>
<th>Percent</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young age group (Up to 35 years)</td>
<td>55</td>
<td>34.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle age group (36 to 50 years)</td>
<td>73</td>
<td>45.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old age group (Above 50 years)</td>
<td>32</td>
<td>20.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>44</td>
<td>27.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary (1 to 7th standard)</td>
<td>81</td>
<td>50.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary (8th to 10th standard)</td>
<td>27</td>
<td>16.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher education (Above 10th)</td>
<td>08</td>
<td>05.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3 Social participation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Social Participation (Less than 1.16)</td>
<td>52</td>
<td>32.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium Social Participation (1.16 to 2.44)</td>
<td>88</td>
<td>55.00</td>
<td>1.80</td>
<td>0.64</td>
</tr>
<tr>
<td>High Social Participation (Above 2.44)</td>
<td>20</td>
<td>12.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Annual income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up to Rs. 40,000</td>
<td>30</td>
<td>23.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rs. 40,000 to 80,000</td>
<td>95</td>
<td>60.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above Rs. 80,000</td>
<td>35</td>
<td>16.88</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th><strong>Extension contact</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low extension contact (Less than 6.35 )</td>
</tr>
<tr>
<td></td>
<td>Medium extension contact (6.35 to 10.43 )</td>
</tr>
<tr>
<td></td>
<td>High extension contact (Above 10.43 )</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th><strong>Size of land holding</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small size (up to 1ha)</td>
</tr>
<tr>
<td></td>
<td>Medium size (1 to 2 ha)</td>
</tr>
<tr>
<td></td>
<td>Large size (above 2 ha)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th><strong>Irrigation Potentiality</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>well</td>
</tr>
<tr>
<td></td>
<td>canal</td>
</tr>
<tr>
<td></td>
<td>Well + Canal</td>
</tr>
<tr>
<td></td>
<td>Bore well</td>
</tr>
<tr>
<td></td>
<td>Check Dam</td>
</tr>
</tbody>
</table>
### Findings and Discussion

<table>
<thead>
<tr>
<th>8</th>
<th>Cropping intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low cropping intensity (below 118.2)</td>
<td>30</td>
</tr>
<tr>
<td>Medium cropping intensity (118.2 to 253.2)</td>
<td>105</td>
</tr>
<tr>
<td>High cropping intensity (Above 253.2)</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9</th>
<th>Risk orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk orientation (Below 7.05)</td>
<td>54</td>
</tr>
<tr>
<td>Medium risk orientation (7.05 to 10.67)</td>
<td>63</td>
</tr>
<tr>
<td>High risk orientation (Above 10.67)</td>
<td>43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10</th>
<th>Extension participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low extension participation (Below 13.02)</td>
<td>35</td>
</tr>
<tr>
<td>Medium extension participation (13.02 to 26.6)</td>
<td>87</td>
</tr>
<tr>
<td>High extension participation (Above 26.6)</td>
<td>38</td>
</tr>
<tr>
<td>14</td>
<td>Production</td>
</tr>
<tr>
<td>----</td>
<td>--------------------------------</td>
</tr>
<tr>
<td></td>
<td>Low production</td>
</tr>
<tr>
<td></td>
<td>(Below 1479)</td>
</tr>
<tr>
<td></td>
<td>Medium production</td>
</tr>
<tr>
<td></td>
<td>(1479 to 2231)</td>
</tr>
<tr>
<td></td>
<td>High production</td>
</tr>
<tr>
<td></td>
<td>(Above 2231)</td>
</tr>
</tbody>
</table>

**5.1.7 IRRIGATION POTENTIALITY**

The data in Table-4(7) reported that majority of coriander growers 48.12 per cent having well as irrigation facility. Whereas, 37.70 per cent coriander growers were found using bore well for irrigating their crops. Only 08.75 per cent coriander growers had well and canal both to irrigate their crops. Remaining 05.92 per cent coriander growers had Check dam as irrigation source which with respect to irrigation potentiality.

Surprisingly, no farmer had reported using canal irrigation. It is quite natural that canal irrigation is existing in limited area in Saurashtra zone of the Gujarat state.

Therefore, it can be concluded that majority 84.37 per cent of the farmers had well and bore well as irrigation sources. This might be due to the fact that in the study area, lift irrigation is common to all the farmers and they have to generate this source by themselves.

This finding was in line with the findings of Verma (2000).
5.1.8 CROPPING INTENSITY

From the Table-4(8) revealed that 65.62 per cent respondent had medium cropping intensity followed by 15.63 and 18.75 per cent respondent with high and low cropping intensity, respectively.

This might be due to the fact that climatic conditions, soil structure and soil texture are favourable for coriander crop production technology.

This finding was in conformity with findings of Jadav (2001) and Bharad (2007).

5.1.9 RISK ORIENTATION

The data presented in Table-4(9) clearly indicated that 39.37 per cent respondents were belonged to medium risk orientation group, followed by 33.75 per cent and 26.88 per cent respondents were from low and high risk orientation, respectively.

Therefore, it can be concluded that majority of the coriander growers had preferred to take medium risk in adoption of recommended coriander production technology.

Similar findings were reported by Jadav (2001) and Tavethiya (2006).

5.1.10 EXTENSION PARTICIPATION

The data regarding extension participation are presented in Table-4 (10). On the basis of data, it is clear that 54.37 per cent of the coriander growers had medium extension participation, whereas 23.76 and 21.87 per cent of them high and low extension participation, respectively.
It can be inferred that the farmers of this area are educated, so they participate in different extension activities.

This finding was likes of that of the findings of Kanani (1998), Sahoo (2004) and Kamani (2007).

5.1.11 INNOVATIVENESS

It is apparent from the Table-4(11) that about 41.87 per cent of the coriander grower were found to have high innovativeness, whereas 39.37 and 18.76 per cent of them medium and low innovativeness, respectively.

The high innovativeness is found in this area because the farmers of this area are educated.

This finding was in concurrence with the finding of Tavethiya (2006), Kamani (2007) and Jadeja (2008).

5.1.12 MARKET ORIENTATION

The data in Table 4(12) reported that 61.88 per cent coriander growers had medium level of market orientation, followed by 19.37 per cent and 18.75 per cent who had low and high level of market orientation, respectively.

It is obvious from the data that a half section of coriander growers had medium level of market orientation. It implies that they are conscious to sell their produces at better price may be due to information delivered through training centre and other sources viz; news paper, radio, T.V, etc.

Similar findings were reported by Prajapati and Patel (2000) and Javia (2004).
5.1.13 EXPOSURE TO INFORMATION SOURCES

It is evident from Table-4(13) that 60.00 per cent of the coriander growers had medium exposure to information sources, whereas 17.50 per cent of the respondents had low and 22.50 per cent of the respondents had high exposure to information sources. Majority of the coriander growers had medium exposure to information sources.

This might be due to the fact that in the rural area the modern means of communication is not still highly popular or the programmers related to agriculture are not highly perceived by the farmers.

This finding was in concurrence with the finding of Kalsariya (1993) and Tavethiya (2006).

5.1.14 PRODUCTION

The data indicates in Table 4(14) that majority of 68.75 per cent coriander growers had medium coriander production. While 21.88 per cent and 09.37 per cent coriander growers had high & low coriander production, respectively.

This finding was in concurrence with the finding of Chavada (2005).

5.2 KNOWLEDGE LEVEL OF THE RESPONDENTS ABOUT CORIANDER PRODUCTION TECHNOLOGY

As discussed in the methodology to measure the knowledge of coriander growers about recommended coriander production technology a teacher made knowledge test was developed and used.
Findings and Discussion

The knowledge score of coriander growers for improved coriander production technology were calculated as sum of the correct responses and converted into percentages. The respondents were classified into three categories based on mean and SD.

- Low knowledge group = mean – S.D.
- Medium knowledge group = mean ± S.D.
- High knowledge group = mean + S.D

The extent of coriander growers’ knowledge of recommended coriander production technology are presented in Table-5 and depicted in Figure-4.

**Table 5. Distribution of respondents based on their knowledge about coriander production technology.**

<table>
<thead>
<tr>
<th>Category</th>
<th>Knowledge score</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Below 53.4</td>
<td>27</td>
<td>16.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>Between 53.4 to 89.2</td>
<td>105</td>
<td>65.62</td>
<td>71.30</td>
<td>17.90</td>
</tr>
<tr>
<td>High</td>
<td>Above 89.2</td>
<td>28</td>
<td>17.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>160</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Table-5 and Figure-4, it is clear that 65.62 per cent of the coriander growers were medium level knowledge of coriander production technology. A considerably 17.51 and
46.87 per cent of respondents were in high and low knowledge group, respectively.

This might be due to fact that the coriander growers had medium extension contact, medium social participation, medium risk orientation and medium extension participation. This factor had favorable helped the coriander growers in getting more knowledge about recommended coriander production technology.

This finding is in line with findings of Balat (2004), Patel (2008), Chopra (2005), Teerthanka (2006), Somaya (2008) and Satpathy (2006).

![Bar Chart]

**Knowledge**

**Fig: 4: Extent of knowledge of respondents about coriander production technology**

Adoption level of coriander growers was calculated based on maximum were obtained by them. Coriander growers were classified in to three categories on the basis of mean and standard deviation.

- Low adoption: $\text{Mean} - \text{S.D.}$
- Medium adoption: $\text{Mean} \pm \text{S.D.}$
- High adoption: $\text{Mean} + \text{S.D.}$
16.87 per cent of respondents were in high and low knowledge group, respectively.

This might be due to fact that the coriander growers had medium extension contact, medium social participation, medium risk orientation and medium extension participation. This factor had favourable helped the coriander growers in getting more knowledge about recommended coriander production technology.

This finding is in line with the findings of Barad (2004), Javia (2004), Patel (2005), Chavada (2005), Tavethiya (2006), Anilkumar (2008) and Satasiya (2008).

5. 3 EXTENT OF ADOPTION ABOUT CORIANDER PRODUCTION TECHNOLOGY BY THE RESPONDENTS.

The data regarding the extent of adoption of recommended coriander production technology were collected. As discussed in the methodology, the adoption index was developed and used to measure the adoption of improved coriander production technology. The adoption quotient (AQ) developed by Chattopadhyay (1974) was used with slight modification. Adoption level of coriander growers was calculated based on maximum score obtained by them. Coriander growers were classified in to three categories on the basis of mean and standard deviation.

Low adoption = Mean - S.D.
Medium adoption = Mean ± S.D.
High adoption = Mean + S.D.
These data regarding adoption of coriander production technology are presented in Table-6 and also depicted diagrammatically in Figure-5.

**Table. 6 Distribution of respondents based on their adoption about coriander production technology.**

<table>
<thead>
<tr>
<th>Category</th>
<th>Adoption score</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Below 41.64</td>
<td>38</td>
<td>23.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>Between 41.64 to 86.4</td>
<td>99</td>
<td>61.87</td>
<td>64.00</td>
<td>22.30</td>
</tr>
<tr>
<td>High</td>
<td>Above 86.4</td>
<td>23</td>
<td>14.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>160</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the perusal of the data in Table-6 and Figure-5, it is clear that 61.87 per cent of the coriander growers were medium adoption of improved coriander production technology. A considerably 23.75 and 14.37 per cent of respondents were in low and high adoption group, respectively.

It can be concluded that majority of the coriander growers were medium adoption of the recommended coriander production technology followed by low and high group, respectively. This might be due to the fact that majority of the coriander growers had medium level of adoption regarding
cumin production technology, extension contact, social participation, risk orientation and medium risk orientation. These phenomena might have helped to the coriander growers for adoption of recommended cumin production technology.

This finding was in conformity with findings of Patel et al. (2000), Vekaria et al. (2000), Jaday (2001), Barad (2004) Salan (2004), Tandheri (2006), Bhurad (2007), Anil Kumar (2008) and

![Bar Chart]

**Fig: 5: Extent of adoption of respondents about coriander production technology**
coriander production technology, extension contact, social participation, risk orientation and medium risk orientation. These phenomena might have helped to the coriander growers for adoption of recommended coriander production technology.


5.3.1 Practice-wise adoption about coriander production practices.

The information regarding practice-wise adoption about coriander production practices is furnished in table- 7

Table 7. Practice-wise adoption about recommended coriander production practices.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of practices</th>
<th>Weightage (100)</th>
<th>Obtained Mean score</th>
<th>Percent Adoption</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Soil testing</td>
<td>4.00</td>
<td>1.30</td>
<td>32.50</td>
<td>XVII</td>
</tr>
<tr>
<td>2.</td>
<td>Preparatory tillage</td>
<td>4.46</td>
<td>2.70</td>
<td>67.50</td>
<td>XII</td>
</tr>
<tr>
<td>3.</td>
<td>FYM/ Compost</td>
<td>5.80</td>
<td>4.25</td>
<td>73.27</td>
<td>VIII</td>
</tr>
<tr>
<td>4.</td>
<td>Method of sowing</td>
<td>4.26</td>
<td>2.68</td>
<td>62.91</td>
<td>XIII</td>
</tr>
<tr>
<td>5.</td>
<td>Improved variety</td>
<td>7.40</td>
<td>6.45</td>
<td>87.15</td>
<td>I</td>
</tr>
<tr>
<td>6.</td>
<td>Chemical fertilizers</td>
<td>6.66</td>
<td>5.40</td>
<td>81.00</td>
<td>IV</td>
</tr>
<tr>
<td>7.</td>
<td>Sowing time</td>
<td>5.90</td>
<td>4.10</td>
<td>69.49</td>
<td>XI</td>
</tr>
<tr>
<td>8.</td>
<td>Seed rate</td>
<td>5.00</td>
<td>3.64</td>
<td>72.80</td>
<td>IX</td>
</tr>
<tr>
<td>9.</td>
<td>Seed treatment</td>
<td>4.93</td>
<td>2.50</td>
<td>50.78</td>
<td>XVI</td>
</tr>
<tr>
<td></td>
<td>Weed Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>10.</td>
<td>6.00</td>
<td>4.60</td>
<td>76.66</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>10.26</td>
<td>8.90</td>
<td>86.74</td>
<td>II</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>10.60</td>
<td>8.10</td>
<td>76.41</td>
<td>VI</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>6.06</td>
<td>4.95</td>
<td>81.68</td>
<td>III</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>4.73</td>
<td>2.55</td>
<td>53.91</td>
<td>XV</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>3.86</td>
<td>2.94</td>
<td>76.16</td>
<td>VII</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>4.33</td>
<td>3.13</td>
<td>72.28</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>4.33</td>
<td>2.65</td>
<td>61.20</td>
<td>XIV</td>
<td></td>
</tr>
</tbody>
</table>

The data in Table 7, indicated that different rates of adoption by various 17 practices followed by respondents for recommended coriander production practices.

In case of farmers, it was observed that the first rank was occupied by improved variety measures (87.16 per cent) followed by irrigation (86.74 per cent), harvesting (81.68 per cent), chemical fertilizers (81.00), weed control (76.66 per cent), plant protection measures (76.41 per cent), were ranked second, third, fourth, fifth, sixth, respectively. While packing was the seventh rank (76.16), followed by FYM/compost fertilizers (73.27 per cent), seed rate (72.80 per cent), selling (72.28 per cent), sowing time (69.49 per cent), preparatory tillage (67.50 per cent), method of sowing (62.91 per cent), storage (61.20 per cent), grading (53.91 per cent), seed treatment (50.78 per cent), and soil testing (32.50 per cent) were ranked eighth, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, respectively.
It can be summarized that the practices viz; improved variety, irrigation, harvesting, chemical fertilizers, weed control and plant protection were highly adopted by farmers. While practices viz; soil testing, seed treatment, grading, occupied almost last position in adoption. The probable reason was that the farmers have more knowledge about different practices and they know which practices used at proper time and by proper method and they have more innovativeness, high-risk orientation, more extension contact, and social participation. In case farmers they have less knowledge about use and proper method of different practices and they have less innovativeness, less risk orientation and less extension contact and social participation.

5.4 **ASSOCIATION OF KNOWLEDGE ABOUT CORIANDER PRODUCTION TECHNOLOGY WITH THEIR SELECTED CHARACTERISTICS OF THE CORIANDER GROWERS.**

In order to ascertain the association between the level of knowledge (dependent variable) of the farmers and each of their selected characteristics (independent variables), the correlation co-efficient ('r') was calculated on the basis of operational measures developed for the variables, empirical hypotheses was stated for testing the association and its significance on zero order correlation are given in Table 8.
Table 8: Correlation between knowledge about coriander production technology followed by the farmers and the independent variables

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of the independent variables</th>
<th>N = 160 'r' value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>-0.1913*</td>
</tr>
<tr>
<td>2</td>
<td>Education</td>
<td>0.2104**</td>
</tr>
<tr>
<td>3</td>
<td>Social participation</td>
<td>0.1739*</td>
</tr>
<tr>
<td>4</td>
<td>Annual income</td>
<td>0.1254 NS</td>
</tr>
<tr>
<td>5</td>
<td>Extension contact</td>
<td>0.2033*</td>
</tr>
<tr>
<td>6</td>
<td>Size of land holding</td>
<td>0.1988*</td>
</tr>
<tr>
<td>7</td>
<td>Irrigation potentiality</td>
<td>0.2336**</td>
</tr>
<tr>
<td>8</td>
<td>Cropping intensity</td>
<td>0.2836**</td>
</tr>
<tr>
<td>9</td>
<td>Risk orientation</td>
<td>0.2782**</td>
</tr>
<tr>
<td>10</td>
<td>Extension participation</td>
<td>0.2490**</td>
</tr>
<tr>
<td>11</td>
<td>Innovativeness</td>
<td>0.3283**</td>
</tr>
<tr>
<td>12</td>
<td>Market orientation</td>
<td>-0.0269 NS</td>
</tr>
<tr>
<td>13</td>
<td>Exposure to information sources</td>
<td>0.1849*</td>
</tr>
<tr>
<td>14</td>
<td>Production</td>
<td>0.2857**</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level r = 0.1600
** Significant at 0.01 level r = 0.2100
NS = Non significant
5.4.1 AGE AND EXTENT OF KNOWLEDGE

The data presented in Table-8 were used to test the null hypothesis (H1: 1.1) that there will be no association between extent of knowledge of farmers and their age.

The calculated value of correlation coefficient $r = -0.1913$ was negative and significant at 0.05 level. Hence, null hypothesis was rejected and it can be concluded that there was negative and significant association between extent of knowledge of farmers and their age. The direction of association was negative and significant which indicated that farmers’ knowledge of coriander production technology is increased significantly with decreased in their age.

This might be due to fact that the young age farmers played appreciable role in farm decisions, further; the young farmers might be progressive in nature and always eager to take risk. Thus, age played an important role in shaping the positive knowledge towards coriander production technology.

This finding was in conformity with the findings of Nurzaman et al. (2001), Tavethiya (2006), Satasiya (2008) and Chauhan (2008).

5.4.2 EDUCATION AND EXTENT OF KNOWLEDGE

The data shown in Table-8 were used to test the null hypothesis. (H1: 1.2) that there is no association between knowledge of farmers and their education. The calculated correlation coefficient value $r = 0.2104$ was significant at 0.01 level. Hence, the null hypothesis was rejected and it can be concluded, that there was positive and significant linear
association between extent of knowledge of farmers and their education.

This might be due to the fact the educated farmers generally have high extension participation, high innovativeness, and also have progressive outlook and rational thinking. Thus, they understand the importance of coriander production technology.

This finding was in line with that Sahoo (2004), Tavethiya (2006), and Anilkumar (2008).

5.4.3 SOCIAL PARTICIPATION AND EXTENT OF KNOWLEDGE

The data in Table-8 were used to test the null hypothesis (H1: 1.3) that there is no association between the coriander growers' knowledge of recommended coriander production technology and their social participation. The calculated coefficient of correlation $r = 0.1739$ was significant at 0.05 level. Hence, null hypothesis was rejected and it can be inferred that there was positive and significant association between coriander growers' knowledge of recommended coriander production technology and their social participation. The knowledge of coriander growers increased with an increase in social participation.

This might be due to fact that, those who have participated in the programme organized by various organizations might have been in close contact with various sources of information. These organizations might have facilitated them for getting latest innovations of coriander production technology.

This finding was in conformity with Jadav (2001), Barad (2004), Chavada (2005) and Chauhan (2008).
5.4.4 Annual Income and Extent of Knowledge

The data presented in Table-8 was used to test null hypothesis (H1: 1.4) found that there is no significant relationship between level of knowledge of the respondents and their annual income.

The calculated value \( r = 0.1254 \) was non significant. Hence, the null hypothesis was accepted and it can be inferred that there was non significant relationship between extent of knowledge and their annual income. It can be concluded that respondents irrespective of annual income were going for recommended technologies to ensure higher production and they did not have any concern with annual income and coriander production technology. In this way they were aware of different recommended technologies. It means knowledge level of respondents did not relate with their annual income.

This finding was in conformity with the findings of Kanani (1998) and Sahoo (2004).

5.4.5 Extension Contact and Extent of Knowledge

The null hypothesis (H1: 1.5) was that there is no association between the coriander growers knowledge of recommended coriander production technology and their extension contact was tested with the help of the data in Table-8.

The computed correlation co-efficient value of \( r = 0.2033 \) was significant at 0.05 level. Hence, the null hypothesis was rejected, which indicated that there was a significant association between the farmers' extent of knowledge about coriander
production technology and their extension contact. The direction of association was positive, it can be summarized that in increase in extension contact was responsible for that increase in knowledge of recommended coriander production technology.

This might be due to the fact that respondents those who have participated more in various extension activities may acquire higher knowledge and ultimately increase in knowledge about recommended coriander production technology. Not only that, various extension programmes might have provided latest and timely technological technical know-how of coriander production technology to the respondents.

This finding was in line with the findings of Nurzaman et al (2001) and Jadav (2001) and Barad (2004).

5.4.6 SIZE OF LAND HOLDING AND EXTENT OF KNOWLEDGE

The data in Table-8 were used for testing the null hypothesis (H1: 1.6) that there is no association between the coriander growers knowledge of recommended coriander production technology and their size of land holding.

The correlation co-efficient obtained (r = 0.1998) was positive significant at 0.05 level. Hence, null hypothesis was rejected.

It can be inferred that there was no relationship between knowledge of coriander production practices and size of land holding of the respondents.

This finding was in conformity with the findings of Patel (2005).
5.4.7 IRRIGATION POTENTIALITY AND EXTENT OF KNOWLEDGE

On the basis of the data presented in Table-8 were used to test the null hypothesis (H1: 1.7) that there is no association between the coriander growers knowledge of recommended coriander production technology and their irrigation potentiality.

The computed correlation co-efficient value of $r = 0.2336$ was positive and highly significant at 0.01 level. Hence, null hypothesis was rejected. It can be concluded that there was positive association between coriander growers’ knowledge of coriander production technology and their irrigation potentiality.

It can be said that with increase in irrigation potentiality the knowledge also increased. The integrated irrigation system, will definitely give more yield. As a result the income may be increased. This might have motivated them in acquiring more knowledge regarding the coriander production technology.

This finding was in line with the findings of Jadav (2001).

5.4.8 CROPPING INTENSITY AND EXTENT OF KNOWLEDGE

The null hypothesis (H1: 1.8) that there is no association between the coriander growers knowledge of recommended coriander production technology and their cropping intensity was tested with the help of the data in Table-8.

The computed correlation co-efficient value $r = 0.2836$ was positive and highly significant at 0.01 level. Hence, null hypothesis was rejected. It can be concluded that there was association between coriander crop intensity and knowledge at recommended coriander technology. It is obvious that with increase in crop intensity the knowledge also increased. This
might be due to the fact the cropping intensity as per the recommended package of practices for the coriander crop will increase the yield. So the experience might have influenced the knowledge of coriander production technology.

This finding was in conformity with the finding of Jadav (2001) and Chavada (2005).

5.4.9 RISK ORIENTATION AND EXTENT OF KNOWLEDGE

The data depicted in Table-8 was used for testing the null hypothesis (H1:1.9) between the extent of knowledge of recommended coriander technology and their risk orientation.

The computed co-efficient of correlation value of \( r = 0.2782 \) was positive and high significant at 0.01 level hence, null hypothesis was rejected. Therefore, it can be said that there was significant relationship between coriander growers’ knowledge of recommended coriander production technology and their risk orientation.

The coriander crops market price is so fluctuate that can’t be predicted due to the marketing behaviour of coriander. The coriander growers might have kept the pace with this phenomenon. So they are the risky in nature, venture some and ‘come what may’ type behaviour farmers. As a result they might be benefited due to this character led them this position and significant relationship

Ahire et al. (1999) and Chavada (2005) supported these results.
5.4.10 EXTENSION PARTICIPATION AND EXTENT OF KNOWLEDGE

With the help of data presented in Table-8 the null hypothesis (H1: 1.10) that there is no association between extent of knowledge of the respondents and their extension participation was tested.

The calculated correlation coefficient $r = 0.2490$ was significant at 0.01 level. Hence, the null hypothesis was rejected. indicated that these two variables were highly dependent on each other. This is due to the fact that generally the agricultural extension workers and concerned authorities inform people regarding such practices those are not only cheap and sustainable but also ecologically protective. Also the respondents who have participated in various extension activities might have acquired higher knowledge and better understanding and ultimately they might have known more about different coriander production technology. It can be summarized that increase in extension participation is responsible for the increase in knowledge of coriander production technology.

Similar finding had been reported by Jadeja (2008) and Satasiya (2008).

5.4.11 INNOVATIVENESS AND EXTENT OF KNOWLEDGE

The data presented in the Table-8 were used to test the hypothesis (H1: 1.11) that there will be no association between extent of knowledge of the respondents and their innovativeness.

The calculated value $r = 0.3283$ was highly significant 0.01. Hence, the null hypothesis was rejected and it can be
inferred that there was positive and significant association between the level of knowledge of farmers and their innovativeness.

This mean that as the innovativeness of the respondents increased their level of knowledge about coriander production technology might be due the frequent contact with extension functionaries in their jurisdiction.

This finding was in line with Patel (2005) and Tavethiya (2006).

5.4.12 MARKET ORIENTATION AND EXTENT OF KNOWLEDGE

The data presented in the Table-8 were used to test the hypothesis (H1: 1.12) that there will be no association between extent of knowledge of the respondents and their market orientation.

The computed correlation coefficient ($r = -0.0269$) was found negative and non significant revealed that there was no association between market orientation and extent of adoption. Hence the hypothesis was accepted.

This might due to fact that market orientation cannot influence on the knowledge of coriander growers.

This finding was in line with Chauhan (2008).

5.4.13 EXPOSURE TO INFORMATION SOURCES AND EXTENT OF KNOWLEDGE

The data presented in the table-8 were used to test the hypothesis (H1: 1.13) that there will be no association between extent of knowledge of the respondents and their exposure to information sources.
The calculated value $r = 0.1849$ was positively significant at 0.05 level. Hence, the null hypothesis was rejected. It is inferred that there was positive and significant association between the level of knowledge and their exposure to information sources. It might be due to the fact that now-a-days farmers are using different electronic media like radio, television and print media like newspaper and agriculture related local magazines that increase their level of knowledge about different coriander production technology.

This finding was in line with Sahoo (2004) and Tavethiya (2006).

5.4.14 PRODUCTION AND EXTENT OF KNOWLEDGE

The data presented in the table-8 were used to test the hypothesis (H1: 1.14) that there will be no association between extent of knowledge of the respondents and their production.

The calculated value $r = 0.2857$ was highly significant at 0.01 level. Hence, the null hypothesis was rejected and it can be inferred that there was positive and significant association between the level of knowledge of farmers and their production.

The probable reason might be that the respondents were trying to increase the production of coriander by acquiring knowledge regarding coriander production technology.

This finding was in line with Chavada (2005).
5.5 ASSOCIATION OF ADOPTION ABOUT CORIANDER PRODUCTION TECHNOLOGY WITH THEIR SELECTED CHARACTERISTICS.

In order to ascertain the association between extent of adoption of the farmers (dependent variable and their selected characteristics as independent variables) the correlation coefficient ('r' value) were calculated on the basis of operational measures developed for the variables, empirical hypotheses were stated for testing the association and their significant on zero order correlation. The results of correlation are given in Table-9.

5.5.1 AGE AND EXTENT OF ADOPTION

The data in Table-9 was used for testing the null hypothesis H2: 1.1) that there is no relationship between coriander growers’ adoption of recommended coriander production technology and their age.

The calculated correlation co-efficient value of $r = -0.1830$ was found significant at 0.05 level. Thus, null hypothesis was rejected and it can be concluded that there was negative and significant association between coriander growers’ adoption of recommended coriander production technology and their age.

The direction of association was negative and significant which indicated that coriander growers’ adoption of recommended coriander production technology increased significant with decrease in their age.

The probable reason for above finding might be that majority of the young coriander growers were educated and having more extension contact and social participation.
This finding was in line with the findings of Kotadiya (2006) and Kamani (2007).

Table - 9 Correlation between adoption about coriander production technology followed by the farmers and the independent variables

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of the independent variables</th>
<th>N = 160 'r' value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>-0.1830*</td>
</tr>
<tr>
<td>2</td>
<td>Education</td>
<td>0.2522**</td>
</tr>
<tr>
<td>3</td>
<td>Social participation</td>
<td>0.1801*</td>
</tr>
<tr>
<td>4</td>
<td>Annual income</td>
<td>0.0430 NS</td>
</tr>
<tr>
<td>5</td>
<td>Extension contact</td>
<td>0.2059*</td>
</tr>
<tr>
<td>6</td>
<td>Size of land holding</td>
<td>0.0697 NS</td>
</tr>
<tr>
<td>7</td>
<td>Irrigation potentiality</td>
<td>0.2847**</td>
</tr>
<tr>
<td>8</td>
<td>Cropping intensity</td>
<td>0.2519**</td>
</tr>
<tr>
<td>9</td>
<td>Risk orientation</td>
<td>0.1703*</td>
</tr>
<tr>
<td>10</td>
<td>Extension participation</td>
<td>0.3228**</td>
</tr>
<tr>
<td>11</td>
<td>Innovativeness</td>
<td>0.3342**</td>
</tr>
<tr>
<td>12</td>
<td>Market orientation</td>
<td>-0.0495 NS</td>
</tr>
<tr>
<td>13</td>
<td>Exposure to information sources</td>
<td>0.1783*</td>
</tr>
<tr>
<td>14</td>
<td>Production</td>
<td>0.2111**</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level $r = 0.1600$

** Significant at 0.01 level $r = 0.2100$

NS = Non significant
5.5.2 EDUCATION AND EXTENT OF ADOPTION

The data in Table-9 was used for testing the null hypothesis (H2: 1.2) that there is no association between the coriander growers adoption of recommended coriander production technology and their education.

The calculated co-efficient of correlation value of $r = 0.2522$ was positively highly significant at 0.01 level. Hence, the null hypothesis was rejected and it could be inferred that there was positive and significant association between coriander growers’ adoption of recommended coriander production technology and their education.

It can be said that with increased in education the level of adoption also increased.

The probable reason may be that educated respondents understand the importance of innovations can be quickly and easily adopted by them. They also keep faith in new research and possess higher change proneness.

This result was supported by the Kamani (2007) and Chauhan (2008).

5.5.3 SOCIAL PARTICIPATION AND EXTENT OF ADOPTION

The data in Table-9 were used for testing the null hypothesis (H2: 1.3) that there is no association between the coriander growers adoption of recommended coriander production technology and their social participation.

The correlation co-efficient obtained $r = 0.1801$ was positive significant at 0.05 level. Hence, null hypothesis was
rejected and it can be inferred that there was positive significant association between coriander growers’ adoption of recommended coriander production technology and their social participation. The adoption increased with an increase of social participation of the respondents.

The probable reason for this might be that more social participation provides more in-depth information and better understanding to the respondents, which leads them to adopt the recommended coriander production technology in a better way.

This finding was in conformity with the findings of Jadav (2001), Barad (2004) and Makwana (2007).

5.5.4 ANNUAL INCOME AND EXTENT OF ADOPTION

The data in Table-9 was used for testing null hypothesis (H2: 1.4) that there is no relationship between coriander growers adoption of recommended coriander production technology and their annual income.

The calculated correlation coefficient $r = 0.0430$ was non significant at 0.05 level. Hence, the null hypothesis was accepted.

It can be said that there was no association between farmers’ level of adoption for coriander production practices on their annual income. This might be due to the fact that there were no more farmers adopting improved coriander production practices on their farm, so they think that the disparity in income is not because of the coriander production practices.

This finding was supported by Chavada (1998), Chhodavadia (2001) and Tavethiya (2006).
5.5.5 EXTENSION CONTACT AND EXTENT OF ADOPTION

The data in Table-9 was used for testing null hypothesis (H2: 1.5) that there is no relationship between coriander growers' adoption of recommended coriander production technology and their extension contact.

The computed correlation co-efficient value of \( r = 0.2059 \) was observed to be positive and significant at 0.05 level. Hence, the null hypothesis was rejected. It can therefore be concluded that there is significant relation between coriander growers’ adoption of recommended coriander production technology and their extension contact. The positive direction of relationship revealed that the adoption increased with an increase of extension contact of the respondents.

This might be due to fact that participation in extension activities around the area of the respondents acquired higher knowledge; as a result farmers are ready to adopted recommended coriander production technology.

This finding was in line with the findings of Danger (1996) and Barad (2004).

5.5.6 SIZE OF LAND HOLDING AND EXTENT OF ADOPTION

The data presented in Table-9 were used to test the null hypothesis (H2: 1.6) that there was no association between coriander growers adoption of recommended coriander production technology and their size of land holding.

The correlation co-efficient obtained \( r = 0.0697 \) was non significant at 0.05 level. Hence, the null hypothesis was accepted. It can be concluded that there is no association
between coriander growers' adoption of recommended coriander production technology and their size of land holding.

This might be due to the fact that irrespective of size of land holding almost all the respondents inclined to adopt equally, the recommended coriander production technology for getting higher yield and income.

This finding was supported by the finding Patel (1995) and Ranganathan et al (2001).

5.5.7 IRRIGATION POTENTIALITY AND EXTENT OF ADOPTION

The data in Table-9 were used to test the null hypothesis (H2: 1.7) that there was no association between coriander growers adoption of recommended coriander production technology and their irrigation potentiality.

The computed correlation co-efficient value of \( r = 0.2847 \) was positive and significant at 0.01 level. Hence, null hypothesis was rejected. It can be concluded that there was positive & significant association between adoption of recommended coriander production technology and their irrigation potentiality. The positive sign indicated that with increase in irrigation potentiality the adoption level of coriander growers also increased.

This might be due to the fact that with increase in irrigation potentiality the respondent might have irrigated their crop at different critical stages of crop which resulted in higher yield and income. As a result, this might have motivated them for more adoption of coriander production technology.
This finding was in conformity with the findings of Barad (2004), Tavethiya (2006), Kamani (2007) and Chauhan (2008).

5.5.8 CROPPING INTENSITY AND EXTENT OF ADOPTION

The data in Table-9 was used for testing the null hypothesis (H2: 1.8) that there is no association between the coriander growers adoption of recommended coriander production technology and their coriander crop intensity.

The calculated correlation co-efficient value of $r = 0.2519$ was found to be positive and significant at 0.01 level. Hence, null hypothesis was rejected. It can therefore, be said that there is positive and significant association between coriander growers adoption of recommended coriander production technology and coriander crop intensity. The positive direction of relationship indicated that coriander growers’ adoption increased with an increase in their coriander crop intensity.

The probable reason might be that coriander is rabi crop. Due to the increase in crop intensity the respondents might have received more production per unit area which might have generated more income.

This finding was supported by the finding of Desai and Rao (1986) and Barad (2004).

5.5.9 RISK ORIENTATION AND EXTENT OF ADOPTION

The data depicted in Table-9 was used for testing the null hypothesis (H2: 1.9) that there is no association between the coriander growers adoption of recommended coriander production technology and their risk orientation.
The computed co-efficient of correlation value of $r = 0.1703$ was positive and significant at 0.05 level. Hence, null hypothesis was rejected. Therefore, it can be said that there was positive significant association between coriander growers adoption of recommended coriander production technology and risk orientation. The positive direction of relationship indicated that with increase risk orientation the adoption is increased. The probable reason for this result could be that coriander growers secure benefits of high production while taking risk in adoption of recommended coriander production technology.

The finding was in conformity with the finding of Jadav (2001), Tavethiya (2006), Kamani (2007) and Chauhan (2008).

5.5.10 EXTENSION PARTICIPATION AND EXTENT OF ADOPTION

The data in Table-9 was used for testing the null hypothesis (H2: 1.10) that there is no association between the coriander growers adoption of recommended coriander production technology and their extension participation.

The computed co-efficient of correlation value of $r = 0.3228$ was positive and significant at 0.01 level. Hence, null hypothesis was rejected. Therefore, it can be said that there was positive significant association between coriander growers' adoption of recommended coriander production technology and their extension participation.

The probable reason might be that due to more participation in extension activities the respondents acquired more knowledge and other facilities like credit, input supply at a time which facilitated higher adoption in coriander production technology.
The finding was in conformity with the finding of Jadav (2001), Ranganathan et al. (2001) and Satasiya (2008).

5.5.11 INNOVATIVENESS AND EXTENT OF ADOPTION

The data in Table-9 was used for testing the null hypothesis (H2: 1.11) that there is no association between the coriander growers adoption of recommended coriander production technology and their innovativeness.

The computed co-efficient of correlation value of $r = 0.3342$ was highly positive and significant at 0.01 level. Hence, null hypothesis was rejected. Therefore, it can be said that there was positive significant association between coriander growers’ adoption of recommended coriander production technology and their innovativeness.

The probable reason might be that due to more innovative they tried out different coriander production technology.

This finding was in conformity with the finding of Sahoo (2004) and Chauhan (2008).

5.5.12 MARKET ORIENTATION AND EXTENT OF ADOPTION

The data in Table-9 was used for testing the null hypothesis (H2: 1.12) that there is no association between the coriander growers adoption of recommended coriander production technology and their Marketing orientation.

The computed correlation coefficient ($r = -0.0495$) was found negative and non significant revealed that there was no association between market orientation and extent of adoption. Hence the hypothesis was accepted.
The probable reason for no influence of market orientation on adoption of coriander product practices can be explained to the reason that resources to be purchased from market are very less. On the other hand, for selling of coriander product market network has not yet been developed.

The present finding was consonance with the findings of Chauhan (2008).

5.5.13 EXPOSURE TO INFORMATION SOURCES AND EXTENT OF ADOPTION

The data in Table-9 was used for testing the null hypothesis (H2: 1.13) that there is no association between the coriander growers adoption of recommended coriander production technology and their exposure to different information sources.

The computed co-efficient of correlation value of \( r = 0.1783 \) was positive and significant at 0.05 level. Hence, null hypothesis was rejected. Therefore, it can be said that there was positive significant association between coriander growers’ adoption of recommended coriander production technology and their exposure to information sources.

This finding was in conformity with the finding of Manju (1996) and Tavethiya (2006).

5.5.14 PRODUCTION AND EXTENT OF ADOPTION

The data presented in the table-9 were used to test the hypothesis (H1: 1.14) that there will be no association between extent of knowledge of the respondents and their production.
The calculated value $r = 0.2111$ was highly significant at 0.01. Hence, the null hypothesis was rejected and it can be inferred that there was positive and significant association between the level of adoption of farmers and their production.

5.6 CONSTRAINTS FACED BY RESPONDENTS IN ADOPTION OF CORIANDER PRODUCTION TECHNOLOGY.

In the process of agricultural development, the prime mover is considered to be the improved farming technology. The benefit of such technology is actually derived only when farmers in their local situations efficiently utilize it. The farmers are very much eager to get maximum benefits from the agricultural technology. However, many of them could not do so, because a large number of impediments are coming in that way, creating large adoption gap culminating in low yield of coriander in the area. To understand and overcome strategies for enhancing the yield, this study was undertaken.

The parts of constraints were kept open ended in the questionnaire. The responses were recorded in the schedule itself. The constraints under each of the practice required to be rated by each and every respondent, in one of the three categories viz., most important, important and less important. The frequency was calculated for each constraint and converted into percentage and rank was given. The higher ranks indicated higher perception of the respondents for that constraint and vice versa. The constraints and the mean score are given in the following Table-10.
The highest percentage observed in constraints were inadequate and irregular power supply (rank first), Weight and quality loss during storage and transportation (rank second), High charges of electricity (rank third), Inadequate storage facilities (rank forth), lack of marketing infrastructure facilities (rank fifth), lack of post harvest management facilities (rank sixth), fluctuation of coriander price in the market (rank seventh).

**Table- 10 Constraints faced by the respondents in adoption of recommended Coriander production technology.**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Constraints</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Insufficient availability of quality seed</td>
<td>64</td>
<td>40.00</td>
<td>XV</td>
</tr>
<tr>
<td>2</td>
<td>Inadequate storage facilities</td>
<td>120</td>
<td>75.00</td>
<td>IV</td>
</tr>
<tr>
<td>3</td>
<td>Lack of marketing infrastructure facilities</td>
<td>114</td>
<td>71.25</td>
<td>V</td>
</tr>
<tr>
<td>4</td>
<td>Insufficient plant protection measures</td>
<td>104</td>
<td>65.00</td>
<td>VIII</td>
</tr>
<tr>
<td>5</td>
<td>Weight and quality loss during storage and transportation</td>
<td>125</td>
<td>78.12</td>
<td>II</td>
</tr>
<tr>
<td>6</td>
<td>Lack of proper post harvest management facilities</td>
<td>112</td>
<td>70.00</td>
<td>VI</td>
</tr>
<tr>
<td>7</td>
<td>High wages of labour</td>
<td>69</td>
<td>43.12</td>
<td>XIV</td>
</tr>
<tr>
<td></td>
<td>Findings and Discussion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Non-availability of irrigated water at the time of requirement</td>
<td>72</td>
<td>45.00</td>
<td>XIII</td>
</tr>
<tr>
<td>9</td>
<td>High price of fertilizers</td>
<td>80</td>
<td>50.00</td>
<td>XI</td>
</tr>
<tr>
<td>10</td>
<td>Inadequate &amp; irregular power supply</td>
<td>131</td>
<td>81.87</td>
<td>I</td>
</tr>
<tr>
<td>11</td>
<td>High cost of pesticides</td>
<td>60</td>
<td>37.50</td>
<td>XVI</td>
</tr>
<tr>
<td>12</td>
<td>Lack of knowledge about recommended coriander production technology</td>
<td>77</td>
<td>48.12</td>
<td>XII</td>
</tr>
<tr>
<td>13</td>
<td>High cost of seeds</td>
<td>95</td>
<td>59.37</td>
<td>IX</td>
</tr>
<tr>
<td>14</td>
<td>High cost of weedicides</td>
<td>82</td>
<td>51.25</td>
<td>X</td>
</tr>
<tr>
<td>15</td>
<td>Inadequate guidance by extension personnel</td>
<td>53</td>
<td>33.12</td>
<td>XVIII</td>
</tr>
<tr>
<td>16</td>
<td>Lack of training at village level</td>
<td>50</td>
<td>31.25</td>
<td>XIX</td>
</tr>
<tr>
<td>17</td>
<td>High charges of electricity</td>
<td>124</td>
<td>77.50</td>
<td>III</td>
</tr>
<tr>
<td>18</td>
<td>Fluctuation of coriander price in the market</td>
<td>110</td>
<td>68.75</td>
<td>VII</td>
</tr>
<tr>
<td>19</td>
<td>Soil testing laboratory is far away from village</td>
<td>60</td>
<td>37.50</td>
<td>XVII</td>
</tr>
<tr>
<td>20</td>
<td>Less availability of FYM</td>
<td>48</td>
<td>30.00</td>
<td>XX</td>
</tr>
</tbody>
</table>

This might be due to the facts that income and risk orientation compels them to sell their produce immediately after the harvest at the prevailing market price.

The moderate percentage observed in constraints were, insufficient plant protection measures (rank eight), high cost of
weedicide (rank ninth), high cost of seeds (rank tenth) and high price of fertilizers (rank eleventh).

The probable reason for the above facts might be that the economic conditions of the farmers inhibit them to purchase high cost of farm inputs.

Less important constraints faced by the farmers were, lack of knowledge about recommended coriander production technology (rank twelfth) followed by non-availability of irrigation water at the time of requirement, high wages of labour, insufficient availability of quality seed, high cost of pesticides, soil testing laboratory is far away from village, inadequate guidance by extension personnel, lack of training at village level and less availability of FYM.

The perusal of data presented in Table-10 revealed that the most important problems as expressed by most of the respondents were, weight and quality loss during storage and transportation, inadequate and irregular power supply, high charges of electricity, Inadequate storage facilities, Lack of marketing infrastructure facilities, Lack of post harvest management facilities, Fluctuation of coriander price in the market.

5.7 SUGGESTIONS FROM THE RESPONDENTS TO OVERCOME THE CONSTRAINTS IN ADOPTION OF CORIANDER PRODUCTION TECHNOLOGY.

For ascertaining the suggestion to overcome the constraints in adoption of recommended coriander production technology, the suggestions were invited openly from respondents. The frequency was calculated for each suggestion and converted into percentage and rank was given. The suggestions along with their percentages are presented in Table-11.

The most important suggestions offered by the coriander growers to overcome the constraints in adoption of improved coriander production technology were: provision of irrigation water 81.25 per cent, remunerative price should be given the coriander growers 73.75 per cent, market facilities should be strengthened 71.87 per cent, regular supply of electricity for irrigation purpose should ensured 71.87 per cent, inputs should be made available at subsidized rate 60.00 per cent, available of organic manure should be increased 54.37 per cent.

The comparatively less important suggestions as expressed by the coriander growers were: sufficient and timely credit facility should be made available 49.37 per cent, training should be imparted to the coriander growers 40.00 per cent, financial procedure should be simple 35.00 per cent, soil testing facilities should be available at least at taluka level 30.62 per cent, effective soil moisture conservation technology should be developed 26.25 per cent and agriculture literature should be provided 23.75 per cent.
Table -10 Suggestions from the respondents to overcome the constraints in adoption of recommended coriander production technology.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Suggestions</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inputs should be made available at subsidized rate</td>
<td>96</td>
<td>60.00</td>
<td>V</td>
</tr>
<tr>
<td>2</td>
<td>Regular supply of electricity for irrigation purpose should ensured</td>
<td>115</td>
<td>71.87</td>
<td>IV</td>
</tr>
<tr>
<td>3</td>
<td>Sufficient and timely credit facility should be made available</td>
<td>79</td>
<td>49.37</td>
<td>VII</td>
</tr>
<tr>
<td>4</td>
<td>Soil testing facilities should be available at least at taluka level</td>
<td>49</td>
<td>30.62</td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>Availability of organic manure should be increased</td>
<td>87</td>
<td>54.37</td>
<td>VI</td>
</tr>
<tr>
<td>6</td>
<td>Remunerative prices should be given to coriander growers</td>
<td>118</td>
<td>73.75</td>
<td>II</td>
</tr>
<tr>
<td>7</td>
<td>Market facilities should be strengthened</td>
<td>115</td>
<td>71.87</td>
<td>III</td>
</tr>
<tr>
<td>8</td>
<td>Financial procedure should be simple</td>
<td>56</td>
<td>35.00</td>
<td>IX</td>
</tr>
</tbody>
</table>
need to be looked into to account very carefully by the appropriate agencies to improve the productivity of coriander crop.

Summary and Conclusion
CHAPTER VI
SUMMARY AND CONCLUSIONS

In this chapter, a nutshell description of the study in respect of the summary, conclusion, implication and suggestions for the further research is included. This chapter has been divided into the following subheads.

6.1 Summary
6.2 Conclusions
6.3 Implications
6.4 Suggestions for the further research

6.1 SUMMARY

Despite considerable advance in agricultural production technology as well as expansion in infrastructure for increasing productivity of various crops. The gap between know how already attained and their application in the field is still quite large. There is a wide scope for increasing the coriander production per unit area. Coriander is the most important spices crop. Coriander growers did not know and adopt the recommended coriander production technology. Due to several problems experienced by them in adoption of recommended coriander production technology to the farms, a study entitled “Coriander growers’ knowledge and adoption about coriander production technology” was undertaken with following specific objectives:
1. To study the personal and socio-economic profile of respondents.

2. To measure the knowledge level of respondents about coriander production technology.

3. To know the extent of adoption of coriander production technology.

4. To ascertain the association of knowledge about coriander production technology with their selected characteristics.

5. To ascertain the association of adoption about coriander production technology with their selected characteristics.

6. To identify constraints faced by respondents in adoption of coriander production technology.

7. To seek the suggestions from the respondents to overcome the constraints in adoption of coriander production technology.

The theoretical orientation was developed for the study on the basis of reviewed literature having direct or indirect bearing on the present study. The various concepts utilized in the study were operationalized, the tentative paradigm was laid down, and working hypotheses were formulated. Knowledge and adoption (dependent variables), setting and selection of respondents, analysis of data and the various statistical measures were used to test the hypotheses.
The statistical measures such as percentage, standard deviation, mean score, and correlation coefficient were used.

To measure coriander growers’ extent of knowledge about recommended coriander production technology, a teacher made knowledge test was developed and used. The format of knowledge test is given in Appendix II.

To measure coriander growers’ extent of adoption of recommended coriander production technology, the adoption index was developed and used. The adoption quotient developed by Chattopadhyay (1974) was used with slight modification. The selected independent variables such as age, education, social participation, annual income, extension contact, size of land holding, irrigation potentiality, cropping intensity, risk orientation, extension participation, innovativeness, market orientation, exposure to information sources and production were measured by scales developed by other researchers and with the help of responses to appropriate questions with schedule (Appendix I).

Based on the empirical measures on interview schedules with questions on dependent and independent variables were used for collecting the data from the coriander growers. A sample of 160 coriander growers’ representing 8 village of Mendarada and Keshod Talukas of Junagadh district was drawn by using randomly sampling techniques. The coriander growers were personally interviewed with the help of structured interview schedule. The data were collected and analyzed in light of the objectives of the study. The following important conclusions were drawn based on the findings of the study.
6.2 CONCLUSIONS

6.2.1 CHARACTERISTICS OF THE CORIANDER GROWERS

More than one half; (59.37 per cent), (55.00 per cent), (54.37 per cent) and (50.62 per cent), coriander growers' belonged to extension contact, social participation, extension participation and education, respectively.

Majority (68.75 per cent), (65.62 per cent), (63.12 per cent) and (61.87 per cent), (60.00 per cent) and (60.00 per cent), of coriander growers' belonged to production, cropping intensity, size of land holding, market orientation, exposure to information sources and annual income, respectively.

As less then one half (48.12 per cent), (45.63 per cent), (39.37 per cent) and (39.37 per cent) respondents belonged to irrigation potentiality, age, risk orientation and innovativeness, respectively.

6.2.2 CORIANDER GROWERS KNOWLEDGE

Majority (65.62 per cent) of the coriander growers had medium level of knowledge about the recommended coriander production technology. Whereas, (17.51 per cent) and (16.87 per cent) numbers of coriander growers had high & low levels knowledge about recommended coriander production technology.

6.2.3 CORIANDER GROWERS ADOPTION

Majority (61.87 per cent) of the coriander growers had medium adoption about the recommended coriander production technology. Whereas, (23.75 per cent) had low and (14.37 per
cent) had high extent of adoption about recommended coriander production technology, respectively.

6.2.4 ASSOCIATION OF KNOWLEDGE AND ADOPTION (DEPENDENT VARIABLES) WITH SELECTED CHARACTERISTICS OF CORIANDER GROWERS (INDEPENDENT VARIABLES)

6.2.4.1 Association of Knowledge with Selected Characteristics of coriander Growers

There was no significant association with the knowledge about recommended coriander production technology and their annual income. Age was negative and significantly associated with the knowledge of recommended coriander production technology. While market orientation was negative and non significant associated with the knowledge of recommended coriander production technology.

While remaining all characteristics of the respondents like education, social participation, extension contact, size of land holding, irrigation potentiality, cropping intensity, risk orientation, extension participation, innovativeness, exposure to information sources and production were positively significant associated with the knowledge of recommended coriander production technology.
6.2.4.2 Association of Adoption with Selected Characteristic of Coriander Growers

There was no significant association with the adoption of recommended coriander production technology and their annual income, size of land holding. Age was negative and significantly associated with the adoption of recommended coriander production technology. While market orientation was negative and non significant associated with the adoption of recommended coriander production technology.

While remaining all characteristics of the respondents like education, social participation, extension contact, irrigation potentiality, cropping intensity, risk orientation, extension participation, innovativeness, exposure to information sources and production were positively significant associated with the adoption of recommended coriander production technology.

6.2.5 CONSTRAINTS IN ADOPTION OF RECOMMENDED CUMIN PRODUCTION TECHNOLOGY

The important constraints faced by coriander growers were:

1) Inadequate and irregular power supply.
2) Weight and quality loss during storage and transport.
3) High charges of electricity.
4) Inadequate storage facilities.
5) Lack of marketing infrastructure facilities.
6) Lack of post harvest management facilities.
7) Fluctuation of coriander price in the market.
those independent variables that statistically significant association with coriander growers' knowledge and adoption about recommended coriander production technology.

6.3 IMPLICATIONS

Having discussed the coriander growers knowledge and adoption of recommended coriander production technology as well as suggestions to overcome the constraints, some measures emerging from this study for increasing the per unit coriander production of the area have been suggested. Extension personnel should make use of the level of knowledge on different aspects about recommended coriander production technology, while conducting coriander growers training programme in general and particularly in this area.

For providing better ground for increasing the knowledge and adoption of recommended coriander production technology, the extension personnel should make concentrate efforts while imparting the training to the coriander growers about recommended coriander production technology such as plant protection, weed management, application of fertilizers and manures.

To improve the coriander growers' knowledge about recommended coriander production technology the extension agencies should make more efforts to bring up the positively related characteristics such as education, social participation, extension contact, land holding, irrigation potentiality, cropping intensity, risk orientation, extension participation,
innovativeness, exposure to information sources and production in order of its priority.

To raise the coriander growers knowledge and adoption of recommended coriander production technology they should be facilitated with latest technical know-how and motivate them to participate in the extension activities. Besides, the extension agencies and input agencies working in the area should make concentrate efforts to organize extension activities such coriander crop demonstration, farmers’ day, farmers’ training and to persuade them to participate actively in these activities. They should also be advised to participate more actively in the social organization.

For providing proper research support scientists working in the field of spices research should consider the coriander growers problems, which prevent them in adopting the recommended coriander production technology. Spices research scientists should plan properly for fast use of coriander research strategy accordingly, which may solve the problem of the coriander growers. The research area in spices will be to develop methods for post harvest management of coriander crop. Scientist heads to consider coriander growers problem which hinder them to adopt coriander production technology and need future research.

Regular and sufficient supply of electricity for irrigation purpose must be ensured, provision of government storage facility, remunerative prices of coriander should be made available to the coriander growers, by declaring support price should also be introduced. For extension support the
management scheme should be geared up promptly to transmit latest messages for coriander growers giving stress to the plant protection measures and soil testing.

6.4 SUGGESTIONS FOR THE FURTHER RESEARCH

The present study has thrown light on the new areas for further research work need to be carried some of them areas as under.

The area of research could be extended further and size of sample of respondents could also be increased in any future study to draw more valid and generalized conclusions. Similar studies may also be conducted from time to time in different areas. The technological gap in adoption of coriander growers about recommended coriander production technology may be studied.

Moreover on the basis of the knowledge level of coriander production technology, training needs of the coriander growers about recommended coriander production technology may also be emphasized. Some characteristics of coriander growers other than those considered in this study might be affecting coriander cultivation extent of knowledge and adoption of coriander production technology. These characteristics should be identified and their association with the knowledge and adoption of the coriander growers be ascertained.
Coriander growers’ extent of knowledge with respect to recommended coriander production technology.

Factor Associated with

Independent Variables
- Age
- Education
- Social Participation
- Extension Contact
- Size of land holding
- Irrigation potentiality
- Cropping intensity
- Risk orientation
- Extension participation
- Innovativeness
- Exposure to information source
- Production

Dependent Variables

Knowledge

Fig 6. Factors associated with coriander growers’ extent of knowledge of recommended coriander production technology. (The final paradigm.)
Fig 7. Factors associated with coriander growers' extent of adoption of recommended coriander production technology. (The final paradigm.)
REFERENCES


Barad, V. G. (2004). Knowledge, Adoption And Constraints of Garlic Growers With Respect To Recommended Garlic


Jadav, N.B. (2001). Knowledge, adoption and constraints of onion growers with respect to recommended onion


Karkar B. R. (1998). Impact of national watershed development project for rainfed area on farmers’ knowledge and


**INTERVIEW SCHEDULE**

**Part-I**

Respondent Number: 

Date: 

Name of the farmer: 

Village: 
Taluka: 
District: 

1. Age: 

2. Education:

   0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or above 12

3. Social Participation:

   Are you a member and/or holding any position in any organization?

   Yes/ No. If yes give details

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Organization</th>
<th>Position</th>
<th>Participation in Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Member</td>
<td>Regular</td>
</tr>
<tr>
<td>(A)</td>
<td>In Village:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Gram Panchayat</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Milk Cooperative Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>Service Cooperative Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Youth Club</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Farmers Club</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Out Side village:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Taluka Panchayat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>District Panchayat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Farmers Union/Club</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Agricultural Produce Market Committee (Market Yard)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Annual income

(I) Income from agriculture: 

(II) Income from other than agriculture:  

(III) Total income:  

---
5. Extension Contact:

Do you contact extension workers for getting the know how about improved coriander practices?  
Yes/No

If yes, give details:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Extension workers</th>
<th>Weekly (5)</th>
<th>Fortnightly (4)</th>
<th>Monthly (3)</th>
<th>Six monthly (2)</th>
<th>Yearly (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gram sevak</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Extension officer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Taluka development officers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Subject matter specialist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>District agril. officer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Agril. scientists (J.A.U.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Others, if any</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Size of land holding:

(I) irrigated: _______ ha
(II) Unirrigated: _______ ha
(III) Fallow: _______ ha
(V) Total: _______ ha
7. Irrigation potentiality:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Source of irrigation</th>
<th>Period of water available</th>
<th>Area Irrigated(ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Through out year</td>
<td>Partial available</td>
</tr>
<tr>
<td>1</td>
<td>Well</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Canal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Well +Canal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bore Well</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Check Dam</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Cropping intensity:

What was the area under different crop during last year?

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Season</th>
<th>Crop</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monsoon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Rabi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Winter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. Risk orientation:

Please, give your agreement, disagreement or undecideness about each of the statements.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Statement</th>
<th>Agree</th>
<th>Undecided</th>
<th>disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>A farmers should grow larger number of crop to avoid greater risk involved in growing one or two crop (-)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>A farmers should rather take more of a chance in making a big profit than to be content with a smaller but less risky profit (+)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>A farmers who is willing to take greater risk than the average farmers usually does better financially (+)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>It is good for a farmer to take risk when he knows his chance of success is fairly high (+)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>It is better for a farmer not to try new farming methods unless most other farmers have used them with success (+)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Trying an entirely new method in farming involves risk, but it is worth taking (+)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Extension participation:

Did you participate in the following programme?

Yes/No, if yes answer the following.
<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Name of Extension activities</th>
<th>Yes/No</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Conducted demonstration on your field?</td>
<td></td>
<td>9.50</td>
</tr>
<tr>
<td>2.</td>
<td>Had discussion with ext.workers?</td>
<td></td>
<td>6.84</td>
</tr>
<tr>
<td>3.</td>
<td>Participated on field days on the farmers’ fields?</td>
<td></td>
<td>6.63</td>
</tr>
<tr>
<td>4.</td>
<td>Participated in ext.meetings?</td>
<td></td>
<td>6.60</td>
</tr>
<tr>
<td>5.</td>
<td>Have you Seen demonstration plot of your neighbour and had discussion with him?</td>
<td></td>
<td>6.16</td>
</tr>
<tr>
<td>6.</td>
<td>Did you Participated in krushi mela?</td>
<td></td>
<td>4.84</td>
</tr>
<tr>
<td>7.</td>
<td>Visited any agricultural exhibition?</td>
<td></td>
<td>2.79</td>
</tr>
<tr>
<td>8.</td>
<td>Have you read ext.publications?</td>
<td></td>
<td>1.89</td>
</tr>
<tr>
<td>9.</td>
<td>Listened radio programmes on agriculture</td>
<td></td>
<td>1.50</td>
</tr>
<tr>
<td>10.</td>
<td>Viewed T.V. Programmes on agriculture</td>
<td></td>
<td>1.50</td>
</tr>
</tbody>
</table>

11. Innovativeness:

Q. When would you prefer to adopt an important practice in farming?

(I) As soon as it is brought to my knowledge.

(II) After I have seen some other farmers using it successfully.

(III) Prefer to wait and take my own time.
12. Market Orientation

Please the degree of you agreement or disagreement to each of the statements given below by putting tick mark (✓) to each of them on five point continuum.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>UD</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Market News is not so useful a farmers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>A farmers can get good price by grading his produce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>One should sell his produce to the nearest market irrespective of price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>One should purchase his inputs from the shop where is other relative purchase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>One should purchase his inputs from the shop where is other relative purchase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>One demand grow crops which have more consumers demand.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SA = strongly agree  
A  = Agree  
UD = Undecided  
DA = Disagree  
SDA = strongly disagree
13. Exposure to information sources:

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Information sources</th>
<th>Frequency of exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agricultural officer</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Agricultural assistant</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Progressive farmer</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Family member</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Neighbours</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Print media</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Radio</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>T.V</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Gram sevak</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Agriculture scientist</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Subject specialist</td>
<td></td>
</tr>
</tbody>
</table>

14. Production:

Last year coriander growing Area and Production

Production area .................. (Ha)
Total yield.......................... (Kg / Ha)
Average production of Ha ......(Kg/ha)
Part II

Study the knowledge level of respondents about coriander production technology.

Please give the responses, yes/No or right/wrong or tick (✓) mark to the following questions/statements.

1. Do you think deep ploughing is not necessary in coriander cultivation? (Yes / No)

2. Is it necessary to go for soil testing before sowing of the coriander crop? (Yes / No)

3. For more production of coriander, which type of soil most suitable? ...........

4. Summer deep tillage helpful to control the insect/pest. (Yes / No)

5. What will be effect on yield if coriander is sown late? .................

6. Do you apply FYM / compost to the soil in coriander production technology? (Yes / No)

7. How many tones of FYM should be mixed in soil at the time of field Preparation? ............

8. Give the name of hybrid variety of coriander ............

9. Sowing coriander crop in one ha area, how much kg seed required? (3- 4 kg /ha, 7 -8 kg /ha)

10. What is sowing depth for good germination of coriander crop? (3- 4 cm, 6- 8 cm)
11. Seed treatment is necessary for coriander before sowing? (Yes /No)

12. Give the name of chemical which are use seed treatment? ..........

13. How much rate of chemical for seed treatment? (2- 3 g/kg seed, 5- 7 g/kg seed)

14. What is the recommended dose of N.P.K fertilizers for coriander crop? .........

15. Do you apply micro-nutrient in coriander crop? (Yes /No)

16. How many irrigation should be require in coriander crop?

17. In coriander crop, what is the time interval between two irrigation? .................

18. In coriander crop is necessary interculturing?

19. How many times interculturing in coriander crop? (1 time / 2 time /more then 2 times)

20. Which weedicide is recommended for coriander crop? .................

21. What is the recommended dose of weedicides for coriander crop? (1 lit ha⁻¹, 2 lit ha⁻¹, and more then 2 lit ha⁻¹)

22. Which type of insect pest incidence is more frequent in coriander crop?

23. Give the name of two important disease of coriander crop.
   I. ....................
   II. ....................

24. Do you apply fungicides for the control of disease in coriander crop? (Yes /No)
25. How many days it take to harvest the coriander crop?.............

26. After harvesting, field should be plough deep why?...............

27. What should be done for increase market value of coriander seed?.............

28. For how many days the seeds are dried in open air/sun after harvest? (4-5 days, 7-10 days, 15-20 days)

29. Which methods are used for drying after harvesting the crop? (Sun drying, Store in shade, Make of bundle)

30. How coriander seed should be selling?
   1. After packing
   2. Direct
   3. Any other

31. Which ways coriander seed should be selling?
   1. Broker through
   2. Direct merchant through
   3. Any other

32. Which time coriander seed should be sell?
   1. Quickly after harvesting
   2. After enough price
   3. Any other
Part III

Extent of adoption of coriander production technology

1. Soil Testing
   Did you test your soil? Yes/No
   If yes, did you apply the fertilizers as per recommendation of soil testing laboratory? Yes/No

2. Preparatory Tillage
   Before sowing, did you prepare the land by the use of plough/harrow for leveling the land? Yes/No
   If yes then
   Ploughing ______ times.

3. FyM / Compost fertilizer
   Before sowing coriander, did you apply the FYM/compost to the soil? If yes, quantity ______ tones ha⁻¹

4. Method of Sowing
   Which methods are used?
   1. Broad casting
   2. Drilling.

5. Improved Variety
   Which variety are selected for sowing of coriander in coriander production technology (kindly \check on correct answer)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Improved coriander variety</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Chemical Fertilizers
Did you use chemical fertilizers in coriander crop?  Yes/No
If yes, give the details

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of fertilizers</th>
<th>Quantity (kg ha(^{-1}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Urea</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>DAP</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Super Phosphate</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>MOP</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Others</td>
<td></td>
</tr>
</tbody>
</table>

7. Sowing Time:
In coriander production technology,
Time of sowing of coriander: __________ month

8. Seed Rate:
For sowing coriander crop in one hectare area, how much seed required?
Coriander: _______ kg / ha

9. Seed treatment:
Did you give treatment to seeds of coriander before sowing?  Yes / No
If yes, give the details

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Name of fungicides</th>
<th>Quantity/kg of seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. Weeding control:

(A) Did you follow weeding in coriander in coriander production technology? Yes/No
If yes, then how many times?
By hand weeding = ______ times
By herbicides = ______ times

(B) Do you use herbicides for control of weeds Yes/No
If yes, then

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of herbicide</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td></td>
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</tbody>
</table>

11. Irrigation:
Do you apply irrigation as per the requirement of coriander crop in coriander production technology? Yes/No
If Yes, then how many irrigation? ______
Interval between two irrigation ______

12. Plant protection measures:

(A) Disease
Did you use fungicides for the control of diseases in coriander crop? Yes/No
If yes, give the details

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of disease (lit/ha)</th>
<th>Name of fungicides</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
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</tbody>
</table>
(B) Insect/Pest

Did you use the insecticides/pesticides for the control of insects/pests?

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of insects/pest</th>
<th>Name of insecticides/pesticides</th>
<th>Quantity (lit/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
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<td>3.</td>
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</table>

13. Harvesting:

(1) How many days it take to harvest the coriander crop?

(2) Which practices of harvesting adopted by you for less injury to coriander crop in coriander castor production technology?

14. Grading

Did you sell coriander seed after grading?

Yes/No

If yes, which method of grading is use?

1.  
2.  
3.  

15. Packing

Did you sell coriander seed after packing?

Yes/No

If yes, give how many kilo gram seed pack in one packet.

16. Selling

By which way you sell coriander seed?

1. Broker through
2. Direct merchant
3. Any other

Yes/No

17. Did you store the coriander?

Yes, which methods are used?

1.  
2.  
3.  

XV
Part IV

Constraints faced by respondents in adoption of coriander production technology

I. Constraints
Please state the constraints experienced by you in adopting recommended coriander production technology.

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Constraints</th>
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<td>6.</td>
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<td>7.</td>
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</tbody>
</table>

II. Suggestions
Suggestion made by respondents to overcome the constraints faced by them

<table>
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<tr>
<th>Sr. no</th>
<th>Suggestions</th>
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<tbody>
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<td>4.</td>
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<td>5.</td>
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<td>6.</td>
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<td>7.</td>
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</tbody>
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