ATTITUDE OF TRIBAL FARMERS TOWARDS ORGANIC FARMING PRACTICES IN MAIZE CROP

BY

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ANAND – 388 110 (GUJARAT)

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IN
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ABSTRACT

Organic farming may be defined as a production system, which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additive. To the maximum extent feasible, organic farming systems rely upon crop rotations, crop residues, animal manures, legumes, green manures, off-farm organic wastes, mechanical cultivation, mineral bearing rocks and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients and to control insects, weeds and other pests (1980, U.S.D.A)

Organic farming which aims at cultivating the land and raising crops in such a way as to keep the soil a live and in good health may be an alternative to the present system of farming solely depending on chemicals.

Now, recently the organic agriculture is practiced in 100 countries of the world, and its share of agricultural land and farms is growing. The total
organically managed area is more than 24 million hectares worldwide. Percentages of land under organic management however are highest in Europe. The world’s largest certified organic property (9, 94,000 ha) is located in Australia (FAO-2000). Australia/Oceania holds 42 per cent of the world’s organic land followed by Latin America (24.2 per cent) and Europe (23 per cent), and India (0.03 per cent). Anonymous (2010a)

As per documented evidence, organic agriculture in India started long back in 1900 by Sir Albert Howard, a British agronomist, in local village of North India.

Total geographical area of Gujarat State has an about 189.3 thousand sq.km. Land under organic management is only 0.5 per cent found in Gujarat state. Anonymous (2010b)

Therefore, raising attitude of tribal farmers towards organic farming in maize crop is of paramount importance for agricultural students. Thus will open up new vistas and make possible for agricultural students to achieve substantial gains in income. Raising the attitude of tribal farmers towards organic farming in maize crop is the fundamental problem. Therefore to know the attitude of tribal farmers towards organic farming agricultural students study conducted on “ATTITUDE OF TRIBAL FARMERS TOWARDS ORGANIC FARMING PRACTICES IN MAIZE CROP” was under taken with following objectives.
OBJECTIVES OF THE STUDY

The specific objectives of study are as under:

1. To study the selected characteristics of the respondents.
2. To study the knowledge level of respondents about organic farming practices in maize crop.
3. To study the attitude of tribal farmers towards organic farming practices in maize crop.
4. To ascertain the association between the selected independents variables of the respondents and their level of attitude towards organic farming practices in maize crop.
5. To study the constraints faced by respondents in organic farming practices in maize crop.
6. To seek the suggestions to overcome the constraints faced by respondents in organic farming practices of maize crop.

METHODOLOGY

The present study was undertaken at Vadodara district of Gujarat state. The study was conducted on proportionate randomly selected on 120 tribal maize growers. Data were collected with help of Gujarati version, pretested structured interview schedule through personal contact to each respondent.

The dependent and Independent variables were measured with the help of suitable scale and procedures adopted by other research workers were used
Abstract

with due modification. The statistical tools used for analysis were mean, standard deviation and coefficient of correlation.

MAJOR FINDINGS

1. About 38.34 per cent of the tribal maize growers were found in the middle age group.
2. Nearly one-third 30.00 per cent of the tribal maize growers had education up to higher secondary level.
3. Slightly more than half (53.33 per cent) of tribal maize growers were found within small size of family.
4. Nearly two-fifth (40.00 per cent) of tribal maize growers were having membership in one organization.
5. About 40.00 per cent of the tribal maize growers had small size to medium size of land holding.
6. More than half (57.50 per cent) of tribal maize growers were found with medium to high level of annual income.
7. More than half (55.83 per cent) of tribal maize growers had 3 - 4 milch animals.
8. More than 64.16 per cent of the tribal maize growers had medium level of scientific orientation.
9. More than 60.00 per cent of tribal maize growers belongs to Medium economic motivation category.
10. More than 68.34 per cent of the tribal maize growers had medium level of risk orientation.

11. More than 60.83 per cent of tribal maize growers had medium level of market orientation.

12. Slightly more than half (51.66 per cent) of the tribal maize growers had medium level of knowledge regarding organic farming practices of maize crops.

13. More than 69.16 per cent of the tribal maize growers had medium level of contact with different extension agencies.

14. More than 70.84 per cent of tribal maize growers had medium exposure to mass media.

15. More than 59.17 per cent of the tribal maize growers had medium levels of attitude towards organic farming in maize crop.

16. The independent variables viz. education, size of land holding, annual income, herd size, social participation, extension contact, mass media exposure, scientific orientation, risk orientation, economic motivation, market orientation and knowledge had positive and highly significant correlation with attitude tribal farmers towards organic farming in maize crop. The variable like age and size of family shows non-significant relationship with attitude tribal farmers towards organic farming in maize crop.
Abstract

17. Major constraints faced by tribal maize growers are lack of special administrative setup to promote organic farming, lack of price and availability of organic feed, lack of organic marketing network, lack of awareness about organic food, controversy among family members regarding organic farming, there is no special incentive or awards for adopters of organic farming practices, Inadequate and untimely supply of agricultural inputs, distance between producer and market or delivery point, poor contact of extension workers with farmers, lack of market facility for organically produced commodity, lack of publication on proven organic farming practices and Natural hazards.

18. Major suggestions given by tribal maize growers that Agril. Extension workers should provide information regarding organic farming, timely supply of agricultural inputs should be provided, adequate agricultural inputs should be provided, marketing network on organic farm products should be available, special administrative setup should promote for organic farming, publication on proven organic farming practices should be available, market facility for organically produced commodity should be available, awareness about organic food should be available and special incentive or awards for adopters of organic farming should be given.
CERTIFICATE

This is to certify that the thesis entitled “Attitude of Tribal Farmers Towards Organic farming Practices in Maize crop” submitted by Darandale Anup Dadasaheb in partial fulfillment of requirements for the award of the degree of Master of Science in Agriculture in the subject of Extension Education by the Anand Agricultural University is a record of bonafide research work carried out by him under my guidance and supervision and the thesis has not previously formed the basis for the award of any degree, diploma or other similar title.

Place: Anand
Date: /07/ 2010

(N. V. Soni)
Major Advisor
DECLARATION

This is to certify that whole of the research work reported in the thesis in partial fulfillment of the requirements for the award of the degree of Master of Science in Agriculture in the subject of Extension Education is the result of investigation done by undersigned under the direct guidance and supervision of Dr. N. V. Soni, Associate Extension Educationist, Department of Publication, Anand Agricultural University, Anand and no part of research work has been submitted for any other degree so far.

Place: Anand (Darandale Anup Dadasaheb)
Date: /07/2010

Countersigned by

Dr. N. V. Soni
Associate Extension Educationist,
Department of Publication
Anand Agricultural University,
Anand- 388 110
Gujarat (India).
“ACKNOWLEDGEMENT”

“Gratitude is the most exquisite form of memory”

Acknowledgement is written at last, placed at first and read the least, but still it is the only opportunity to thank one and all who have directly or indirectly helped me to accomplish this job because research work and its documentation cannot be a single person’s job, it needs assistance from all quarters of scientific community to keep oneself updated.

No appropriate word could be traced in the presently available lexicon to avouch the excellent guidance given by my Major Advisor Dr. N. V. Soni, Associate Extension Educationist, Publication of Department, Anand Agricultural University, Anand. While embarking on this journey we realized the magnitude of various detailed activities starting with manuscripts. The thesis would have taken this shape without the sincere, untiring and dedicated efforts put forth by him who was a constant source of inspiration for his useful suggestions, invaluable guidance, constructive counsel and unreserved help that severed as beckon light throughout the period of course study as well as research work.

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To all of you whom I have named please accept my deepest Thanks and to whom I have not named please know that even though you are unnamed in this work you are not unknown to me and you are appreciated more Thanks.

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(Darandale Anup Dadasaheb)

Place: Anand
Date: 7/7/2010
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I. INTRODUCTION

Economic status of the people in country like India mostly depends upon the agricultural production. Need for more intensive and economic agricultural production led to indiscriminate use of high doses of chemical fertilizers, pesticides etc, relentless use of these chemicals not only alter the ecosystem but also claim death to many lives every year due to their hazardous nature.

After the green revolution was launched in India, substantial increase in the production of food grains was achieved through the use of improved crop varieties and higher levels of inputs, fertilizers and plant protection chemicals. But it has now been realized that the increase in production was achieved at the cost of soil health. In fact, about 60 per cent of our agricultural land currently under cultivation suffers from indiscriminate use of irrigation water and chemical fertilizers. Most of the growth in the food production during the green revolution period is attributed to the higher fertilizers use.

The introduction of high yielding varieties changed the agricultural environment leading to numerous pest problems of economic importance. Increased irrigation, higher usage of fertilizers and wide adoption of high yielding varieties led to the resurgence of pests. Many agricultural chemicals like pesticides, fungicides, herbicides, hormones and antibiotics leave residues in the food stuffs that cause cancer or genetic damage. Also depletion of ozone layer is
the major threat which causes numerous unpredictable disease attacks to the crop, animals and human being.

In addressing these problems day to maturity great number of initiatives and approaches aims at an economically sound and culturally acceptable development paths. These initiatives give considerable attention to traditional knowledge of the people.

The scientists have realized that the green revolution with high input use has reached a plateau and is now sustained with diminishing return and falling dividend. The intensive use of inputs has not only polluted the soil, water and the environment causing their slow degradation but also affected the human beings. Thus a natural balance needs to be maintained for survival and well being of the human beings, plant and animal kingdom. The obvious choice for that would be adoption of organic farming without compromising agricultural production.

Organic farming may be defined as a production system, which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additive. To the maximum extent feasible, organic farming systems rely upon crop rotations, crop residues, animal manures, legumes, green manures, off-farm organic wastes, mechanical cultivation, mineral bearing rocks and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients and to control insects, weeds and other pests (1980, U.S.D.A.)
The definition of organic farming has been perceived differently by different people. To the most of them, it implies the use of organic manures and natural methods of plant protection instead of using synthetic fertilizers and pesticides.

Organic farming which aims at cultivating the land and raising crops in such a way as to keep the soil alive and in good health may be an alternative to the present system of farming solely depending on chemicals.

Organic agriculture systems are not a repudiation of the assets of modern agriculture technology; neither is they systems of simple elimination of synthetic fertilizers or pesticides. Methods in organic agriculture are less intensive in terms of synthetic and other external inputs compared to the conventional farming methods, but are much more intensive from a biological point of view. Organic agriculture systems include approaches and methods like organic biodynamic, regenerative, nature farming and permaculture.

Now, recently the organic agriculture is practiced in 100 countries of the world, and its share of agricultural land and farms is growing. The total organically managed area is more than 24 million hectares worldwide. Percentages of land under organic management however are highest in Europe. The world’s largest certified organic property (9, 94,000 ha) is located in Australia (FAO-2000). Australia/Oceania holds 42 per cent of the world’s organic land followed by
Latin America (24.2 per cent) and Europe (23 per cent), and India (0.03 per cent) (Anonymous 2010a).

**Organic farming in India**

As per documented evidence, organic agriculture in India started long back in 1900 by Sir Albert Howard, a British agronomist, in local village of North India. Since then, farmers in some parts of India are practicing it either by default or in the absence of resources. The commercial organic farming, as practiced today, is still at a nascent stage. According to a survey of International Federation of Organic Agriculture Movement (IFOAM) and Stiftung Oekologie and Landbau (SOEL), February 2003, India has about 41,000 hectare land under organic management, which is only 0.03% of the total agricultural land (Anonymous 2010a).

The total Indian organic farming industry is estimated at around US$ 20 million/Rs 100 crore (2000). Though very nascent, the Indian organic sector is growing rapidly and has already made inroads into the world organic market in certain key sectors such as tea, coffee, spices, fruit and vegetables (mainly semi processed pineapple and dried banana, etc.), cotton, cereals (mainly basmati rice) neem, dried nuts, oilseed (sesame), pulses and sugarcane.
Fig 1: The World of Organic Agriculture: Continent Report 2009

Source: SOEL-Survey 2008
Indian organic agriculture accounts for a negligible part of total Indian agriculture production. However, organic produce exports offer India short / medium term opportunities to add value to its exports for various crops and be in the forefront of the global organic movement, especially with respect to tropical products. Therefore, the thrust of most organic products produced in India is exports, since India has significant strengths in select tropical organic produce in world market.

During the year 2000, the National Programme for Organic Production (NPOP) was released, which covers the national standards based on guidelines of IFOAM, the European Union Standards, and CODEX standards. In India, a regulatory framework has been formally announced in June 2001. Government of India has identified four organizations as accreditation of agencies for inspection and certification of organic products. They are APEDA, Tea board, Coffee Board and Spices Board under the Ministry of Commerce, Govt. of India. Recently, Coconut Development Board and Directorate of cashew nut Development under the ministry of Agriculture, Govt. of India have also been authorized to give accreditation to qualified inspection and certification agencies.

Though India has a set of organic farmers and a few processing units, local certification bodies accredited to international organization are only in the formative stage. Hence, for organic products need in India certification bodies established in other countries, especially, in Europe are presently relied upon of
the over 100 certification bodies globally existing, three agencies have opened offices in India. Many Indian organic farmers or their associations’ avail assistance of these offices for inspection and certification.

**Organic farming in Gujarat**

Total geographical area of Gujarat State has an 189.3 thousand sq.km. land under organic management is only 0.5 per cent found in Gujarat state. (Anonymous 2010b)

Adoption of new technology and use of modern input in agriculture are important in increasing farm productivity. India is the country with wide variation in geographic situation, caste, different farming system, culture and tradition etc. These factors play very crucial role in agricultural production and productivity. Till today, there are region in our country showing lack of the improvement in agriculture productivity. Majority of them are observed in tribal areas of the country which are scattered all over the country and are mostly localized in small pocket in various states. India has second largest tribal population in the world next to Africa. According to census (2001) there are 87.43 million tribal’s constituting about 8.5 per cent of India’s population and are mostly concentrated in states of Andhra Pradesh, Assam, Bihar, Orissa, Gujarat, Rajasthan, Madhya Pradesh and Maharashtra. The tribal in Gujarat is fourth among states with sizable tribal population preceded by Madhya Pradesh, Orissa and Bihar. In Gujarat about 70 per cent of the tribal population is concentrated in
Introduction

eleven districts namely Godhra, Dahod, Dangs, Valsad, Surat, Bharuch, Vadodara, Sabarkantha and Banaskantha and Narmada. Vadodara district ranks seventh among the districts of the states with respect to tribal population. The district has 64.49 per cent tribal population to its total population. (Anonymous 2003)

Maize (*Zea mays* L.) the “Queen of cereals”, popularly known as corn, is one of the important cereal of the world, ranking third among the food crops, next to rice and wheat, both in respect of area and production. In world, maize is cultivated in area of 146 m ha having the production of 680 million tonnes with 4.66 tonnes average productivity. In India, maize is cultivated in area of 6.4 m ha having the production of 20.3 million tones with 3.17 tonnes average productivity. Gujarat occupies 0.47 m ha of area under maize, producing 1.22 million tones of grain with average productivity of 2595 kg ha (Anon.2007). In Gujarat, maize is mainly grown in Panchmahal, Dahod, Sabarkantha, Banaskantha, Narmada, Vadodara and Kheda districts.

1.1 STATEMENT OF THE PROBLEM:

The study of organic farming practices in maize crop was helpful in recommending the practices which are similar agro-eco systems for replication by the tribal farmers. Such a newer and initiative study of organic farming practices followed by the tribal farmers of Vadodara district in Gujarat State was carried out for the first time. Thus, the present investigation is expected to guide further detailed studies of this nature.
By generating hypothesis, the present study creates a scope for further research by the formal research and development systems. Moreover, the study of organic farming practices benefits more to the formal Research and Development than farmers themselves in the present juncture.

It is also essential to know the attitude of the tribal farmers towards organic farming practices in maize crop. At the same time it was very useful to ascertain the factors responsible for determining the attitude of the tribal farmers towards organic farming.

Considering this, a study entitled “Attitude of Tribal farmers towards organic farming practices in maize crop of Vadodara district of Gujarat State” was undertaken with the following objectives

1.2 **OBJECTIVES OF THE STUDY:**

1. To study the selected characteristics of the respondents.

2. To study the knowledge level of respondents about organic farming practices in maize crop.

3. To study the attitude of tribal farmers towards organic farming practices in maize crop.

4. To ascertain the association between the selected independents variables of the respondents and their level of attitude towards organic farming practices in maize crop.
5. To study the constraints faced by respondents in organic farming practices in maize crop.
6. To seek the suggestions to overcome the constraints faced by respondents in organic farming practices of maize crop.

1.3 SCOPE AND IMPORTANCE OF THE STUDY:

The interest in indigenous knowledge is gaining considerable momentum more so, in case of organic farming, where the modern knowledge alone is being considered inadequate to overcome the contemporary problems. There is undoubtedly an urgent need to initiate systematic efforts for collecting the organic farming practices from different areas so that they can become helpful to the scientists in technology blending program and in generation of low cost, location specific and appropriate technology by modifying the recommended for organic farming.

The results of the study were bringing out selected characteristics of the respondents in relation to their attitude towards organic farming in maize crop. Further, this study was also involving the different organic farming practices in maize crop followed by respondents and constraints faced by respondents in organic farming practices in maize crop.
1.4 LIMITATION OF THE STUDY

1. The study was limited to only one district i.e. Vadodara of Gujarat state. Out of these district only three taluka and from each taluka four villages were randomly selected. From these villages 120 tribal maize growers were selected by proportionate random sampling for this study. Thus, the study was limited to only 120 tribal maize growers.

2. The study was based on only verbal responses of the respondents.

3. Only some of the selected characteristics of respondents were studied.
II. REVIEW OF LITERATURE

The studies in organic farming practices are quiet few and new on the various aspects of organic farming practices. Besides their rationality prevailing at grass root level, it can be concluded that this is new and undiggen area in which more research is needed.

A comprehensive review of literature is an essential part of any scientific investigation. The review of literature leads the researcher to conclude his findings with reference to past studies. Both for developing conceptual frame work and on appropriate design for the study.

During the study of literature, the investigator could come across a very few relevant studies of work carried out so far. There was no much of exact relevant literature to be reviewed in this context. However, a brief account of the past work done and the observations and opinions of concerned persons having a direct or indirect bearing on different aspects of present study are presented in this chapter under the following sub heads:

2.1 Selective characteristics of respondent farmers in Vadodara district of Gujarat state.

2.2 Knowledge level of respondents about organic farming practices in maize crop.

2.3 Attitude of respondents towards organic farming practices in maize crop.
2.4 Relationship between selected characteristics of farmers and their level of attitude towards organic farming practices in maize crop.

2.5 Constraints faced by respondents in organic farming practices in maize crop.

2.6 Suggestions to overcome the constraints faced by respondents in organic farming practices of maize crop.

2.1 CHARACTERISTICS OF THE RESPONDENTS

The characteristics of the farmers are one of the factors influencing their knowledge and attitude. A brief account of selected studies on some characteristics of the farmers related to the study is presented in the subsequent paragraphs.

2.1.1 PERSONAL CHARACTERISTICS

2.1.1.1 Age

Age is an important determinant of a person’s behavior since it is related to his likes, dislikes, interest and personal views.

Kanani (1998) pointed out that 48.33 per cent of the groundnut growers were middle aged, whereas 42.50 and 9.17 per cent of the respondents belonged to old and young age group, respectively.

Masram and Vishwanath (1999) found that 35 per cent of the respondents were middle age, who adopt the indigenous practices.
Sahoo (2004) pointed out that 52.50 per cent of the groundnut growers were middle aged, whereas 25.84 and 21.66 per cent of the respondents belonged to old and young age group, respectively.

Savaliya (2004) revealed that more than half (51.66 per cent) of the cattle owners were in middle age whereas, 25.83 per cent and 22.50 per cent of the respondents were in old and young age group, respectively.

Patel (2005) reported that majority of (55.00 per cent) organic farmers were of middle age group, followed by old (41.00 per cent) and young age (4.00 per cent) respectively.

Kaur and Kalra (2006) revealed that majority of (43.33 per cent) organic farmers were from middle age group, followed by young (41.67 per cent) and old age (15.00 per cent) group respectively.

2.1.1.2 Education

Education is the process of bringing desirable changes in the knowledge, skill and attitude of the respondents. It is a process of imparting and acquiring knowledge and habits through instructions and study.

Amir (1996) indicated that half (50 per cent) of the summer groundnut growers were educated up to primary level, whereas, 16.67 per cent of the respondents were educated up to secondary level and 30.8 per cent of the respondents were illiterate. Only 2.5 per cent of the respondents were educated up to secondary level.
Kanani (1998) pointed out that three-fourth of groundnut growers were illiterate and educated up to primary level. Only about 20 per cent respondents were educated up to higher secondary level.

Rai and Srivastava (2001) reported in his study that large and marginal gram growers had 77.77 per cent and 25.00 per cent respondents were educated up to higher education, respectively.

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.

Sahoo (2004) reported that 55.00 per cent of the groundnut growers were educated up to primary level, whereas 17.50 per cent of them were educated up to secondary level and 14.16 per cent were illiterate. Only 13.34 per cent of groundnut growers were educated up to higher secondary and college level.

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.

Patel (2005) found that majority of the organic farmers (38.00 per cent) were illiterate, followed by (43.00 per cent) of them primary level of
education, (15.00 per cent) secondary level of education and only (13.00 per cent) had higher education.

Vasava (2005) revealed that more than two fifth of pigeon pea growers (46.66 per cent) had education up to higher secondary level, followed by 20.00 per cent who had primary level of education.

Kaur and Kalra (2006) reported that 33.33 per cent of the organic farmers had education up to matriculation, followed by 23.34 per cent, 18.33 per cent, 10.00 per cent, 10.00 per cent and 5.00 per cent of them who had primary, middle, senior secondary, graduation and illiterate respectively.

2.1.2 SOCIAL CHARACTERISTICS

2.1.2.1 Size of family

Sanjay Kumar (2003) observed that majority (64.38 per cent) of the respondents were found with small size of family, whereas only 35.62 per cent were found with large size of family.

Savaliya (2004) reported that 59.16 per cent of the cattle owners had large size of family whereas, 40.84 per cent of the respondents had small size of family.

Patel (2005) reported that (67.00 per cent) of the organic farmers had small size of family whereas, (33.00 per cent) of the organic farmers had large size of family.
Vasava (2005) reported that slightly more than three forth of pigeon pea growers (76.67 per cent) were found with large size of family.

Kaur and Kalra (2006) reported that 60.00 per cent of organic farmers had small size of family followed by 26.67 per cent and 13.33 per cent had medium and large size of family respectively.

**2.1.2.2 Social participation**

Danger (1996) observed that 62.00 per cent of the chiku growers had medium social participation followed by low (20.00 per cent) and high (18.00 per cent) social participation, respectively.

Kanani (1998) revealed that majority (66.67 per cent) of the respondents had medium social participation. Whereas, 21.66 and 11.67 per cent of the respondents had high and low social participation, respectively.

Jadav (2001) observed that 49.17 per cent of the onion growers had medium social participation followed by low (34.17 per cent) and high social participation (16.66 per cent), respectively.

Prakash *et al.* (2003) reported that most of the rice growers (39.00 per cent) had their participation in one organization only.

Parashar (2004) revealed that nearly three fourth (74.67 per cent) of the respondents had medium social participation while 20.00 per cent of them showed high social participation. Only 5.33 per cent had low social participation.

Kaur and Kalra (2006) revealed that most of the organic farmers (78.43 per cent) had no social participation, whereas 18.33 per cent of them had
member of one organization. Only 3.33 per cent of the organic farmers had member of two organizations.

2.1.3 ECONOMICAL CHARACTERISTICS

2.1.3.1 Size of land holding

Patel (1995c) indicated that 42.00 per cent of the beneficiary tribal farmers were found to be marginal farmers followed by 36.00 per cent were small farmers. Only 22.00 per cent beneficiary tribal farmers having a medium land holding on other hand ,nearly half (48.00 per cent) of the non-beneficiary tribal farmers were found to have marginal farm size followed by 41.00 per cent who were small farmers .Only 11.00 per cent of the on –beneficiary tribal farmers were found having medium size of farm.

Gosai (1997) inferred that more than half of the trained farm-women (51.11 per cent) and less than half untrained farm women (45.56 per cent) had medium size of land holding.

Chavada (1998) revealed that more than half of the groundnut based inter crop growers were 51.16 per cent and relay crop growers 57.14 per cent having small to medium size of land holding.

Masram and Vishwanath (1999) reported in his study that three-fourth per cent (77 per cent) respondents had small land holding.
Verma (2000) reported that 30 per cent of the respondents belonged to each category of small, medium and large size of land holding groups followed by marginal (10.94 per cent) size of land holding group.

Ghosh (2003) revealed that more than three-fourth (80.00 per cent) of the tribal farmers were having less than five hectares of land holding.

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

Patel (2005) revealed that (52.00 per cent) of the organic farmers had 2-4 hectare land, followed by 29.00 per cent had up to 2 hectare land and 19.00 per cent had above 4 hectare land.

Kaur and Kalra (2006) concluded that most of (36.67 per cent) of the organic farmers had medium size of land holding followed by 33.33 per cent had small size of land holding and 30.00 per cent of the organic farmers were large size of land holding.

2.1.3.2 Annual Income

Gosai (1997) stated that less than half of the trained farm women (42.00 per cent) had an annual income of Rs. 10,000 to Rs. 20,000 followed by 30 per cent in the group of Rs. 20,000 to Rs. 30,000. In case of untrained farm women 44.45 per cent respondents had an annual income up to Rs. 10,000 followed by 21.11 per cent in the group of Rs. 10,000 to Rs. 20,000.
Kanani (1998) reported that about one third of the groundnut growers had an annual income of Rs. 30,000 to Rs. 40,000, about three-fourth of the growers were from middle income group.

Patel (1998) reported that majority (52.51 per cent) of the tribal farmwomen involved in indigenous resources management activities had up to Rs.15000. of 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.

Sagwal and Malik (2000) reported that majority (40 per cent) of the rice grower had an annual income Rs. 30,000 to 50,000 whereas, (30 per cent) had Rs. 20,001 to 30,000.

Jadav (2001) revealed that 46.67 per cent of onion growers belonged to 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.

Ghosh (2003) revealed that great majority (81.67 per cent) of the tribal farmers located around medicinal plants had up to 15,000 rupees of annual income.

Sahoo (2004) found that 8.33 per cent had 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.
2.1.3.3 Herd size

Ghosh (2003) revealed that more than half (53.33 per cent) of tribal farmers had up to 2 animals, followed by 28.33 per cent with no animal 16.67 per cent with 3 to 4 and only 1.67 per cent with more than 4 animals, respectively.

Vasava (2005) stated that slightly less than three fourth (73.33 per cent) of the farmer respondents had no animal, followed by 20.00 per cent and 6.67 per cent of them had up to three animals and more than three animals, respectively.

Singh and Dalal (2006) observed that majority of the respondents (56.67 per cent) were having medium herd size.

Khokhar (2007) shows that nearly two-fifth (38.34 per cent) of the dairy farm women had medium sized herd of milch animals, followed by equal number (30.83 per cent) had small sized and large sized herd of milch animals.

2.1.4 PSYCHOLOGICAL CHARACTERISTICS

2.1.4.1 Scientific orientation

Vasava (2005) reported that more than half of the pigeon pea growers (53.33 per cent) had medium level of scientific orientation.

Patel (2005) observed that (42.31 per cent) of the respondents were found with medium level of scientific orientation, followed by 30.77 per cent with high and 26.92 per cent with low level of scientific orientation respectively.
Patel (2006) observed that majority of the respondents (79.17 per cent) had medium level of scientific orientation followed by 10.83 per cent and 10.00 per cent who had low and high level of scientific orientation respectively.

2.1.4.2 Economic motivation

Pandya (1991) stated that 66.67 per cent of the dry land farmers had medium economic motivation, followed by those having high (19.82 per cent) and low (13.51 per cent) economic motivation.

Karthikeyan and Chndrakandan (2000) indicated that majority of cut flower growers (52.78 per cent) had medium economic motivation; while remaining 47.22 per cent had low level of economic motivation.

Patel (2005) observed that 79.00 per cent of the organic farmers had medium level of economic motivation followed by 11.00 and 10.00 per cent of the organic farmers had low and high level of economic motivation, respectively.

Kaur and Kalra (2006) observed that 43.33 per cent of the organic farmers had medium level of economic motivation followed by 30.00 and 26.67 per cent of the organic farmers had high and low level of economic motivation, respectively.

2.1.4.3 Risk orientation

Khodifad (1993) revealed that about three-fourth (61.67 per cent) of the wheat growers were from medium risk orientation group followed by low and high risk orientation group, respectively.
Review of literature

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 category, respectively.

2.1.4.4 Market orientation

Dutt and Chole (2001) observed that slightly more than half of the respondents (52.50 per cent) were having medium level of market orientation.

Joshi (2004) reported that about 35.45 per cent of the respondents had high level of market orientation, whereas 33.64 per cent with low market orientation and 30.91 per cent with medium level of market orientation.
Makwan (2005) reported that nearly three-fifth (72.67 per cent) of the banana growers had medium level of market orientation followed by 14.67 per cent and 12.66 per cent had low and high market orientation, respectively.

Mewara (2005) indicated that nearly half of the banana growers (47.00 per cent) had medium level of market orientation, while 28.00 per cent had high level of market orientation and 25.00 per cent had low level of market orientation.

2.1.4.5 Knowledge level

Sarkar et al. (2002) revealed that 57.65 per cent of the respondents had medium level of knowledge, while 27.06 per cent and 15.29 per cent of the respondents had low and high level of knowledge about paddy production technology, respectively.

Vasava (2005) reported that slightly less than three forth of the pigeon pea growers (70.00 per cent) had medium level of knowledge about recommended technology of pigeon pea cultivation.

Patel (2005) revealed that (71 per cent) of the respondents had medium level of knowledge, while 19 per cent and 10 per cent of the respondents had low and high level of knowledge about organic farming practices, respectively.

Naik et al. (2009) observed that (46.25 per cent) farmers had high knowledge about organic farming practices while 38.75 per cent and 15.00 per
cent farmers had medium and low level of knowledge of organic farming practices.

2.1.5 COMMUNICATIONAL CHARACTERISTICS

2.1.5.1 Extension contact

Christian (2001) indicated that slightly less than half of the cotton growers (46.00 per cent) had low extension contact, followed by 30.00 per cent with high and 24.00 per cent with medium extension contact.

Vasava (2005) reported that a great majority of the pigeon pea growers (83.33 per cent) had medium extension contact followed by 10.00 per cent and 6.67 per cent had high and low extension contact respectively.

Patel (2006) revealed that majority of the respondents (75.00 per cent) were having medium extension contact, followed by low extension contact 14.17 per cent and 10.83 per cent had high extension contact.

2.1.5.2 Mass media exposure

Vasava (2005) reported that three fifth of the pigeon pea growers (60.00 per cent) had medium level of mass media exposure.

Patel (2005) found that nearly three-fifth (58.00 per cent) of the respondents was found to have medium level of media exposure, followed by 22.00 per cent had high level of mass media exposure.

Kaur and Kalra (2006) indicated that majority of the organic farmers (46.76 per cent) had medium exposure to mass media, followed by 21.66 per cent
of the organic farmers who had low exposure to mass media and 31.67 per cent of the organic farmers had high exposure to mass media.

2.2 KNOWLEDGE LEVEL OF RESPONDENTS ABOUT ORGANIC FARMING PRACTICES IN MAIZE CROP

There are limited studies conducted so far on this aspect. The researcher could come across only a few studies, which might possess some indirect relationship with knowledge levels of farmers.

Rogers and Shoemakers (1971) considered knowledge as a function of an innovation decision process when the individual, exposed to an innovation's existence, gains some understanding of its functions.

Nimje et al. (1990) found that 60.00 per cent of the cotton growers had medium level of knowledge about dry land cotton technology whereas, nearly equal percentage of them had high (21.00 per cent) and low (19 per cent) levels of knowledge.

Baidiyavadra (1993) opined that majority (67.51 per cent) of the groundnut growers had medium level of knowledge about improved groundnut cultivation 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.

Sahoo (2004) found that majority (73.33 per cent) of the groundnut growers had medium knowledge about eco-friendly practices followed by 18.34 and 8.33 per cent with high and low level of knowledge, respectively.

Patel (2005) revealed that 71.00 per cent of the respondents had medium level of knowledge whereas, 19.00 per cent had low and 10.00 per cent had high level of knowledge about organic farming practices.

2.3 ATTITUDE OF TRIBAL FARMERS TOWARDS ORGANIC FARMING PRACTICES IN MAIZE CROP

Kanani (1998) observed that majority of the farmers (61.67 per cent), extension personnel (76.66 per cent) and research personnel (50.00 per cent) had favourable attitude towards indigenous practices of groundnut crop.

Rahman (2000) reported that an overwhelming majority (84.00 per cent) of the farmers were found to have favourable and moderately favourable attitude while only 16.00 per cent of the farmers were found to have unfavorable attitude towards organic farming.

Patel and Chauhan (2004) indicated that majority (55.00 percent) of the farmers had medium favourable attitude towards IPM strategy followed by
30.00 percent with low favourable and 15.00 percent with high favourable attitude towards IPM strategy.

Patel (2005) indicated that 61.00 per cent of the farmers had medium favourable attitude towards organic farming practices whereas 22.00 per cent and 17.00 per cent had less and highly favourable attitude towards organic farming practices, respectively.

2.4 RELATIONSHIP BETWEEN CHARACTERISTICS OF THE RESPONDENTS AND THEIR ATTITUDE TOWARDS ORGANIC FARMING IN MAIZE CROP

2.4.1 Age and Attitude

Kanani (1998) revealed that there was significant relationship between age of groundnut growers and their attitude towards indigenous practices of groundnut cultivation.

Patel and Chauhan (2004) observed that age was positively and significantly related with attitude towards IPM strategy.

Patel (2005) indicated that there was negative and significant association between level of attitude of the respondents towards organic farming practices and their age.

Patel (2006) indicated that age of paddy growers had negative and non-significant correlation with their attitude towards use of pesticides in paddy crop.
2.4.2 Education and Attitude

Kanani (1998) inferred that there was negative and significant correlation between level of attitude of the groundnut growers and their education.

Patel and Chauhan (2004) observed that education was positively and significantly related with attitudes towards IPM strategy.

Patel (2005) indicated there was positive and significant correlation between degree of attitude of the respondents and their education.

Patel (2006) indicated that attitude towards the use of pesticides had highly significant relationship with education.

2.4.3 Size of family and Attitude

Patel and Chauhan (2004) observed that there was no significant relationship between size of family and attitude of the respondent towards IPM strategy.

Patel (2005) indicated that decrease in size of family result in increase of level of attitude towards organic farming practices.

Patel (2006) revealed that highly significant relationship between size of family and attitude of paddy growers towards use of pesticides.

2.4.4 Social participation and Attitude

Kanani (1998) observed that level of attitude of groundnut growers was negative and non significantly associated with their social participation.

Hazarika and Tyagi (2001) found that degree of attitude of dairy farmers was positively and significantly associated with their social participation.
Patel (2005) indicated that there was positive and significant association between level of attitude of respondents towards organic farming practices and their social participation.

Patel (2006) indicated that attitude towards the use of pesticides in paddy crop has significant relationship with social participation.

2.4.5 Size of land holding and Attitude

Singh et al. (1999) revealed that size of land holding of the respondents was not associated with their attitude towards dry farming technologies.

Patel (2005) indicated that increase in size of land holding results in increase of level of attitude towards organic farming practices.

Patel (2006) indicated that the family land holding was found to have non-significant relation with the attitude of the respondents.

2.4.6 Annual income and Attitude

Kanani (1998) conclude that there was negative and non significant association between annual income and the level of attitude of the groundnut growers.

Singh et al. (1999) reveled that annual income of the respondents was positively and significantly associated with their attitude towards dry farming technologies.

Patel (2005) found that family income was positively and significantly related with the attitude of the respondent.
2.4.7 **Scientific orientation and attitude**

Padmavti *et al.* (1999) reported that scientific orientation of the Mitrakisan was positively and significantly related with their attitude towards NWDPRA.

2.4.8 **Economic motivation and attitude**

Sakharkar and Sundaraswamy (1996) found that the economic motivation of the soybean growers had non-significant association with their level of attitude.

Deshmukh *et al.* (1998) revealed that the economic motivation of the groundnut growers was positively and significant associated with their level of attitude.

Patel (2005) indicated that there was positive and significant association between level of attitude toward organic farming practices of the respondents and their economic motivation.

2.4.9 **Risk orientation and attitude**

Kanani (1998) found that the risk orientation of groundnut growers was negatively and non significantly associated with their level of attitude.

Thakrar (1999) concluded that the risk orientation of the respondents had non-significant association with their level of attitude.

Prasad and Sundaraswamy (2000) stated that the risk orientation of the farmer was positively and significantly correlated with their attitudes towards dry farming technologies.
Review of literature

Patel (2005) indicated that the risk orientation of the respondents was non-significantly associated with their level of attitude.

2.4.10 Knowledge and attitude

Christian (2001) observed that the attitude of cotton growers was significant association with their knowledge about IPM strategy.

Joshi (2004) revealed that attitude towards modern practices of Bt. cotton cultivation was significantly associated with their knowledge level of cotton growers.

Zala (2008) revealed that knowledge of cotton grower had significant relation with associated with their attitude towards cotton cultivation.

2.4.11 Extension contact and attitude

Patel and Chauhan (2004) observed the extension contact was positively significantly related with the attitude towards IPM strategy.

Patel (2006) indicated that extension contact of paddy growers had highly significant relationship with the attitude towards the use of pesticides in paddy crop.

2.5 CONSTRAINTS FACED BY TRIBAL FARMER IN ORGANIC FARMING PRACTICES IN MAIZE CROP

Patel (2005) revealed that major constraints in organic farming had no price premium in local market (72.22 per cent), High certification charges (68.88 per cent), Less yield in initial years (60.00 per cent) High labour
requirement (43.33 per cent), Time consuming practices (30.00 per cent), Need frequent training (27.77 per cent), Costlier organic inputs (20.00 per cent), Require high investment during conversion period (16.66 per cent).

Kaur and Kalra (2006) found that major constraints in organic farming were lack of vermicompost, lack of training, low yield, and lack of open local market followed by lack of specific biofertilizer for specific crop (95.00 per cent), More insect pest and disease attack (90.00 per cent), high cost of cultivation (80.00 per cent), lack of resistant varieties (71.76 per cent), non-availability of biofertilizers and biopesticides (55.00 percent). The problems such as lack of relevant literature (65.00 per cent), less contact by firm consultants (71.67 per cent), small size of land holding (61.67 per cent), non-remunerative prices (53.33 per cent), late payment (46.66 per cent), unfavourable weather (15.00 per cent) and risky venture (10.00 per cent) were also reported by the respondents.

2.6 SUGGESTIONS GIVEN BY FARMERS TO OVERCOME THE CONSTRAINTS IN ORGANIC FARMING PRACTICES IN MAIZE CROP

Patel (1995) found that subsidy on inputs like fertilizer and pesticides should be raised (84.75 per cent), supply of seeds and seedling in time (82.30 per cent) and reasonable price fixation of the produce (75.23 per cent), reasonable labour charges (63.52 per cent) were major suggestion pointed out by the bidi-tobacco growers.
Patel (2005) observed that majority (96.67 per cent) of the tobacco growers suggested that the cost of inputs should be subsidized which rank first. The suggestion “storage facility should be available” rank second as suggested by (90.83 per cent) of tobacco growers. ‘technical gardens at all levels should be provided’, procedure of loan should be easy’, electricity supply should be regular’, storage facility should be available near village, middle man commission should be avoided’ were rank third, fourth, fifth, sixth and seventh as suggested by 85.83 per cent, 81.67 per cent, 73.33 per cent, 65.83 per cent and 60.83 per cent of the respondents respectively.

Pise (2006) observed that the majority (87.33 per cent) of banana growers suggested that efforts should be made to minimize input cost followed by timely and sufficient electric power should be provided (80.00 per cent), sufficient credit at reasonable interest rate should be provided (76.00 per cent), easily, timely availability of good planting material with reasonable price (74.66 per cent), timely technical guidance should be provided (62.66 per cent) and effective marketing facility should be made (60.66 per cent).
III. RESEARCH METHODOLOGY

This chapter deals with the method of research design, tools and techniques of scientific investigation employed in the light of objectives of the study. It describes and clarifies methods for measuring the dependent and independent variables. It includes sampling procedure for data collection and statistical techniques for analysis of data. The methodology was adopted for conducting the study is presented as under:

3.1 Identification of the problem
3.2 Area of the study
3.3 Research design
3.4 Sampling procedure
3.5 Development of interview schedule
3.6 Pre-testing of interview scheduled
3.7 Collection of data
3.8 Selection and measurement of variables
3.9 Statistical framework used for analysis of data
3.10 The conceptual model
3.11 Operationalisation of the concepts

3.1. IDENTIFICATION OF THE PROBLEM

Research on organic farming practices and farmers’ experimentation is still in its infancy. Given the complexities of this issue, many researchers expect this phase to be descriptive. It would therefore take some time to attain
quantitative vigour, for certain patterns to emerge and to concretize the analytical issues.

Farming is main occupation in area under study. In these areas, farming plays a significant role for socio-economic upliftment of the weaker sections of the society. To solve their problems on farm management, farmers, through their age long experience and wisdom, develop different practices, which are mostly dependent on the resource available in that particular area.

It would be worthwhile to identify, document and seek the rationality behind these practices. Besides this it is quite necessary to measure the respondents knowledge about these practices and their attitude. The existing knowledge of organic farming should be consolidated and put together and the advantages of these practices should be brought to light. Keeping in this view, the present study was undertaken to study “ATTITUDE OF THE TRIBAL FARMERS TOWARDS ORGANIC FARMING PRACTICES IN MAIZE CROP”. The procedure used for conducting this study is described in this chapter.

3.2. AREA OF THE STUDY

The study was conducted in the Vadodara district of Gujarat State for the following reasons:

1. Vadodara district comes under the jurisdiction of Anand Agricultural University.

2. The districts have got highest area under the maize crop in the zone.
3. Vadodara district also comes under the agro-climatic zone III where average rainfall is 80 to 100 cm and where irrigation facilities exist.

4. Climatologically factors are suited for growth of maize crop.

5. Maize marketing facilities are also available at Vadodara city.

6. Investigator was able to cover this area within time limit as investigator staying and studying in Vadodara.

7. The area has ideal conditions for successful organic farming.

8. Soil and climate are very favourable for successful organic farming.

9. Similar study was not conducted so far in the area under the study.

3.3. RESEARCH DESIGN

The Ex-post-facto research design was used in present investigation. Kerlinger (1976) defined ex-post-facto design as any systematic empirical enquiry in which the independent variables have not been directly manipulated because they have already occurred or because they are inherently not manipulated. Further he stated that ex-post-facto studies can be devise to deduce theories, identify behaviour phenomena and explore condition under which a phenomenon occurs.

Keeping the adaptability of the proposed design with respect to the type of variables under consideration, size of respondents and phenomena of study in view, the ex-post-facto design was selected as an appropriate research design.

3.4. SAMPLING TECHNIQUE
Proportionate random sampling was used for the study.

3.4.1 Selection of talukas

Chotaudaipur, Naswadi and Kavant talukas of Vadodara district were selected purposefully being of the major tribal area.

3.4.2 Selection of villages

To select villages from each selected taluka, list of maize growing villages were obtained from the Assistant Director of Agriculture of respective taluka. Thereafter four villages from each taluka having the larger area under maize cultivation will be selected by proportionate random sampling method with the help of random table. Thus the total number of selected villages for this study will be twelve. Moreover, the following criteria were also being undertaken while selection of the villages:

1. A village having maximum area under maize cultivation.

2. A good number of farmers of the villages concerned has adopted maize crop for the year 2006-07 and 2007-08.

3.4.3 Selection of respondents

A list of tribal farmers was obtained from the each village panchayat. From list the 120 tribal maize growers doing animal husbandry and cultivating the maize crop from last 5 years will be selected by proportionate random sampling as respondents. The whole sample was considered as respondents hereafter, it was interviewed for collection of data.
3.5. DEVELOPMENT OF AN INTERVIEW SCHEDULE

The tool for this study purpose, personal interview schedule was prepared. The schedule was developed keeping in view the objectives of the study. In formulating questions and statements for schedule the investigator referred the review of related literature, popular articles, research reports, and consulted with advisory committee and major guide to seek and invite their opinion and suggestions to make interview schedule more scientific and meaning and accordingly it developed.

Table 1: List of selected villages from selected talukas in Vadodara district

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of talukas</th>
<th>Name of villages</th>
<th>Total no. of tribal maize growers</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chhotauzipur</td>
<td>1. Achhala</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Chokdi</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Dharmaj</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Jadiyana</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>Naswadi</td>
<td>1. Bhaka</td>
<td>13</td>
<td>09</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Pala</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Ratanpura</td>
<td>13</td>
<td>09</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Sengpur</td>
<td>13</td>
<td>09</td>
</tr>
<tr>
<td>3.</td>
<td>Kavant</td>
<td>1. Devad</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Talav</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Samalvant</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Dhanpur</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>3 talukas and 12 villages</td>
<td>176</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

There by 70 per cent farmers of each village were selected randomly in such a manner that there would be proportional to total size of farmers in respective village.
3.6. PRE-TESTING OF INTERVIEW SCHEDULE

The purpose of pre testing of interview schedule was to know whether the questions included in the schedule were understandable to the respondents or not. Pre-testing was done with fifteen tribal maize growers who were not included in final sample. Before conducting interview the maize growers were explained about the purpose of study. On the basis of information provided and experience gained by investigator, ambiguity of words and language was correlated and necessary modifications were made in final format of interview schedule.

3.7. COLLECTION OF DATA

Data were collected in the month of March-April 2010. The respondents were interviewed personally either at their home or at community place or at their fields. Before conducting the interview the aim and objectives were explained to the tribal maize growers in order to get whole hearted response and correct information from them. Every possible care was taken to maintain congenial atmosphere to get unbiased response from respondents. The questions from interview schedule were asked one by one and responses were recorded in the schedule on the spot.

3.8. SELECTION AND MEASUREMENT OF VARIABLES

The variables under study were selected on the basis of extensive review of literature on the subject in consultation with experts and only those
variables which were found most relevant to present investigation were finally selected for the study.

I. **Dependent variable:**

1. Attitude of tribal farmer towards organic farming practices in maize crop.

II. **Independent variables:**

1. **Personal characteristics**
   
   a. Age
   
   b. Education

2. **Social characteristics**
   
   a. Size of family
   
   b. Social participation

3. **Economical characteristics**
   
   a. Size of land holding
   
   b. Annual income
   
   c. Herd size

4. **Psychological characteristics**
   
   a. Scientific orientation
   
   b. Economic motivation
   
   c. Risk orientation
   
   d. Market orientation
   
   e. Knowledge level

5. **Communicational characteristics**
Research methodology

a. Extension contact

b. Mass media exposure

Measurements of variables

To describe the respondents according to their personal, socio-economic, communicational and psychological characteristics they were grouped into various categories on the basis of available data as under:

Table No. 2: Variables along with technique used for their measurement

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the Variables</th>
<th>Measurement Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Independent variables</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Age</td>
<td>Chronological age of the respondents.</td>
</tr>
<tr>
<td>2.</td>
<td>Education</td>
<td>Structured schedule was developed.</td>
</tr>
<tr>
<td>3.</td>
<td>Size of family</td>
<td>Structured schedule was developed.</td>
</tr>
<tr>
<td>4.</td>
<td>Social participation</td>
<td>SES scale developed by Pareek and Trivedi (1963) was used with some modifications.</td>
</tr>
<tr>
<td>5.</td>
<td>Size of land holding</td>
<td>Actual land holding in hectares</td>
</tr>
<tr>
<td>6.</td>
<td>Annual income</td>
<td>Structured schedule was developed.</td>
</tr>
<tr>
<td>7.</td>
<td>Herd size</td>
<td>Actual no. of animals possessed.</td>
</tr>
<tr>
<td>8.</td>
<td>Scientific orientation</td>
<td>Scale developed by Patel M.C. (2008) was used with some modifications.</td>
</tr>
<tr>
<td>9.</td>
<td>Economic motivation</td>
<td>Scale developed by Supe (1969) was used with some modifications.</td>
</tr>
<tr>
<td>10.</td>
<td>Risk orientation</td>
<td>Scale developed by Patel M.C. (2008) was used with some modifications.</td>
</tr>
<tr>
<td>11.</td>
<td>Market orientation</td>
<td>Scale developed by Samantha (1977) was used with some modifications.</td>
</tr>
<tr>
<td>12.</td>
<td>Knowledge level</td>
<td>Scale developed by Jha and Singh (1970) was used with some modifications.</td>
</tr>
</tbody>
</table>
13. Extension contact
   Structured schedule was developed.

14. Mass media exposure
   Structured schedule was developed.

**B. Dependent variable**

<table>
<thead>
<tr>
<th>Category</th>
<th>Scale developed by Patel (2005) was used.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude of tribal farmers towards organic farming practices.</td>
<td></td>
</tr>
</tbody>
</table>

**A) Independent variables**

**3.8.1 Age**

It refers to chronological age of respondents at the time of investigation that was recorded by asking them. The data regarding age of the respondents were collected and divided into three groups as under:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Young age group (up to 35 years)</td>
</tr>
<tr>
<td>2</td>
<td>Middle age group (between 36 to 50 years)</td>
</tr>
<tr>
<td>3</td>
<td>Old age group (above 50 years)</td>
</tr>
</tbody>
</table>

**3.8.2 Education**

It refers to the number of years of formal education completed by the respondent farmers. The scoring system followed was given in Appendix. They are classified in five groups, according to their level of education and measured with score assigned to actual possessed education as under:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Educational level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Illiterate</td>
</tr>
<tr>
<td>2</td>
<td>Primary (1st to 7th standard)</td>
</tr>
<tr>
<td>3</td>
<td>Secondary (8th to 10th standard)</td>
</tr>
<tr>
<td>4</td>
<td>Higher secondary (11th to 12th standard)</td>
</tr>
<tr>
<td>5</td>
<td>College (above 12th standard)</td>
</tr>
</tbody>
</table>
3.8.3. **Size of family**

Family size was measured as the number of individuals of both sexes living together in one household. The respondents were classified into two categories based on number of members; the scoring was done as follow:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Small size (up to 5 members)</td>
</tr>
<tr>
<td>2</td>
<td>Large size (more than 5 members)</td>
</tr>
</tbody>
</table>

3.8.4. **Social participation**

Information regarding membership of maize growers in formal organization was collected and quantified on the basis of scoring system followed by Pareek and Trivedi (1963) with some modification as under:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Social participation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No membership</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Membership in one organization</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Member in more than one organization</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Holding position in organization</td>
<td>3</td>
</tr>
</tbody>
</table>

3.8.5. **Size of land holding**

The actual land holding possessed by the respondents in the hectares was considered as such for measuring this variable and on the basis of their land holding, respondents were categorized as below:
3.8.6. Annual income

The data collected from the respondents about their annual income categorized into three groups and measured with score as under:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Category</th>
<th>Income in rupees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low</td>
<td>Up to Rs. 50,000/-</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>50,001 to 1,00,000/-</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
<td>Above 1 lakh</td>
</tr>
</tbody>
</table>

3.8.7. Herd size

The term herd size refers to animals possessed by the respondents. One score was assigned for possession of each animal; total scoring was obtained by summing all the scores. The respondents were classified in four categories; having no animal, up to 3 animals, 4 to 6 animals and above 6 animals:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Herd size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>no animal</td>
</tr>
<tr>
<td>2</td>
<td>up to 3 animals</td>
</tr>
<tr>
<td>3</td>
<td>4 to 6 animals</td>
</tr>
<tr>
<td>4</td>
<td>above 6 animals</td>
</tr>
</tbody>
</table>

3.8.8. Scientific orientation
It was measured with the help of scale developed by Patel (2008) with due modifications. The responses from the respondents were obtained against each item in terms of their agreement or disagreement with statement. There were four statements in the scale. The positive and negative statements were scored as follows:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>5</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>
<td>5</td>
</tr>
</tbody>
</table>

The respondents were classified in to three categories on the basis of mean and standard deviation viz,

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Category</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low scientific orientation</td>
<td>Less than Mean – S.D.</td>
</tr>
<tr>
<td>2</td>
<td>Medium scientific orientation</td>
<td>Between Mean + S.D.</td>
</tr>
<tr>
<td>3</td>
<td>High scientific orientation</td>
<td>Above Mean + S.D.</td>
</tr>
</tbody>
</table>

### 3.8.9. Economic motivation

Economic motivation of maize growers was measured with the help of scale developed by Supe (1969) with due modification. The responses of respondents were obtained against each item in term of their agreement or disagreement with statement of five point continuum ranging from strongly agrees to strongly disagree. The positive and negative statements were scored as follows:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>5</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>
<td>5</td>
</tr>
</tbody>
</table>
Research methodology

Economic motivation score of an individual respondent was the sum total of score of all statements included in the scale. Categories formed on the basis of mean and standard deviation are as under:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Category</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low economic motivation</td>
<td>Less than Mean – S.D.</td>
</tr>
<tr>
<td>2</td>
<td>Medium economic motivation</td>
<td>Between Mean + S.D.</td>
</tr>
<tr>
<td>3</td>
<td>High economic motivation</td>
<td>Above Mean + S.D.</td>
</tr>
</tbody>
</table>

3.8.10. Risk orientation

Maize growers willingness to take risk was measured with the help of scale developed by Patel (2008) with due modifications. The scale consisted of five statements. The responses from the respondents were obtained against each item in terms of their degree of agreement or disagreement. The positive and negative statements were scored as follow.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>5</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>
<td>5</td>
</tr>
</tbody>
</table>

The respondents were classified into three categories on the basis of mean and standard deviation viz

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Mass media exposure</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low risk orientation</td>
<td>Less than Mean – S.D.</td>
</tr>
<tr>
<td>2</td>
<td>Medium risk orientation</td>
<td>Between Mean + S.D.</td>
</tr>
<tr>
<td>3</td>
<td>High risk orientation</td>
<td>Above Mean + S.D.</td>
</tr>
</tbody>
</table>

3.8.11. Market orientation

The scale used to measure this variable is based on market orientation scale developed by Samantha (1977). The scale consisted of six
Research methodology

statements. The responses from the respondents were obtained against each item in terms of their degree of agreement or disagreement. The positive and negative statements were scored as follow.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>5</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>
<td>5</td>
</tr>
</tbody>
</table>

The respondents were categorized in three categories based on mean and standard deviation viz.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Mass media exposure</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low market orientation</td>
<td>Less than mean – S.D.</td>
</tr>
<tr>
<td>2</td>
<td>Medium market orientation</td>
<td>Between mean ± S.D.</td>
</tr>
<tr>
<td>3</td>
<td>High market orientation</td>
<td>Above mean + S.D.</td>
</tr>
</tbody>
</table>

3.8.12. Knowledge level

Knowledge of the respondents about recommended technology of maize crop was measured with the help of teacher made test, taking the base of scale developed by Jha and Singh (1970) with appropriate modification. The questions were formed on the basis of recommended practices of organic farming in maize crop with the help of professor and head of agronomy department B.A. college of Agriculture, A.A.U, Anand. The questions included in the test were of objective type and multiple choices in nature. They were numbered from 1 to 15, as given in Appendix. Each question was given the score of one for correct answer and zero for incorrect answer. The possible total score that a respondent could obtain would vary from 0 to 15. The knowledge index was calculated for each respondent with the help of below given formula.
X\textsubscript{1} + X\textsubscript{2} + \ldots + X\textsubscript{n} \\\ \text{Ki} = \frac{X\textsubscript{1} + X\textsubscript{2} + \ldots + X\textsubscript{n}}{N} \times 100

Whereas,

Ki = Knowledge index

X\textsubscript{1} + X\textsubscript{2} + \ldots + X\textsubscript{n} = total number of correct answers i.e. Total score

N = Total number of items in the test.

All the respondents were grouped in three categories as under:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of knowledge</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low</td>
<td>Less than Mean – S.D.</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>Between Mean ± S.D.</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
<td>Above Mean + S.D.</td>
</tr>
</tbody>
</table>

### 3.8.13 Extension contact

Extension contact of the maize growers was measured considering the frequency of contact with the different extension personals and agencies Viz, Village Level Worker, Agricultural Extension Officer, Subject Matter Specialist, Sub-Divisional Agricultural Officer, Scientists of State Agricultural University, K.V.K., S.S.K. and other. The score was assigned as under:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Extension contact</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regularly</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Frequently</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Occasionally</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Never</td>
<td>1</td>
</tr>
</tbody>
</table>
The pooled score expressed the degree of contact of the farmers with the extension agency. On the basis of mean and standard deviation, the respondents were categorized into the following three groups.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Extension contact</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low extension contact</td>
<td>Less than Mean – S.D.</td>
</tr>
<tr>
<td>2</td>
<td>Medium extension contact</td>
<td>Between Mean + S.D.</td>
</tr>
<tr>
<td>3</td>
<td>High extension contact</td>
<td>Above Mean + S.D.</td>
</tr>
</tbody>
</table>

### 3.8.14 Mass media exposure

This referred to the frequency of reading newspapers, farm magazines and other literature, leaflets, pamphlets, folder etc. relating to agriculture as well as use of radio and television. These variables were quantified by assigning score as follows:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Frequency of using mass media by participants</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regularly</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Frequently</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Occasionally</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Never</td>
<td>1</td>
</tr>
</tbody>
</table>

On the basis of mean and standard deviation, the respondents were categorized into the following three groups.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Mass media exposure</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low mass media exposure</td>
<td>Less than mean – S.D.</td>
</tr>
<tr>
<td>2</td>
<td>Medium mass media exposure</td>
<td>Between mean + S.D.</td>
</tr>
<tr>
<td>3</td>
<td>High mass media exposure</td>
<td>Above mean + S.D.</td>
</tr>
</tbody>
</table>
(B) Dependent variable

3.8.15 Attitude level

The attitude levels of cultivars were workout by using attitude scale developed by Patel (2005) on the basis of measurement of attitude. The maize growers were categorized in to three categories

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of attitude</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low</td>
<td>Less than mean – S.D.</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>Between mean ± S.D.</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
<td>Above mean + S.D.</td>
</tr>
</tbody>
</table>

The final attitude scale was administered on the sample respondents who were asked to express their reactions in terms of their agreement or disagreement with each item by selecting any of the five response categories viz. strongly agree, agree, undecided, disagree and strongly disagree. The score given for positive statements were 5, 4, 3, 2, and 1 while 1, 2, 3, 4, and 5 for negative statements.

3.8.16 Measurement of constraints faced by the respondents

For measuring constraints the respondents were asked to give the information about the constraints countered by them in organic farming was ascertained. The frequencies obtained were ranked from highest to lowest.
3.8.17 **Suggestions to overcome the constraints experienced by the respondents**

Considering the constraints faced by the respondents and to overcome the same in adoption of organic farming in maize crop successfully, they were asked to give their valuable suggestions. The suggestions offered were ranked on the basis of number and percentage of respondents who reported respective suggestions.

3.9. **STATISTICAL FRAME WORK FOR ANALYSIS OF DATA**

Adopting the methodology explained above, the study was conducted; data were gathered, processed and analyzed. Some of the data were subjected to analyze in terms of percentage and frequencies whenever necessary, whereas at some place, mean score and standard deviation were calculated. The Pearson's Co-efficient of Correlation was used to measure relationship between independent and dependent variables. All the responses in the interview schedule were transferred to the master sheet to describe personal, social, communicational, economic and psychological characteristics and frequencies were marked and percentages were calculated. The outcome of the present investigation has been presented in the succeeding chapters.
3.9.1 **Arithmetic mean and standard deviation.**

This estimate was used for classification of the respondents into different categories.

3.9.2 **Mean.**

The mean was calculated by using formula

\[ \bar{X} = \frac{\sum X_i}{n} \]

\( \bar{X} \) = Mean 

\( n \) = Number of respondents 

\( X_i \) = Value of the ith respondents

3.9.3 **Standard Deviation**

The standard deviation was obtained by the square root of the average of the square deviation from mean by the following formula:

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

Whereas,

S.D = Standard deviation 

\( \Sigma \) = Sum 

\( X_i \) = Individual score 

\( \bar{X} \) = Mean of the sample 

\( n \) = Total number of respondents
3.9.4 Co-efficient of correlation (r)

Co-efficient of correlation shows the relationship between the variables. The correlation coefficient gives two kinds of information (i) degree of relationship and (ii) direction of the relationship (positive or negative) between the variables. This relationship was obtained using following formula which is given by Karl Pearson.

\[ r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \]

Where as,

\[ x = (X - \bar{X}), \quad y = (Y - \bar{Y}) \]

\[ r \] = correlation coefficient

\[ X \] = Independent variable

\[ Y \] = Dependent variable

\[ \sum xy = \sum^n (X - \bar{X})(Y - \bar{Y}) \]

\[ \sum x^2 = \sum^n (X - \bar{X})^2 \]

\[ \sum y^2 = \sum^n (Y - \bar{Y})^2 \]

3.10 THE CONCEPTUAL MODEL

Based on review of literature conceptual model was presented paradigmatically. The model shown in Fig. 4 is a tentative and generalizes. The final form of such model is shown in the chapter summary and conclusión.
The tentative model shows no correlation between characteristics of the tribal maize growers and their attitude towards organic farming practices in maize crop.

### 3.11 DERIVED HYPOTHESES

- **$H_1$:** There is no relationship between age of the tribal maize growers and their attitude towards organic farming in maize crop.
- **$H_2$:** There is no relationship between education of the tribal maize growers and their attitude towards organic farming in maize crop.
- **$H_3$:** There is no relationship between size of family of the tribal maize growers and their attitude towards organic farming in maize crop.
- **$H_4$:** There is no relationship between size of family of the tribal maize growers and their attitude towards organic farming in maize crop.
- **$H_5$:** There is no relationship between social participation of the tribal maize growers and their attitude towards organic farming in maize crop.
- **$H_6$:** There is no relationship between size of land holding of the tribal maize growers and their attitude towards organic farming in maize crop.
- **$H_7$:** There is no relationship between annual income of the tribal maize growers and their attitude towards organic farming in maize crop.
- **$H_8$:** There is no relationship between herd size of the tribal maize growers and their attitude towards organic farming in maize crop.
Research methodology

H₈: There is no relationship between scientific orientation of the tribal maize growers and their attitude towards organic farming in maize crop.

H₉: There is no relationship between economic motivation of the tribal maize growers and their attitude towards organic farming in maize crop.

H₁₀: There is no relationship between risk orientation of the tribal maize growers and their attitude towards organic farming in maize crop.

H₁₁: There is no relationship between market orientation of the tribal maize growers and their attitude towards organic farming in maize crop.

H₁₂: There is no relationship between knowledge of the tribal maize growers and their attitude towards organic farming in maize crop.

H₁₃: There is no relationship between extension contact of the tribal maize growers and their attitude towards organic farming in maize crop.

H₁₄: There is no relationship between mass media exposure of the tribal maize growers and their attitude towards organic farming in maize crop.
3.11 OPERATIONALISATION OF THE CONCEPTS

1. **Age**
   
   It refers to actual age of the respondent in completed year’s i.e. Chronological age of the respondent.

2. **Education**
   
   It refers to the formal education attained by the selected respondents individually.

3. **Size of family**
   
   It refers to possessed number of members in family.

4. **Social participation**
   
   It refers to the degree of involvement of the respondent in formal organization either as a member or office bearer.

5. **Size of land holding**
   
   It is the number of hectares of land individual possesses and cultivates.

6. **Annual income**
   
   This indicates the total annual income in rupees earned by respondent from both farming and allied fields put together.

7. **Herd size**
   
   It refers to possession of various milch animals by the respondent.
8. Scientific orientation

It is a degree to which respondent is oriented to the use of scientific method in relation to of organic farming practices in maize crop.

9. Economic motivation

It is an occupational success in terms of profit maximization and the relative value in individual places on economic ends.

10. Risk orientation

It is the degree to which tribal respondent is oriented towards the risk and uncertainty in their occupation.

11. Market orientation

It is referred to the judgment taken by an respondent to sell his products for better price by analyzing various prevailing infrastructure and market intelligentsia.

12. Knowledge

It is that body of understood information possessed by the respondent about organic farming practices in maize crop.

13. Extension Contact

It is defined as the degree to which respondents come in contact with VLWs and AEOs and other extension agencies for seeking the guidance and to what extent he received information from state department of agriculture.
14. **Mass media exposure**

It is defined as the nature and frequency of respondent involvement in different mass media such as Radio, Television, Newspaper, Exhibition, and Demonstration.

15. **Attitude of farmer towards organic farming practices**

It is the degree of positive (favourable) or negative (unfavourable) affect towards any object or idea or person or organization of the respondents towards organic farming in maize crop.
IV. RESULTS AND DISCUSSION

This chapter presents the objective wise findings of the study. The data were collected for present investigation from the maize growers and they were classified, tabulated, analyzed and presented as per the specific objectives of the study. Interpretation and discussion have also been made on the basis of results obtained.

The facts and findings of the investigation have been grouped into the following heads.

4.1 Personal, social, economical, communicational and psychological characteristics of the tribal maize growers.

4.2 Knowledge level about organic farming practices in maize crop.

4.3 Attitude towards organic farming practices in maize crop.

4.4 Relationship between attitude of the farmers and their personal, social, economical, communicational and psychological characteristics of tribal maize growers.

4.5 Constraints faced by the respondents in organic farming practices in maize crop.

4.6 Seek the suggestions to overcome the constraints faced by respondents in organic farming practices of maize crop.
4.1 PERSONAL, SOCIAL, ECONOMICAL, PSYCHOLOGICAL AND COMMUNICATIONAL CHARACTERISTICS OF TRIBAL MAIZE GROWERS

To identify the profile of the maize growers was one of the objectives of the present study. On the basis of review of literature, some of the important characteristics of the maize growers like age, education, size of family, social participation, size of land holding, annual income, herd size, scientific orientation, economic motivation, risk orientation, market orientation, knowledge, extension contact, mass media exposure and etc. were selected and studied. The findings have been tabulated, analyzed and presented in different groups like personal, social, economical, communicational and psychological characteristics of the maize growers.

4.1.1 Age

Age is the factor, which may have some influence on attitude towards organic farming practices in maize crop. The respondents were asked to indicate their age in completed years to study this factor, the respondents were grouped in to three categories viz., (i) group up to 35 years, (ii) between 36 to 50 years, (iii) above 50 years. The data collected from the respondents about their age are presented in Table 3 and diagrammatically depicted in Fig. 5.
Table 3: Distribution of respondents according to their age

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Age group</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Young (Up to 35 years)</td>
<td>35</td>
<td>29.16</td>
</tr>
<tr>
<td>2.</td>
<td>Middle (between 36 to 50 years)</td>
<td>46</td>
<td>38.34</td>
</tr>
<tr>
<td>3.</td>
<td>Old (Above 50 years)</td>
<td>39</td>
<td>32.50</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

The numerical figures in Table 3 shows that 38.34 per cent of the respondents were found in the middle age group, followed by 32.50 per cent in old age group and rest 29.16 per cent of respondent in young age group. It is inferred that majority of the respondent belonged to middle age group. The probable reason might be that the parental occupation must have taken by middle age, as old age once were unable to do agricultural practices.

This finding is supported by Kanani (1998), Sahoo (2004) and Patel (2005).

4.1.2 Education

Formal education of an individual influences his attitude as well as enhances comprehensive ability and skill. This leads to increasing problem solving ability of individual. With this consideration the education of the respondents was studied. The data in this respect are presented in Table 4 and diagrammatically depicted in Fig. 6.

Table 4: Distribution of respondents according to their level of education
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of education</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Illiterate</td>
<td>05</td>
<td>4.17</td>
</tr>
<tr>
<td>2.</td>
<td>Primary</td>
<td>18</td>
<td>15.00</td>
</tr>
<tr>
<td>3.</td>
<td>Secondary</td>
<td>32</td>
<td>26.67</td>
</tr>
<tr>
<td>4.</td>
<td>Higher secondary</td>
<td>36</td>
<td>30.00</td>
</tr>
<tr>
<td>5.</td>
<td>College</td>
<td>29</td>
<td>24.17</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The data in the Table 4 shows that Nearly one-third (30.00 per cent) of the tribal maize growers had education level up to higher secondary level of education, followed by 26.67 per cent, 24.17 per cent and 15.00 per cent of them had secondary, college level and primary level of education respectively. It can be concluded that majority of the tribal maize growers (80.00 per cent) had education up to secondary level and above. The probable reason for literacy among the maize growers were due to more education facilities available in rural area and realization about the significance of education for the overall development of the life. Due to scope to establish better economic condition, they might have decided to go for formal education rather than earning money right from childhood.

These finding are in line with the result reported by Vasava (2005), Rai and Srivastava (2001), Jadav (2001).

### 4.1.3 Size of family
Results and Discussion

Size of family refers to number of person present in their family. The respondents were classified according to their size of family in following categories and presented in Table 5 and diagrammatically depicted in Fig.7.

Table 5: Distribution of respondents according to their size of family

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Family size</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Small (up to 5 members)</td>
<td>64</td>
<td>53.33</td>
</tr>
<tr>
<td>2.</td>
<td>Large (more than 5 members)</td>
<td>56</td>
<td>46.67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The data presented in Table 5 shows that slightly more than half (53.33 per cent) of tribal maize growers were found in small size of family and rest 46.67 per cent of tribal maize growers had large size of family. Thus it can be concluded that 53.33 per cent of the tribal maize growers had small family size.

The probable reason may be farmers adopt family planning and did not living in joint family.

This finding has been supported by Sanjay Kumar (2003) and Patel (2005).

4.1.4 Social participation

Social participation brings an individual in close contact with other members of social organizations. This provides an opportunity to exchange their ideas, information and helps them in getting information about farm innovations. The collected data were distributed in four categories and presented in Table 6 and diagrammatically depicted in Fig.8.
Table 6: Distribution of respondents according to their social participation

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Social participation</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>No membership</td>
<td>33</td>
<td>27.50</td>
</tr>
<tr>
<td>2.</td>
<td>Membership in one organization</td>
<td>48</td>
<td>40.00</td>
</tr>
<tr>
<td>3.</td>
<td>Membership in more than one organization</td>
<td>24</td>
<td>20.00</td>
</tr>
<tr>
<td>4.</td>
<td>Holding position</td>
<td>15</td>
<td>12.50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

It is clear from the Table 6 shows that two-fifth (40.00 per cent) of the tribal maize growers had membership in one organization followed by 27.50 per cent had no membership in any organization, 20.00 per cent had membership in more than one organization. Very few i.e. 12.50 per cent of tribal maize growers were in holding position. It is clear from the data that a majority (60.00 per cent) of tribal maize growers were having membership in one or more than one organizations.

The reason behind this was the existence of village cooperative society and milk cooperative society at village level. Most of the respondents were members of these cooperative societies to avail the benefits provided by them.

This finding is in concurrence with the findings reported by Kanani (1998), Jadav (2001) and Parashar (2004).

4.1.5 Size of land holding

The respondents on the basis of their actual size of land holding were classified in to four groups as per the Table 7 and diagrammatically depicted in Fig.9.
Table 7: Distribution of the respondents according to their size of land holding

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Categories</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Marginal farmers (Up to 1.00 ha)</td>
<td>14</td>
<td>11.67</td>
</tr>
<tr>
<td>2.</td>
<td>Small farmers (1.01 to 2.00 ha)</td>
<td>48</td>
<td>40.00</td>
</tr>
<tr>
<td>3.</td>
<td>Medium farmers (2.01 to 3.00)</td>
<td>24</td>
<td>33.33</td>
</tr>
<tr>
<td>4.</td>
<td>Large farmers (Above 3.0 ha)</td>
<td>15</td>
<td>15.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The data presented in Table 7 reported that 40.00 per cent of the tribal maize growers were in small farmer group followed by 33.33, 15.00 and 11.67 per cent of them who had medium, large and marginal size of land holding respectively. Thus it can be concluded that majority (73.33 per cent) of the tribal maize growers were small to medium size of land holding. Division of land from generation to generation as per social custom might be the possible explanation of these finding.

This result is in conformity with the findings of Gosai (1997), Chavada (1998) and Masram and Vishwanath (1999).

4.1.6 Annual income

It refers to the total annual earning of family through all sources. The respondents were categorized in three groups as per Table 8 and diagrammatically depicted in Fig.10

Table 8: Distribution of the respondents according to their annual income
Table 8 shows that more than half (57.50 per cent) of the tribal maize growers were found with medium annual income, followed by 25.84 and 16.66 per cent with high and low annual income respectively. Thus it can be concluded that a great majority (83.34 per cent) of tribal maize growers were medium to high level of annual income.

The probable reason might be that majority of tribal maize growers had more than two occupations and engaged in other services also so they have medium to high level of annual income.

This finding is conformity with the findings of Sagwal and Malik (2000), Jadav (2001).

### 4.1.7 Herd size

Animals are most common in Indian rural community for getting additional income through selling of milk. Keeping this in view, the animals possessed by the tribal maize growers was studied and presented in Table 9 and diagrammatically depicted in Fig. 11.

**Table 9: Distribution of the respondents according to herd size**
The data presented in the Table 9 shows that more than half (55.83 per cent) of tribal maize growers had 3 - 4 milch animals, followed by 33.34 per cent of them had above 4 milch animals and 10.83 per cent had up to 2 milch animals.

It can be concluded that great majority (89.17 per cent) of tribal maize growers had medium to large herd size. The probable reason could be that dairy farming gives sufficient daily income to farmers.

This finding is similar with the findings of Khokhar (2007).

4.1.8 Scientific orientation

It is the degree to which a farmer is oriented to the use of scientific methods in relation to his adoption behaviour. The data regarding scientific orientation were collected, analyzed and presented in Table 10 and diagrammatically depicted in Fig. 12.

Table 10: Distribution of respondents according to their scientific orientation

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of scientific orientation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>19</td>
<td>15.84</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>77</td>
<td>64.16</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>24</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean = 21.98  
S.D. = 5.19
Results and Discussion

The result in Table 10 indicated that more than 64.16 per cent of the tribal maize growers had medium level of scientific orientation. About 20.00 per cent of tribal maize growers had high scientific orientation and rest 15.84 per cent had low scientific orientation. So it can be concluded that majority (84.16 per cent) of tribal maize growers had medium to high scientific orientation.

This might be due to good social participation, extension contact, mass media exposure and good literacy level.

This finding is in conformity with the findings as reported by Vasava (2005), Patel (2005) and Patel (2006).

4.1.9 Economic motivation

It is occupational success in terms of profit maximization and relative value an individual places on economic ends. The distribution of the respondents according to their economic motivation is presented in Table 11 and diagrammatically depicted in Fig. 13.

Table 11: Distribution of respondents according to their economic motivation

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of economic motivation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>19</td>
<td>15.84</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>72</td>
<td>60.00</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>29</td>
<td>24.16</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean = 21.25  S.D. = 5.49

The data in Table 11 reveals that more than 60.00 per cent of tribal maize growers belongs to medium economic motivation category. Further 24.16 per cent and 15.84 per cent of tribal maize growers had high and low economic orientations, respectively.
motivation, respectively. So it can be concluded that majority (84.16 per cent) of tribal maize growers had medium to high economic motivation.

It can be inferred that majority of the maize growers had medium economic motivation. The probable reason may be the price of agricultural product is highly fluctuating and on other hand other commodities leads to make farmers more cautious in risky decision making reflecting its performance to invest money towards profit maximization.

This finding is in the line with Patel (2005) and Kaur and Kalra (2006).

4.1.10 Risk orientation

Due to risk orientation farmers may have negative attitudes. So this factor is very important when we are studying regarding the attitude. The data regarding risk orientation were collected, analyzed and presented in Table 12 and diagrammatically depicted in Fig. 14.

Table 12:  Distribution of respondents according to their risk orientation

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of risk orientation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>17</td>
<td>14.16</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>82</td>
<td>68.34</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>21</td>
<td>17.50</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean= 17.55  S.D. = 3.71

It is evident from the data reported in Table 12 that more than 68.34 per cent of the tribal maize growers had medium level of risk orientation, followed by high and low risk orientation with 17.50 per cent and 14.16 per cent,
Results and Discussion

Thus it appears that majority of the tribal maize growers had medium risk orientation due to their limited alternate sources of income in case of crop and take some assume calculation regarding yield, market facility, price etc.


4.1.11 Market orientation

Market orientation can be operationalised as the degree to which an individual is oriented towards marketing function of own enterprise. The views of the maize growers in this regard were collected, classified and are presented in Table 13 and diagrammatically depicted in Fig. 15.

Table 13: Distribution of respondents according to their market orientation

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of risk orientation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>24</td>
<td>20.00</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>73</td>
<td>60.83</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>23</td>
<td>19.17</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean= 17.25  S.D. = 4.94

As it is evident from Table 13 that more than 60.83 per cent of tribal maize growers had medium level of market orientation, while 19.17 per cent of tribal maize growers had high level of market orientation. Only 20.00 per cent of them had low level of market orientation.
It was obvious that majority (80.00 per cent) of the tribal maize growers had medium to high level of market orientation. The probable reason for the above finding might be that, they were aware about their limitation as well as the importance of marketing of their produce.

This finding supported by Dutt and Chole (2001).

4.1.12 Knowledge level

Knowledge is the cognitive behaviour of an individual. The body of knowledge is the product of learning process. Once the knowledge is acquired, it produces changes in the thinking process of an individual, which would lead to further changes in attitude and helps the farmers in making rational decisions. It is prerequisite for adoption of any agricultural innovation. With this view, attempt has been made to determine the level of knowledge of tribal maize growers about organic farming practices in maize crop. The data regarding extent of knowledge are presented in Table 14 and diagrammatically depicted in Fig. 18.

Table 14: Distribution of respondents according to their knowledge level

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of knowledge</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>21</td>
<td>17.50</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>62</td>
<td>51.66</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>37</td>
<td>30.84</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean = 11.26  
S.D. = 2.45

It is observed from the Table 14 that more than 51.66 per cent of the tribal maize growers had medium level of knowledge regarding organic farming practices in maize crop, while 30.84 and 17.50 per cent of tribal maize growers
had high and low level of knowledge respectively. Thus it can be concluded that 
82.50 per cent of tribal maize growers had medium to high level of knowledge 
regarding organic farming practices in maize crop.

The probable reason might be due to fact that majority of the tribal 
maize growers had good literacy status and maize crop has been cultivated by 
maize growers in Vadodara district for last 5-10 years.

This finding is in the line with finding of Vasava (2005) and Patel 
(2005).

4.1.13 Extension contact

Extension contacts by the tribal maize growers were important factor 
for getting information regarding plant protection in maize crop. This information 
could change the attitude of farmers. Hence, the data regarding extension contact 
were collected and classified in to three categories and summarized in Table 15 
and diagrammatically depicted in Fig. 16.

Table 15: Distribution of respondents according to their contact 
with extension agency

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Level of contact with extension agency</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low</td>
<td>13</td>
<td>10.84</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>83</td>
<td>69.16</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
<td>24</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean = 20.99

S. D. = 4.05

It is observed from Table 15 that more than 69.16 per cent of the 
tribal maize growers had medium level of contact with different extension
agencies, followed by high (20.00 per cent) and low level of (10.84 per cent) extension contact. Thus it can be concluded that 79.16 per cent of tribal maize growers had medium to high level of extension contacts.

This may be due to existence of government and private extension agencies.

This finding supported by Vasava (2005) and Patel (2006).

4.1.14 Mass media exposure

Rapid and considerable change was found in level of knowledge regarding plant protraction in maize crop, due to mass media exposure i.e. TV, radio, exhibition etc. Change in knowledge level leads to change the attitude of tribal maize growers regarding use of organic farming. So the data regarding mass media exposure were collected and categorized into three categories, which is summarized in Table 16 and diagrammatically depicted in Fig. 17.

Table 16: Distribution of respondents according to their mass media exposure

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of mass media exposure</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low</td>
<td>15</td>
<td>12.50</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>85</td>
<td>70.84</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
<td>20</td>
<td>16.66</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean = 16.77  S. D. = 03.49

The data given in Table 16 indicated that more than 70.84 per cent of tribal maize growers had medium exposure to mass media which was followed by
16.66 per cent and 12.50 per cent had high and low exposure to mass media respectively.

The probable reason for this might be better economic condition and higher education level of maize growers leads them to use mass media.

This finding is in line with findings of Vasava (2005) and Patel (2005).

4.2 KNOWLEDGE LEVEL OF RESPONDENTS ABOUT ORGANIC FARMING PRACTICES IN MAIZE CROP

Knowledge is the cognitive behaviour of an individual. The body of knowledge is the product of learning process. Once the knowledge is acquired, it produces changes in the thinking process of an individual, which would lead to further changes in attitude and helps the farmers in making rational decisions. It is prerequisite for adoption of any agricultural innovation.

Keeping this in view, attempt has been made to determine the level of knowledge of tribal maize growers about organic farming practices in maize crop. The data regarding extent of knowledge are presented in Table 17 and diagrammatically depicted in Fig. 18.

Table 17: Distribution of respondents based of their knowledge about organic farming practices in maize crop

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of knowledge</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>21</td>
<td>17.50</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>62</td>
<td>51.66</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>37</td>
<td>30.84</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120</td>
<td>100.00</td>
</tr>
</tbody>
</table>
The data portrayed in Table 17 clearly reveals that more than 51.66 per cent of the tribal maize growers had medium level of knowledge regarding organic farming practices in maize, while 30.84 and 17.50 per cent of tribal maize growers had high and low level of knowledge, respectively. Thus it can be concluded that 82.50 per cent of tribal maize growers had medium to high level of knowledge regarding organic farming practices in maize crop.

The probable reason might be due to fact that majority of the tribal maize growers had good literacy status and maize crop has been cultivated by maize growers in Vadodara district for last 5-10 years.

This finding is in the line with finding of Vasava (2005) and Patel (2005).

4.3 ATTITUDE TOWARDS ORGANIC FARMING IN MAIZE CROP

Attitude of the cultivator is very important for the adoption of any new agricultural technology. If the cultivator has positive attitude or positive behaviour about organic farming they can easily adopted or use organic farming. Here an attempt has been made to study the attitude towards organic farming practices in maize crop.

The attitude of the cultivators was work out by using attitude scale developed, by Patel (2005) with slight modification. On the basis of measurement of attitude, the respondents were categorized in to three groups viz., (i) low level
of attitude, (ii) Medium level of attitude (iii) high level of attitude based on their mean attitude score (\( \bar{X} \)) and standard deviation (S.D.). The data regarding the attitude are presented in Table 18 and diagrammatically depicted in Fig. 19.

Table 18: Distribution of the respondents according to their attitude towards organic farming practices in maize crop

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Level of attitude</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>29</td>
<td>24.17</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>71</td>
<td>59.17</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>20</td>
<td>16.66</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Mean (\( \bar{X} \)) = 64.83

The data presented in Table 18 and depicted graphically in Fig. 20 show, that more than 59.17 per cent of the respondents were having medium level of attitude towards organic farming in maize crop, followed by 24.17 per cent having high level of attitude and only 16.66 per cent were having low level of attitude.

It evident from above data that, majority of the maize growers had medium level of attitude towards organic farming practices. This might be due to the majority of the respondents had higher secondary level of education. so, they think positively more as compare to negative thinking.

This finding is similar to the finding reported by Pise (2006).
4.4 RELATIONSHIP OF ATTITUDE OF TRIBAL FARMERS TOWARDS ORGANIC FARMING PRACTICES IN MAIZE CROP AND THEIR CHARACTERISTICS

The attitude towards organic farming practices in maize crop is a unit act but a complex process involving sequence and thought of action. The action of individual farmers is governed by personal, social, economic, psychological and cultural factors involved in situation. Some farmers manage new farming technology more quickly than others because of the difference in personal characteristics.

Similarly if there is difference in economic factors, process of action is changed, there by changing the pattern of attitude. Thus in nutshell it may be stated that the attitude towards organic farming practices in maize crop differs when there are differences in personal, social, economical and psychological characteristics of respondents. Hence considering the important of these characteristics and review of past research studies, an attempt has been made in this investigation to ascertain the relationship if any, between personal, socio-economic and psychological characteristics of the tribal maize growers and their attitude towards organic farming in maize crop. This was determined and tested with help of Karl Pearson’s coefficient correlation test and results obtained are presented in Table 20.
Table 19: Relationship between the characteristics of maize growers and their towards organic farming in maize crop  n = 120

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Independent Variables</th>
<th>Correlation-Coefficient (‘r’ value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Age</td>
<td>-0.125 (NS)</td>
</tr>
<tr>
<td>2.</td>
<td>Education</td>
<td>0.329**</td>
</tr>
<tr>
<td>3.</td>
<td>Size of family</td>
<td>-0.046 (NS)</td>
</tr>
<tr>
<td>4.</td>
<td>Social participation</td>
<td>0.280**</td>
</tr>
<tr>
<td>5.</td>
<td>size of Land holding</td>
<td>0.409**</td>
</tr>
<tr>
<td>6.</td>
<td>Annual income</td>
<td>0.265**</td>
</tr>
<tr>
<td>7.</td>
<td>Herd size</td>
<td>0.377**</td>
</tr>
<tr>
<td>8.</td>
<td>Scientific orientation</td>
<td>0.328**</td>
</tr>
<tr>
<td>9.</td>
<td>Economic motivation</td>
<td>0.261**</td>
</tr>
<tr>
<td>10.</td>
<td>Risk orientation</td>
<td>0.364**</td>
</tr>
<tr>
<td>11.</td>
<td>Market orientation</td>
<td>0.774**</td>
</tr>
<tr>
<td>12.</td>
<td>Knowledge level</td>
<td>0.301**</td>
</tr>
<tr>
<td>13.</td>
<td>Extension contact</td>
<td>0.306**</td>
</tr>
<tr>
<td>14.</td>
<td>Mass media exposure</td>
<td>0.244**</td>
</tr>
</tbody>
</table>

NS= non significant at 0.05 level

* = significant at 0.05 level

** = significant at 0.01 level

4.4.1 Age and attitude

It is apparent from the data presented in the Table 19 clearly indicate that age of tribal maize growers had negative and non-significant (r=-0.125NS) correlation with their attitude towards organic farming practices in maize crop.

Hence, the hypothesis is accepted the probable reason for non-significant result might be that, majority of farmers belongs to such type of families in which the head of the family has responsibility to deal with financial problems and majority of cases were middle age who had to take decision for adoption and use of organic farming in maize crop so, there was no significant
Results and Discussion

relationship between age and attitude towards organic farming practices in maize crop.

This finding is in the line with result of Patel (2006).

4.4.2 Education and attitude

The data presented in Table 19 indicate that attitude towards organic farming practices in maize crop had highly significant ($r=0.329**$) relationship with education. It means with increase in education level attitude level also increased. Thus highly significant result might be the educated farmers/respondents had greater reception power then low educated and illiterate farmers.

This finding is similar to reported Patel (2005) and Patel (2006).

4.4.3 Size of family and attitude

It is apparent from the data presented in Table 19 makes it clear that there was negative and non-significant relationship ($r=-0.046$ NS) between size of family and attitude of tribal maize growers towards organic farming practices in maize crop.

This indicates that the number of members in family did not play a vital role in developing the favourable attitude towards organic farming practices in maize crop. Hence, the null hypothesis in case of size of family is accepted.
4.4.4 Social participation and attitude

Data shown in Table 19 indicated that attitude towards organic farming practices in maize crop had highly significant ($r=0.280^{**}$) relationship with social participation. Due to social participation, interaction with each other, exchange of ideas and information took place, which might have changed the attitude in positive way, so null hypothesis was rejected.

This finding is similar to reported by Patel (2005) and Patel (2006).

4.4.5 Size of land holding and attitude

A perusal of data in Table 19 indicates that, attitude towards organic farming practices in maize crop with the size of land holding had highly significant ($r=0.409^{**}$) relationship. It means size of land holding play a vital role in changing their attitude towards organic farming practices in maize crop. So null hypothesis was rejected.

This finding similar to reported by Amir (1996).

4.4.6 Annual income and attitude

It is apparent from Table 19 indicates that annual income had highly significant ($r=0.265^{**}$) relation with attitude towards organic farming practices in maize crop. Hence the null hypothesis in case of annul income was rejected.
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The probable reason might be that better economic condition of farmers motivates them to diversify their farming. As a result, the farmer tries to have relation and frequent interaction with the different personnel to acquire information to getting more benefit. This fact could be attributed as a reason for the positive and highly significant relation between income of the respondents and their attitude towards organic farming practices in maize crop.

This finding is similar to reported by Patel (2005).

4.4.7 Herd size and attitude

The data shown in Table 19 indicates that tribal maize growers' herd size was highly significantly ($r=0.377^{**}$) correlated with attitude towards organic farming practices in maize crop. Hence, the null hypothesis in case of herd size was rejected.

4.4.8 Scientific orientation and attitude

The data shown in Table 19 indicates that tribal maize growers' scientific orientation was highly significantly ($r=0.328^{**}$) correlated with attitude towards organic farming practices in maize crop. Hence, the null hypothesis in case of scientific orientation was rejected.

This result might be due to that the tribal maize growers with more scientific orientation were motivated to seek more information about improved agricultural technology and increased the level of attitude towards organic farming practices in maize crop in positive way.
4.4.9 Economic motivation and attitude

The data from Table 19 revealed that economic motivation had highly significant ($r=0.261^{**}$) relationship with attitude towards organic farming practices in maize crop.

This might be due to the fact that well to do farmers could invest for costly input and also their good risk bearing capacity. They show great degree of interest in use of organic farming, through which they can get good economic profit. Hence, null hypothesis in case of economic motivation was rejected.

This finding similar to reported by Patel (2005).

4.4.10 Risk orientation and attitude

Data from the Table 19 indicates that risk orientation had highly significant($r=0.364^{**}$) relationship with attitude towards organic farming practices in maize crop. Hence, lead to the rejection of null hypothesis in case of risk orientation.

The adoption of any new practices in agriculture involves considerable risk due to uncertainties of rainfall, weather conditions, new technology and so on. The basic motive of any farmers to earn higher income by taking risk will always help them for positive attitudes regarding organic farming practices in maize crop.
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This finding is similar to reported by Prasad and Sundaraswamy (2000).

4.4.11 Market orientation and attitude

Data from the Table 19 indicates that market orientation had highly significant ($r=0.774^{**}$) relationship with attitude towards organic farming practices in maize crop. Hence, lead to the rejection of null hypothesis in case of market orientation.

It might be due to fact that majority of tribal maize growers possessed medium size of land holding and had hereditary understanding of perishableness of their produce.

4.4.12 Knowledge level and attitude

Data from the Table 19 shows that relationship between knowledge and attitude towards organic farming by tribal maize growers was highly significant ($r=0.301^{**}$), which indicates that higher degree of knowledge regarding use organic farming in maize crop had improved the rate of attitude of it.

This might be due to fact that tribal maize growers who are having better knowledge about use of organic farming are efficient in selecting economical and feasible technology and adopt the same very quickly with positive attitude. Hence, the null hypothesis was rejected.

This finding is similar to reported by Joshi (2004) and Zala (2008).
4.4.13 Extension contact and attitude

The result presented in Table 19 clearly indicates that extension contact had highly significant \( r = 0.306^{**} \) relationship with the attitude towards organic farming practices in maize crop. Which indicated that extension contact had influenced the attitude of tribal maize grower’s towards organic farming practices in maize crop. The probable reason behind this may be that the extension workers are giving sufficient knowledge though extension contact leads the tribal maize growers for positive attitude towards organic farming practices in maize crop. Hence, the hypothesis in case of extension contact is rejected.

This finding is found similar to reported by Patel (2006).

4.4.14 Mass media exposure and attitude

The data presented in Table 19 indicate that mass media exposure had highly significant \( r = 0.244^{**} \) relationship with attitude towards organic farming practices in maize crop. It shows that level of attitude was increased with increasing mass media exposure of tribal maize growers.

The reason for the above may be that greater contact with larger society via mass media exposure seemed to be associated with higher adoption of organic farming practices in maize crop. Hence, their attitude also changed up to the mark, so the Null hypothesis is rejected.

4.5 CONSTRAINTS FACED BY TRIBAL MAIZE GROWERS IN ORGANIC FARMING PRACTICES IN MAIZE CROP
Table 20: Constraints faced by tribal maize growers in organic farming practices in maize crop

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Constraints</th>
<th>Number</th>
<th>Per cent</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lack of special administrative setup to promote organic farming</td>
<td>72</td>
<td>60.00</td>
<td>I</td>
</tr>
<tr>
<td>2.</td>
<td>Lack of price and availability of organic feed</td>
<td>70</td>
<td>58.34</td>
<td>II</td>
</tr>
<tr>
<td>3.</td>
<td>Lack of organic marketing network</td>
<td>65</td>
<td>54.16</td>
<td>III</td>
</tr>
<tr>
<td>4.</td>
<td>Lack of awareness about organic food</td>
<td>62</td>
<td>51.66</td>
<td>IV</td>
</tr>
<tr>
<td>5.</td>
<td>Controversy among family members regarding organic farming</td>
<td>61</td>
<td>50.84</td>
<td>V</td>
</tr>
<tr>
<td>6.</td>
<td>There is no special incentive or awards for adopters of organic farming practices</td>
<td>58</td>
<td>48.34</td>
<td>VI</td>
</tr>
<tr>
<td>7.</td>
<td>Inadequate and untimely supply of agricultural inputs</td>
<td>56</td>
<td>46.66</td>
<td>VII</td>
</tr>
<tr>
<td>8.</td>
<td>Distance between producer and market or delivery point</td>
<td>54</td>
<td>45.00</td>
<td>VIII</td>
</tr>
<tr>
<td>9.</td>
<td>Poor contact of extension workers with farmers</td>
<td>50</td>
<td>41.66</td>
<td>IX</td>
</tr>
<tr>
<td>10.</td>
<td>Lack of market facility for organically produced commodity</td>
<td>48</td>
<td>40.00</td>
<td>X</td>
</tr>
<tr>
<td>11.</td>
<td>Lack of publication on proven organic farming practices</td>
<td>35</td>
<td>29.16</td>
<td>XI</td>
</tr>
<tr>
<td>12.</td>
<td>Natural hazards</td>
<td>21</td>
<td>17.50</td>
<td>XII</td>
</tr>
</tbody>
</table>

Constraints in adoption of new technology never end. However they can be minimized. The respondents were requested to express the constraints faced by tribal maize growers in organic farming practices in maize crop. Frequency and percentage for each constraint were calculated and on that basis of that, the constraints were ranked and presented in Table 20.

As seen from the table major constraints faced by tribal maize growers are lack of special administrative setup to promote organic farming
Results and Discussion

(60.00 per cent), lack of price and availability of organic feed (58.34 per cent), lack of organic marketing network (54.16 per cent), lack of awareness about organic food (51.66 per cent), controversy among family members regarding organic farming (50.84 per cent), there is no special incentive or awards for adopters of organic farming practices (48.34 per cent), Inadequate and untimely supply of agricultural inputs (46.66 per cent), distance between producer and market or delivery point (45.00 per cent), poor contact of extension workers with farmers (41.66 per cent), lack of market facility for organically produced commodity (40.00 per cent), lack of publication on proven organic farming practices (29.16 per cent) and Natural hazards (17.50 per cent).

4.6 SUGGESTIONS MADE BY TRIBAL MAIZE GROWERS

OVERCOME THE CONSTRAINTS FACED BY THEM

An attempt was also made to ascertain suggestions from tribal maize growers to overcome various constraints faced by them in organic farming practices in maize crop. The respondents were requested to offer their valuable suggestion against difficulties faced by them in the organic farming practices in maize crop. The data were collected and summarized in Table 21.
Table 21: Suggestions given by tribal maize growers to overcome constraints faced by them

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Suggestions</th>
<th>Number</th>
<th>Per cent</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Agril. Extension workers should be provided information regarding organic farming.</td>
<td>63</td>
<td>52.50</td>
<td>I</td>
</tr>
<tr>
<td>2.</td>
<td>Timely supply of agricultural inputs should be provided.</td>
<td>61</td>
<td>50.83</td>
<td>II</td>
</tr>
<tr>
<td>3.</td>
<td>Adequate agricultural inputs should be provided.</td>
<td>58</td>
<td>48.33</td>
<td>III</td>
</tr>
<tr>
<td>4.</td>
<td>Marketing network on organic farm products should be available.</td>
<td>56</td>
<td>46.67</td>
<td>IV</td>
</tr>
<tr>
<td>5.</td>
<td>Special administrative setup should promote for organic farming.</td>
<td>52</td>
<td>43.33</td>
<td>V</td>
</tr>
<tr>
<td>6.</td>
<td>Publication on proven organic farming practices should be available.</td>
<td>47</td>
<td>39.17</td>
<td>VI</td>
</tr>
<tr>
<td>7.</td>
<td>Market facility for organically produced commodity should be available.</td>
<td>46</td>
<td>38.33</td>
<td>VII</td>
</tr>
<tr>
<td>8.</td>
<td>Awareness about organic food should be available.</td>
<td>33</td>
<td>27.50</td>
<td>VIII</td>
</tr>
<tr>
<td>9.</td>
<td>Special incentive or awards for adopters of organic farming should be given.</td>
<td>20</td>
<td>16.67</td>
<td>IX</td>
</tr>
</tbody>
</table>

Valuable suggestions given by tribal maize growers are presented in Table 21. It can be concluded from the Table 21 that the tribal maize growers suggested Agril. Extension workers should be provided information regarding organic farming (52.50 per cent), timely supply of agricultural inputs should be provided (50.83 per cent), adequate agricultural inputs should be provided (48.33 per cent), marketing network on organic farm products should be available (46.67 per cent), special administrative setup should promote for organic farming (43.33 per cent), publication on proven organic farming practices should be available (39.17 per cent), market facility for organically produced commodity should be
available (38.33 per cent), awareness about organic food should be available (27.50 per cent) and special incentive or awards for adopters of organic farming should be given (16.67 per cent).

It can be concluded that major suggestions given by tribal maize growers Agril. Extension workers should be provided information regarding organic farming, timely supply of agricultural inputs should be provided, adequate agricultural inputs should be provided, and marketing network on organic farm products should be available.
V. SUMMARY AND CONCLUSION

This chapter includes in a nutshell classification of summary, conclusion, problems and suggestions of the study for further research.

5.1. SUMMARY

Economic status of the people in country like India mostly depends upon the agricultural production. Need for more intensive and economic agricultural production led to indiscriminate use of high doses of chemicals fertilizers, pesticides etc., relentless use of these chemicals not only alter the ecosystem but also claim death to many lives every year due to their hazardous nature. After the green revolution, increase in food production was achieved at the cost of soil health. About 60 per cent of our agricultural land currently under cultivation suffers from indiscriminate use of irrigation water and chemical fertilizers. Many agricultural chemicals like pesticides, fungicides, herbicides, hormones and antibiotics leave residues in the foodstuffs that cause cancer or genetic damage. Also depletion of ozone layer is the major threat, which causes numerous unpredictable diseases, attacks to the crop, animal and human being. Dangers of such agricultural practices on man and nature loom even larger as we strive more for higher production using a high combination of high yielding varieties, fertilizers, herbicides and pesticides. Intensive use of inputs has not only polluted the soil, water and the environment causing their slow degradation but also affected human beings. Thus, a natural balance needs to be maintained for survival and well being of the human beings, plant and animal kingdom. The
obvious choice for that would be adaptation of organic farming without compromising agricultural production. Organic farming as a production system, which avoids or largely excludes fertilizers, pesticides, growth regulators and livestock feed additives. Organic farming may be defined as a production system, which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additive. To the maximum extent feasible, organic farming systems rely upon crop rotations, crop residues, animal manures, legumes, green manures, off-farm organic wastes, mechanical cultivation, mineral bearing rocks and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients and to control insects, weeds and other pests. (1980, U.S.D.A)

Now, recently the organic agriculture is practiced in 100 countries of the world, and its share of agricultural land and farms is growing. The total organically managed area is more than 24 million hectares worldwide. Percentages of land under organic management however are highest in Europe. The world’s largest certified organic property (9, 94,000 ha) is located in Australia (FAO-2000). Australia/Oceania holds 42 per cent of the world’s organic land followed by Latin America (24.2 per cent) and Europe (23 per cent), and India (0.03 per cent) Anonymous (2010a).

Maize (Zea mays L.) the “Queen of cereals”, popularly known as corn, is one of the important cereal of the world, ranking third among the food crops, next to rice and wheat, both in respect of area and production. In world, maize is
cultivated in area of 146 m ha having the production of 680 million tonnes with 4.66 tonnes average productivity. In India, maize is cultivated in area of 6.4 m ha having the production of 20.3 million tones with 3.17 tonnes average productivity. Gujarat occupies 0.47 m ha of area under maize, producing 1.22 million tonnes of grain with average productivity of 2595 kg ha. (Anon.2007)

Many of our modern agricultural technologies are found to be harmful to the agro ecosystem in the long run that’s why our scientists started to look for the alternatives like organic farming practices, which are sustainable in a long run.

Considering the above a study entitled “ATTITUDE OF TRIBLE FARMERS TOWARDS ORGANIC FARMING PRACTICES IN MAIZE CROP” was under taken with following objectives.

5.1 OBJECTIVES OF THE STUDY

1. To study the selected characteristics of the respondents.

2. To study the knowledge level of respondents about organic farming practices in maize crop.

3. To study the attitude of tribal farmers towards organic farming practices in maize crop.

4. To ascertain the association between the selected independents variables of the respondents and their level of attitude towards organic farming practices in maize crop.

5. To study the constraints faced by respondents in organic farming practices in maize crop.
6. To seek the suggestions to overcome the constraints faced by respondents in organic farming practices of maize crop.

5.2 REVIEW OF LITERATURE

A brief account of literature reviewed were presented under five heads viz., selected characteristics of maize growers, knowledge and attitude towards organic farming practices, relationship between selected characteristics of maize growers and their attitude towards organic farming practices, constraints faced by maize growers in organic farming practices and suggestions made by the maize growers to overcome constraints faced by them.

5.3 METHODOLOGY

Vadodara district, where the researcher study was chosen for the study. Chhotaudaipur, Naswadi, Kavat talukas of Vadodara district were purposively selected because these talukas have more tribal area as compared to other talukas. Twelve maize growing villages were randomly selected from those three talukas. For this study 120 tribal maize growers who had minimum 5 years of experience in animal husbandry and maize cultivation were selected by proportionate random sampling. Total 120 tribal maize growers were considered as a sample and as respondents. To know the various characteristics of maize growers a scale developed by Pareek and Trivedi (1963) was used with some modifications. Measurement of knowledge level of respondents about organic farming practices in maize crop was done by Jha and Singh (1970). A measurement of attitude was done by using scale developed by Patel (2005) with
slight modification. The data were collected with the help of well-structured, pre-tested, Gujarati version interview scheduled through personal contact and data were compiled, tabulated and analyzed to get proper answers for objectives of the study. A simple ranking technique was applied to measure the constraints faced by maize growers. The statistical tools used were percentage, mean score, standard deviation and coefficient of correlation value.

5.4 MAJOR FINDINGS AND CONCLUSIONS

The important findings of the study are summarized as below:

5.4.1 Characteristics of the tribal maize growers

1. About 38.34 per cent of the tribal maize growers were found in the middle age group, followed by 32.50 per cent in old age group and rest 29.16 per cent of tribal maize growers in young age group.

2. Nearly one-third 30.00 per cent of the tribal maize growers had education up to higher secondary level of education, followed by 26.67 per cent, 24.17 per cent, 15.00 and 4.17 per cent of them had secondary, collegiate level, primary level of education and illiterate, respectively.

3. Slighty more than half (53.33 per cent) of tribal maize growers were found in small size of family and rest 46.67 per cent of tribal maize growers had large size of family.

4. Two-fifth (40.00 per cent) of the tribal maize growers had membership in one organization, followed by 27.50 per cent of the tribal maize...
growers had no membership in any organization and 20.00 per cent of the tribal maize growers had membership in more than one organization. Very few i.e. 12.50 per cent of tribal maize growers were holding the position in organizations.

5. About 40.00 per cent of the tribal maize growers were in small farmers group followed by 33.33, 15.00 and 11.67 per cent of them who had medium, large and marginal size of land holding, respectively.

6. More than half (57.50 per cent) of the tribal maize growers were found with medium annual income, followed by 25.84 and 16.66 per cent with high and low annual income, respectively.

7. More than half (55.83 per cent) of tribal maize growers had 3 - 4 milch animals, followed by 33.34 per cent of them had above 4 milch animals and 10.83 per cent had up to 2 milch animals.

8. More than 64.16 per cent of the tribal maize growers had medium level of scientific orientation. About 20.00 per cent of tribal maize growers had high scientific orientation and rest 15.84 per cent had low level of scientific orientation.

9. More than 60.00 per cent of tribal maize growers belongs to medium economic motivation category followed by 24.16 per cent and 15.84 per cent of tribal maize growers had high and low economic motivation, respectively.
10. More than 68.34 per cent of the tribal maize growers had medium level of risk orientation, followed by high and low risk orientation with 17.50 per cent and 14.16 per cent, respectively.

11. More than 60.83 per cent of tribal maize growers had medium level of market orientation, followed by 20.00 per cent had low and 19.17 per cent had high level of market orientation.

12. About 51.66 per cent of the tribal maize growers had medium level of knowledge, while 30.84 and 17.50 per cent of tribal maize growers had high and low level of knowledge regarding organic farming practices in maize crop, respectively.

13. More than 69.16 per cent of the tribal maize growers had medium level of contact with different extension agencies, followed by high 20.00 per cent and low 10.84 per cent level of extension contact.

14. More than 70.84 per cent of tribal maize growers had medium exposure to mass media, followed by 16.66 per cent and 12.50 per cent had high and low exposure to mass media, respectively.

5.4.2 Knowledge level of tribal maize growers about organic farming practices in maize crop

About 51.66 per cent of the tribal maize growers had medium level of knowledge regarding organic farming practices in maize crop, while 30.84 and 17.50 per cent of tribal maize growers had high and low level of knowledge, respectively.
5.4.3 **Attitude towards organic farming in maize crop**

More than 59.17 per cent of the tribal maize growers had medium attitude towards organic farming in maize crop, followed by 24.17 per cent and 16.66 per cent of the tribal maize growers had low and high attitude towards organic farming in maize crop, respectively.

5.4.4 **Relationship between characteristics of tribal maize growers and their attitude towards organic farming in maize crop**

The independent variables like, education, size of land holding, annual income, herd size, social participation, extension contact, mass media exposure, scientific orientation, risk orientation, economic motivation, market orientation and knowledge had positive and highly significant correlation with attitude towards organic farming in maize crop. The variable like age and size of family shows negative but non-significant relationship with attitude towards organic farming in maize crop.

5.4.5 **Constraints faced by tribal maize growers in organic farming practices in maize crop**

Major constraints faced by tribal maize growers are lack of special administrative setup to promote organic farming, lack of price and availability of organic feed, lack of organic marketing network, lack of awareness about organic food, controversy among family members regarding organic farming, there is no special incentive or awards for adopters of organic farming practices, Inadequate and untimely supply of agricultural inputs, distance between producer and market
Summary and Conclusion

or delivery point, poor contact of extension workers with farmers, lack of market facility for organically produced commodity, lack of publication on proven organic farming practices and Natural hazards.

5.4.6 Suggestion given by the tribal maize growers to overcome constraints faced by them

Major suggestions given by tribal maize growers that Agril. Extension workers should be provided information regarding organic farming, timely supply of agricultural inputs should be provided, adequate agricultural inputs should be provided, marketing network on organic farm products should be available, special administrative setup should promote for organic farming, publication on proven organic farming practices should be available, market facility for organically produced commodity should be available, awareness about organic food should be available and special incentive or awards for adopters of organic farming should be given.

5.5 CONCLUSION

Majority of the tribal maize growers were in the middle age group having up to five family members and small to medium size of land holding.

Majority of the tribal maize growers were higher secondary level of education and found with medium to high annual income. Majority of the tribal maize growers had medium level economic motivation, market orientation,
scientific orientation, knowledge, risk orientation, extension contact and mass media exposure.

Out of fourteen independent variables, twelve variables were positive and highly significantly correlated with the attitude towards organic farming in maize crop viz., education, social participation, size of land holding, annual income, herd size, economic motivation, market orientation, scientific orientation, risk orientation, extension contact, mass media exposure, and knowledge. Rest of independents variable were negatively and non-significantly correlated with the attitude towards organic farming in maize crop viz. age and size of family.

Lack of special administrative setup to promote organic farming, lack of price and availability of organic feed, lack of organic marketing network, lack of awareness about organic food, controversy among family members regarding organic farming, there is no special incentive or awards for adopters of organic farming practices were the major constraints faced by maize growers.

Agril. Extension workers should be provided information regarding organic farming, timely supply of agricultural inputs should be provided, adequate agricultural inputs should be provided, marketing network on organic farm products should be available, special administrative setup should promote for organic farming, publication on proven organic farming practices should be available, market facility for organically produced commodity should be available, awareness about organic food should be available and special incentive or awards for adopters of organic farming should be given were the major suggestions as
pointed out by the tribal maize growers to overcome constraints faced by them in organic farming practices in maize crop.

5.6 ACTION IMPLICATION

Based on the findings of the study one can safely recommend following action implication:

The study facilitate in knowing the characteristic of the tribal maize growers and it would help to serve as guideline for policy makers, planners and extension workers to implement such type of study.

The findings of this study reveal that majority of the tribal maize growers were of middle age and higher secondary level of education that have vital role in attitude towards organic farming in maize crop. Hence, such type of tribal maize growers should be approached in accelerating the attitude towards organic farming in maize crop.

The farmer's background factors that influence the attitude must be reckoned with in any programme of rural development. The finding indicated that knowledge, education and annual income were the prominent variable influencing the attitude towards organic farming in maize crop. Therefore extension workers should concentrate to increase the level of knowledge, education and annual income for promotion of attitude towards organic farming in maize crop.

Subject Matter Specialists, Veterinary Doctors, Agricultural Extension Officers should visit the village and guide them to solve the problem of the tribal
maize growers in accordance with resources availed with maize growers and to sustained their credibility.

5.7 SUGGESTIONS FOR FUTURE RESEARCH

It is true that findings of single study are not adequate to make any generalizations. Therefore, it is necessary to replicate this study in other parts of talukas, districts and state, where such conditions are prevailing. The suggestions are:

1. Case studies of most successful and failure tribal maize growers should specially be undertaken.
2. The research area should be extended further and sufficiently large number of tribal maize growers should be studied to draw valid and general conclusions.
3. Some farmer's back ground factors other than those influencing the attitude towards organic farming in maize crop should be identified and should be included in the study to be conducted in future.
4. Such studies should be repeated after lapse of some time.

Vol. XII: 74 – 78.


Patel, M. C. (2008). Results of the research study on measure the scientific orientation in Agriculture and allied fields. “*Proceedings of the 4th*
Agresco sub-committee meeting on Agricultural Economics, Agricultural Statistics and Extension Education held during 3-4 April, 2009 at AAU, Anand, pp. 6-7.


APPENDIX

ATTITUDE OF TRIBAL FARMERS TOWARDS ORGANIC
FARMING PRACTICES IN MAIZE CROP
INTERVIEW SCHEDULE

Interview Schedule No. : ______________________ Date: ______________
Name of Respondent: _____________________________________________
Name of Village: __________________ Name of Taluka: _______________
Note: Please put () marks where it is applicable.

PART – I
PERSONAL, SOCIAL, ECONOMICAL, PSYCHOLOGICAL AND
COMMUNICATIONAL CHARACTERISTICS OF MAIZE GROWERS

1. Age: _____________ Years

2. Education Qualification:
   (i.) Illiterate ()
   (ii.) Primary ()
   (iii.) Secondary ()
   (iv.) Higher Secondary ()
   (v.) Graduate and above ()

3. How many members are in your family? ____________ Members

4. Social Participation:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Organization</th>
<th>Position</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>a.</td>
<td>Gram Panchayat</td>
<td>Member</td>
</tr>
<tr>
<td>b.</td>
<td>Taluka Panchayat</td>
<td>Office Holder</td>
</tr>
<tr>
<td>c.</td>
<td>Jilla Panchayat</td>
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</tr>
<tr>
<td>d.</td>
<td>Service Co-operative Society</td>
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<tr>
<td>e.</td>
<td>Milk Co-op. Society</td>
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<tr>
<td>f.</td>
<td>Other organization</td>
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</tbody>
</table>

5. Size of land holding _______________ ha

6. Total annual Income: Rs. ____________________________

7. Herd size:
Indicate total number of animals possessed by you:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Animal</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cow</td>
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</tr>
<tr>
<td>2</td>
<td>Buffalo</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bullocks</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

8. **Scientific Orientation:**

<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>Now technology of maize cultivation gives better results to the farmers than tradition system.</td>
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<tr>
<td>2</td>
<td>Maize growers with lot of experience should also use recommended technology in maize crop.</td>
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<tr>
<td>3</td>
<td>Though it take time for maize grower to learn recommended technology of maize crop. It is worth of efforts.</td>
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<tr>
<td>4</td>
<td>Now recommended plant protection measures of maize cultivation give better results to maize growers than old one.</td>
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<tr>
<td>5</td>
<td>Traditional methods of maize cultivation have to be changed in order to increase production of maize.</td>
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<tr>
<td>6</td>
<td>The way in which the fore fathers of maize growers followed maize cultivation is still the best way of maize cultivation.</td>
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</tbody>
</table>

SA = Strongly Agree, A = Agree, UD = Un Decided, DA = Disagree, SDA = Strongly Disagree

9. **Economic Motivation:**

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>UD</th>
<th>DA</th>
<th>SD</th>
</tr>
</thead>
</table>
## Appendix

### 1. A maize grower should work towards large yield and economic profit.

### 2. The Most successful maize grower is one who earns maximum profit.

### 3. Maize growers should try any new farming idea which may earn more profit for him.

### 4. A maize grower should cultivate new varieties in place of old one to increase profit.

### 5. It is difficult for the maize grower’s children to make good start unless he provides them with economic assistances.

### 6. A maize grower must earn for his living purpose but most important thing in life cannot be defined in economic terms.

SA = Strongly Agree,  A = Agree,  UD = Un Decided,  D = Disagree,  SD = Strongly Disagree

### 10. Risk Orientation:

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<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>A farmer should grow larger number of crop to avoid greater risk involved in growing one or two crop.</td>
<td></td>
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<tr>
<td>2.</td>
<td>A farmer 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>
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<tr>
<td>3.</td>
<td>A farmer who is willing to take greater risk than the average farmers</td>
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</tbody>
</table>
usually does better financially.

4. It is good for a farmer to take risk when he knows his chance of success is fairly high.

5. It is better for a farmer not to try new farming methods unless most other farmers have used them with success.

6. Trying an entirely new method in farming involves risk, but it is worth taking.

SA = Strongly Agree, A = Agree, UD = Un Decided, D = Disagree, SD = Strongly Disagree

11. Market orientation:

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<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 to the farmers.</td>
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<tr>
<td>2.</td>
<td>Grading of farm produces give remunerative price to farmers.</td>
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<tr>
<td>3.</td>
<td>Cooperative can help farmers to get better price for his produce.</td>
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<tr>
<td>4.</td>
<td>One should purchase his inputs from those shops where his relatives buy.</td>
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<tr>
<td>5.</td>
<td>Farmers should sale his produce to the nearest market only.</td>
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<tr>
<td>6.</td>
<td>Farmers should grow the crops, which have more market demand.</td>
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</tbody>
</table>

SA = Strongly Agree, A = Agree, UD = Un Decided, D = Disagree, SD = Strongly Disagree

12. Knowledge about organic farming practices in maize crop:
Appendix

(1) What is organic farming?
   (Organic farming may be defined as a production system, which avoids the use of chemical fertilizers, pesticides, growth regulators, and livestock feed additive)

(2) Which are green manure crops?
   (Green manure crops are - *Crotolaria juncea* (Sun hemp), *Tephrosia purpurea* (Wild indigo), *Vigna radiata* (mungbean), *Vigna mungo* (Urd), *Sesbania aculeata* (Dhaincha), *Leucaena leucocephala* (Subabool), etc.)

(3) What is the benefit of seed treatment?
   (For good seed germination.)

(4) State the names of biofertilizers?
   (*Rhizobium, Azotobacter, Azospirillum* and Blue green algae (BGA) and VAM)

(5) What are the benefits of biofertilizers?
   (They help to fix atmospheric nitrogen, solubilize and mobilize phosphorus, translocate minor elements like Zn, Cu etc.)

(6) What is mixed cropping?
   (Cultivation of 2 or 3 crops simultaneously on the same land without definite pattern.)

(7) Which type of organic manures are available in the market?
   (FYM, Compost, Poultry manure, Sheep and goat manure, Castor cake)

(8) What is intercropping?
   (Cultivation of 2 or 3 more crops simultaneously on the same land with definite pattern.)

(9) For what purpose trap crop are used?
   (Offering of host plant in the main crop to control the insect- pest on main crop)

(10) For what purpose Pheromone trap are used?
    (Pheromones are bio chemicals released usually by female insects- a mean of chemical communication to attract males for mating.)

(11) For which insect control, methyl eugenol trap is used?
(To control fruitfly.)

(12) What is benefit of lime?
   (Lime increases the soil pH and make soil active for the crop.)

(13) What is benefit of gypsum?
   (Addition of gypsum reclaims salt affected soil.)

(14) What is benefit of mulching?
   (The polythene mulching is reducing the weed problem in a field.)

(15) For what purpose zygograma is used?
   (To control parthenium weed.)

13. **Extension Contact:**

Please state from where you get the information about agricultural technology

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Sources</th>
<th>Participation</th>
<th></th>
<th></th>
<th>Never</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Formal Sources</strong></td>
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<td></td>
</tr>
<tr>
<td>i.</td>
<td>Subject Matter Specialist (SMS)</td>
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<tr>
<td>ii.</td>
<td>Agril. Extension Officer (T &amp; V)</td>
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<tr>
<td>iii.</td>
<td>Village Level Worker (T &amp; V)</td>
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<tr>
<td>iv.</td>
<td>Sardar Smruti Kendra</td>
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<td>v.</td>
<td>Service Co-op. Society</td>
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<td>vi.</td>
<td>Fertilizer Agency</td>
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<td>vii.</td>
<td>Krishi Vigyan Kendra (KVK)</td>
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<tr>
<td>viii.</td>
<td>University</td>
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<tr>
<td></td>
<td><strong>Informal Sources</strong></td>
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</tr>
<tr>
<td>i.</td>
<td>Friends</td>
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<tr>
<td>ii.</td>
<td>Relatives</td>
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<tr>
<td>iii.</td>
<td>Progressive Farmers</td>
<td></td>
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</table>

14. **Mass Media exposure:**

Please indicate the frequency of your use of following mass media ()

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<thead>
<tr>
<th>Sr. No.</th>
<th>Media</th>
<th>Exposure</th>
<th>Always</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Radio</td>
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<tr>
<td>2.</td>
<td>Television</td>
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<tr>
<td>3.</td>
<td>News Paper</td>
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</table>
**Part -II**

**FARMERS ATTITUDE TOWARDS ORGANIC FARMING PRACTICES IN MAIZE CROP**

<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>Organic farming is cheapest practices</td>
<td></td>
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</tr>
<tr>
<td>2.</td>
<td>Organic farming is easy practices</td>
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<tr>
<td>3.</td>
<td>To stop the use of chemical fertilizers is not easy for farmers.</td>
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<tr>
<td>4.</td>
<td>Adoption of organic farming results in decreasing crop yield.</td>
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</tr>
<tr>
<td>5.</td>
<td>Only big farmers adopt organic farming.</td>
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<td>7.</td>
<td>Organic farming is the only alternate to remove ill effects of chemicals.</td>
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<td>8.</td>
<td>Organic farming conserves the earthworms and soil microbes.</td>
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<td>9.</td>
<td>Application of crop residue into soil requires special equipment.</td>
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<td>10.</td>
<td>Bio-fertilizers are low capital investment source to boost up crop production.</td>
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<td>11.</td>
<td>Crop with high nutrient uptake cannot be grown in organic farming.</td>
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<td>13.</td>
<td>Organic farming is successful in fruit and vegetable crop.</td>
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### PART – III

**CONSTRAINTS FACED BY TRIBAL FARMER IN ORGANIC FARMING PRACTICES IN MAIZE CROP**

Which of the following constraints you are facing in Organic Farming Practices in Maize Crop?

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Constraints</th>
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<tbody>
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## PART – V

**SUGGESTIONS GIVEN BY FARMERS TO OVERCOME THE CONSTRAINTS IN ORGANIC FARMING PRACTICES IN MAIZE CROP**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Suggestions by maize growers</th>
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<td>9.</td>
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<td>10.</td>
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Fig: 2 Map of Gujarat state showing Vadodara District selected for the study
I. Chhotudaipur Taluka: (1) Achhala (2) Chokdi (3) Dharmaj (4) Jadiyana
II. Naswadi Taluka: (5) Bhaka (6) Pala (7) Ratanpur (8) Sengpur
III. Kavat Taluka: (9) Devad (10) Talav (11) Samalvant (12) Dhanpur

Fig: 3 Map of Vadodara District showing selected talukas and Villages
Fig. 4: Conceptual model showing no relationship between independent variables and dependent variable.
Fig. 21: Empirical model showing influence of independent variables on dependent variable.

SIGNIFICANT RELATIONSHIP
- Education
- Size of land holding
- Annual income
- Social participation
- Herd size
- Scientific orientation
- Risk orientation
- Market orientation
- Knowledge level
- Extension contact
- Mass media exposure

DEPENDENT VARIABLE

ATTITUDE OF TRIBAL FARMERS TOWARDS ORGANIC FARMING PRACTICES IN MAIZE CROP.

Cause  Effect
(Significant relationship)