KNOWLEDGE AND ADOPTION OF FARMERS ABOUT ORGANIC FARMING PRACTICES

THESIS

Submitted to
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola
in partial fulfilment of the requirements
for the Degree of

MASTER OF SCIENCE
IN
AGRICULTURE
(EXTENSION EDUCATION)

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DECLARATION OF STUDENT

I hereby declare that, the experimental work and its interpretation in the thesis entitled **"KNOWLEDGE AND ADOPTION OF FARMERS ABOUT ORGANIC FARMING PRACTICES"** or part thereof has neither been submitted for any other degree or diploma of any University, nor the data have been derived from any thesis or publication of any University or scientific organization. The sources of material used and all the assistance received during the course of investigation have been duly acknowledged.

Place: Akola **(Wankhade Jaya Vasant)**

Date: / /2020 Enrolment No. MM–2183

CERTIFICATE

This is to certify that, thesis entitled **"KNOWLEDGE AND ADOPTION OF FARMERS ABOUT ORGANIC FARMING PRACTICES"** submitted in partial fulfilment of the requirements for the degree of **"Master of Science in Agriculture (Extension Education)"** of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola is a record of bonafide research work carried out by **Wankhade Jaya Vasant** under my guidance and supervision.

The subject of the thesis has been approved by the Student's Advisory Committee.

Place: Akola
Date: / /2020

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THESIS APPROVED BY THE STUDENT'S ADVISORY COMMITTEE INCLUDING EXTERNAL EXAMINER (AFTER VIVA–VOCE)

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%	:	Per cent
/	:	Per
Agri.	:	Agriculture
Agril.	:	Agricultural
CAS	:	Career Advancement Scheme
COA	:	College of agriculture
et al.	:	et alia (and associates)
etc.	:	Etcetera
Extn. Educ.	:	Extension Education
Fig.	:	Figure
Govt.	:	Government
ha.	:	Hectares
http	:	Hyper Text Transfer Protocol
i.e.	:	That is
Int.	:	International
J.	:	Journal
kg	:	Kilogram
KVK	:	Krishi Vigyan Kendra
Ltd.	:	Limited
m	:	Million
MAU	:	Marathwada Agricultural University
MPKV	:	Mahatma Phule Krishi Vidyapeeth
M. Sc.	:	Master of Science

MSL	:	Mean Sea Level
Mt	:	Metric tonnes
PDKV	:	Dr. Panjabrao Deshmukh Krishi Vidyapeeth
Ph. D.	:	Doctor of Philosophy
Res.	:	Research
Rs.	:	Rupees
SD	:	Standard Deviation
Sq. km	:	Square kilometer
Std.	:	Standard
VNMKV	:	Vasantrao Naik Marathwada Krishi Vidyapeeth
Unpub.	:	Unpublished
U. P.	:	Uttar Pradesh
www	:	World Wide Web

E) THESIS ABSTRACT

a) Title of the Thesis	**:**	**KNOWLEDGE AND ADOPTION OF FARMERS ABOUT ORGAIC FARMING PRACTICES**
b) Full Name of Student	**:**	**Jaya Vasant Wankhade**
c) Name and Address of Major Advisor	**:**	**Dr. D. M. Mankar** Director of Extension Education, Dr, PDKV Akola,
d) Degree to be awarded	**:**	M. Sc. (Agri.)
e) Year of award of degree	**:**	2020
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j) Signature, Name and address of forwarding authority	**:**	

Head,
Department of Extension Education
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ABSTRACT

The present study "Knowledge and adoption of farmers about organic farming practices" was conducted in Akola taluka of Akola district. The study was planned to investigate knowledge and adoption of Soybean and cotton growers about recommended organic farming practices.

The exploratory design of social research was used for the present investigation. The data was collected from Akola, Panchayat Samiti of Akola district in Maharashtra State. From this Panchayat Samiti, 10

villages were selected on the basis of large area under soybean and cotton cultivation. The list of the farmers in the selected villages was prepared in consultation with Talathi and Sarpanch. From the list 10 farmers were selected purposively from each village. Thus, 100 farmers constituted the sample for the study. Data was collected by personally interviewing the respondents with help of pre-tested and structured schedule. The data collected were tabulated and the statistical tools namely mean, standard deviation and correlation analysis were employed for interpretation of the findings.

Majority of the organic soybean (62.00%) and half of the organic cotton (50.00%) cultivating respondents were in the middle age group of 36 to 50 years. Near about one third of the organic cotton cultivating respondents i.e. 34.00 and less than half i. e. 42.00 per cent of the organic soybean cultivating respondents were educated up to secondary school. Majority of the organic soybean (54.00%) and cotton (60.00%) cultivating respondents were belonged to medium level of family size having 4 to 6 members in their family. Near about half of the organic soybean (48.00%) and cotton (44.00%) cultivating respondents were having agriculture as their main occupation. Exactly half of the organic soybean that is 50.00 percent and more than one third of the organic cotton (38.00%) cultivating respondents were found to be in semi medium land holding category. More number of organic soybean i. e. 38.00 per cent and organic cotton i. e. 40.00 per cent of the respondents had annual income up to Rs. 1,22,0010/- and between Rs. 1,68,001/- to Rs. 3,36,000/- respectively. More than two third i.e. 68.00 per cent of the organic soybean and nearly three fourth i. e. 74.00 per cent of the organic cotton cultivating respondents were found to be in the medium level of the extension contact. More than two third of the organic soybean i.e. 68.00 per cent and 62.00 per cent of the organic cotton cultivating respondents were in the medium level of the social participation. 46.00 per cent of the organic soybean cultivating respondents received low level of training, While in case of organic cotton cultivating respondents near about half (48.00%) of the respondents were received medium training. Majority of the organic

soybean (46.00%) and organic cotton (44.00%) cultivating respondents had positive attitude towards organic farming. More than three fourth (76.00%) of the organic soybean and 60.00 per cent of organic cotton cultivating respondents were included in medium level of risk orientation.

In case of knowledge majority (60.00%) of organic soybean cultivating respondents had medium level of knowledge while 62.00 per cent of organic cotton cultivating respondents also had medium level of knowledge.

In case of adoption majority of organic soybean (62.00%) and more than two third (68.00%) of the organic cotton cultivating respondents had medium level of adoption of various organic farming practices.

When we consider knowledge, the findings of correlation analysis reveals that in case of organic soybean cultivating respondents education, land holding, annual income, extension contact, and training received were found to be positive and highly significant with knowledge at 0.01 level of probability. Whereas occupation and attitude were found to be positively significant at 0.05 level of probability, while age was negatively significant with knowledge at 0.05 level of probability. While, In case of organic cotton cultivating respondents land holding, extension contact, training received, attitude and risk orientation were found to be positive and highly significant at 0.01 level of probability. Whereas occupation, annual income, social participation were found to be positively significant at 0.05 level of probability.

When we consider adoption the finding of correlation analysis revealed that in case of organic soybean cultivating respondents education, annual income, training received were found to be positive and highly significant with adoption at 0.01 level of probability while occupation, land holding extension contacts, attitude and risk orientation were found to be positively significant with adoption at 0.05 level of probability. In case of organic cotton cultivating respondents, education, land holding, social participation, training received, attitude and risk orientation were found to be positive and highly significant with adoption at 0.01 level of probability.

Annual income, extension contact, were found to be positively significant with adoption at 0.05 level of probability.

The major constraints face by respondents were inadequate availability of organic inputs in time (80.00%) followed by 77.00 per cent respondents were expressed the problem of insufficient marketing channels for organic produce and 70.00 per cent respondents were facing problems of lack of quality training on organic farming. Also respondents facing problems like lack of control measures for pest and diseases (72.00%), insufficient premium price for organic produce (70.00%) respectively. Further, 65.00 per cent respondents facing problems of high risk and uncertainly, 62.00 per cent respondents expressed problem of lack of technical guidance on organic farming. Other problems like scarcity of irrigation water (60.00%), no labeling/ std for organic produce (56.00%) and inadequate transport facilities (55.00%) were faced by the respondents.

CHAPTER I

INTRODUCTION

Organic farming is an alternative agricultural system which originated early in the 20th century in reaction to rapidly changing farming practice. The organic farming concept as it is generally agreed to have been pioneered by sir Albert Haward as he is known as father of organic farming. Organic farming continues to be developed by various organic agriculture organizations today. Certified organic agriculture accounts for 70 million hectares globally, with over half of that of Australia.

It is defined by the use of fertilizers of organic origin such as compost, manure, green manure, and bone meal and places emphasis on techniques such as crop rotation and companion planting. Biological pest control, mixed cropping and the fostering of insect predators are encouraged. FAO define organic agriculture is unique production management system which promote and enhance agro-ecosystem health, including biodiversity, biological cycle and biological activities and this is accomplished by using on farm agronomic, biological and mechanical methods in exclusion of all synthetic off farm inputs. Organic agricultural methods are internationally regulated and legally enforced by many nations, based in large part on the standards set by the 'International Federation of Organic Agriculture Move- ments' (IFOAM), an international umbrella organization for organic farming organizations established in 1972.

India is home to 30 per cent of the total organic producers in the world, but accounts for just 2.59 per cent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares, according to the World of Organic Agriculture Report 2018. Among all states Madhya Pradesh has largest area under organic certification followed by Rajasthan and Uttar Pradesh. In terms of area Madhya Pradesh has highest area under organic farming (1.1 million ha or 52%) Maharashtra is second (0.96 million hector or 33.6%) Orissa rank third (0.67 million hector or 9.7%). The Indian state of Sikkim won the Future Policy Award, which this year

celebrated the world's best policies on agro ecology. In January 2016, Sikkim became India's first "100 per cent organic" state. Today, all farming in Sikkim is carried out without the use of synthetic fertilizers and pesticides, providing access to safer food choices and making agriculture a more environment-friendly activity.

Maharashtra has initiated their effort through department of agriculture, NGOs farmers group, progressive farmers and contribute the organic movement in Maharashtra. Total area under organic cultivation in Maharashtra is 6.50 lakh ha. and the area registered for certification is 1.14 lakh ha. In the state there are 17708 organic farming group growing crop like Jawar (1.12 lakh ha) Bajra (1.05 lakh ha) Soybean (0.87 lakh ha); Cotton (0.85 lakh ha), pulses (0.78 lakh ha); vegetable (0.72lakh ha) and 1.49 lakh ha area under horticultural crops. There are 1708 organic groups out of this 1660 group are certified. These group include 3,68,133 farmers constructed 1.51 lakh vermicompost unit and 3.52 lakh biodynamic compost unit. To promote the organic farming Government of Maharashtra declared the organic policy in the 2013-14. State has decided 10% cultivable area under organic farming and 25% area under usage of organic input in the next five years.

Akola district is selected for study considering the headquarter of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, is situated in the District. Dr PDKV Akola has started various activities to enhance the organic farming. Dr. PDKV Akola has designed a new curriculum in organic agriculture to provide new avenue in HRD for management sector and sustainable establishment of eco-friendly farming system. As per Organic Policy 2013 gov. of Maharashtra has decided to support and create a separate department of organic agriculture in each state agriculture university. Dr. PDKV has established the Center for Organic Agriculture Research and Training (COART) on dated 26 January 2015 under the department of Agronomy. Its mandates to investigate research, teaching and extension activities on organic agriculture through multidisciplinary approach and to enhance production, Profitability and quality assessment of bio inputs and organic products. Dr. PDKV has started a certificate

course on organic agriculture under COART. The course is started during 2010 having duration of 6 months under the guidance of Department of Agronomy. Experimental learning module is one of the another activity which provide an opportunity to under graduate agriculture students to work and get experience of management and sustainable establishment of eco-friendly farming system. The first batch was inaugurated on 26th January 2015 and completed successfully.

Organic farming is not only the soil-plant-environment interaction in holistic manner-it is also has food quality human health, animal welfare and socioeconomic aims. Organic farming contains human and environment friendly production systems that aim re-ordering previously destroyed ecological balance in nature as results of wrong production practices. Organic farming gradually gaining in popularity as a movement across the world. Growing awareness about environmental issues in agriculture has led to demand for production of organic food which is emerging as an attractive source of income generations. The aim of organic India is the mission to be achieved is only possible by providing knowledge and positivity to the farmers to change their attitude towards organic farming.

1.1. ADVANTAGES OF ORGANIC FARMING

- Farmers can reduce their production cost because they do not need to buy expensive chemicals and fertilizers.
- They improve plants growth and physiological activities of plants.
- In Long term organic farm save energy and protect the environment .
- It can slow down global warming.
- Pollution of ground water is stopped.
- Organic fertilizer is considered as complete plant food.
- Organic mature produce optimal conditions in soil for high yield and good quality crops.
- Improve soil health for long run.

1.2. DISADVANTAGES OF ORGANIC FARMING

- Production cost are higher because farmers need more worker. Marketing and distribution is not efficient because organic food is produce in smaller amount.
- Food illness may happen more often.
- Organic farming cannot produce enough food that words population need to survive. This could lead starvation in countries that produce enough food today.

1.3. Need of the study

The aim of organic farming are to protect- 1) environment by using organic management practices that do not have the adverse effect of conventional practices and 2) The health of consumer by provision of organic product.

The Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola has identified and suggested various organic farming practices in respect of improving soil fertility. In Vidarbha most of the farmers cultivate cotton and soybean crop. The use of organic farming practices helps to increases the productivity of crops. For increasing productivity mostly farmers use inorganic fertilizer but it affect the soil structure. The organic manure not just source of nutrients but they have dominant effect on soil physical properties resulting in better soil structure, better water retention in soil.

In present study it was assumed that adoption of organic farming practices is definitely low at farmers level. Hence for knowing the knowledge and adoption level of farmers about organic farming practices and constraints faced by farmers for adoption of organic practices this study was undertaken.

1.4 Objective of the study

1. To study the personal, socio-economics, communicational and psychological characteristics of farmers
2. To study the knowledge and adoption of farmers about organic farming practices

3. To study relationship between selected characteristics of respondents with their knowledge and adoption of organic farming practices
4. To identify the constraints faced by the farmers in adoption of organic farming practices

1.5. Hypothesis

Keeping the objectives of study in view, following research hypothesis will be framed on the different aspects of the study, while formulating the hypothesis, nature of relationship between the variables will be determined on the basis of review of literature. The hypothesis is set up and presented in null form (Ho) as follow: -

Ho: There is no significant relation between the selected personal, socio- economic, communicational, psychological characteristics of farmers with their knowledge and adoption about organic farming practices.

1.6. Scope and Importance of the study

Organic agriculture in India has its root in traditional practices that evolved in countless village and farming community over the millennium. The suitable management practices urgently needed to preserve the production potential of agricultural land. Efficient management and maintenance of soil health and quality is key to accomplished sustain high productivity. The organic management system is one of the option to improve in natural resources or degrade land.

The present study has been conducted in Akola Tahasil of Akola district of Vidarbha region. The finding of the present study were helpful to provide guideline for deciding ways and means to promote the use of organic farming practices suggested by university and also indicate about any refinement or modification in suggested practices. The finding of the present study would help to understand the level of knowledge and adoption of organic farming practices by cotton and soybean growers. The result of the study will definitely useful to extension workers, researchers, policy makers etc. for raising the adoption level of organic farming practices by farmers in study area

1.7. Limitations of the study

1. Since the study being conducted in the Akola district only, generalization of findings may be applicable to the area where social condition, are similar as that of area of the study.
2. Single student investigation has the inherent limitations of time and financial resources.
3. The sample is limited up to 100 due to time constraints.

CHAPTER II

REVIEW OF LITERATURE

Research is continuous process. It is always based on previous findings. Review of literature is essential before and even after actual start of research. It help the researcher to get acquainted with the subject matter specialist and get insight into the research problem. Through the process of review, the researcher become aware about various concepts, their definitions, procedure adopted for their quantification. Efforts have been made to review the research of various past research studies and literature having direct or indirect relation with the present study. The review of researchers have been presented in this chapter.

A. Independent variables

2.1. Personal, socio-economic, communicational and psychological characteristics of respondents

2.1.1. Age

Patil (2006) observed that more than one third of the respondents that is 39.33.00 per cent were between 36-50 years followed by age group of above 50 years (36.00%).

Kale et.al. found that 42.50 per cent of the respondents were belonged to middle age between 36-50 years, it was followed by 31.67 per cent respondents were old age i. e. above 50 years.

Kumar (2012) revealed that more than one third 36.00 per cent of respondents were belonging to the middle age group.

Pawar (2014) reported that exactly two third respondents i. e. 66.00 per cent belonged to middle age group, followed by 20.00 per cent respondents belongs to old age category and only (14.00%) respondents belongs to young age category. Thus, it can be concluded that majority of respondents belonged to middle age category.

Surve (2014) observed that relatively higher proportion i.e. 47.50 per cent of the respondents belonged to middle age that is between 36-50 years, over one third of the respondents i.e. 34.17 per cent were

belonged to age category ranging up 35 years, whereas nearly one third i.e. 28.33 per cent of the respondents found to be in old age category above 50 years.

Mankar et al. (2014-15) noted that i.e. 40.83 percent of respondents belonged to middle age category followed by 33.34 per cent and 25.83 per cent respondents who were found in old (above 50) and young (up to 30) categories respectively.

Anjali (2015) indicated that out of total organic farmers nearly two third i.e. 65.00 per cent were of middle age group, followed by young 18.33 per cent and old 16.60 per cent age group.

Barkade (2015) concluded that half of the respondents belonged to middle age category followed by 27.33 per cent who belonged to young age category that is up to 35 years and remaining one fourth i. e. 24.67 per cent of respondents were observed to be under old age category that is above 52 years.

Dr. Sakthi Devi (2017) presented that most of the respondents i. e. 61.00 per cent were under the age group between 31-40 years, majority of the respondents were married.

Korde (2017) found that 20.00 per cent of the respondents were belonged to young and 62.00 per cent respondents were belonged to middle age.

2.1.2. Education

Patil (2006) observed that nearly one third of respondents i. e. 32.67 per cent were educated up to college level followed by 28.67 per cent were up to primary school. It was interesting to note that only 0.66 per cent was illiterate.

Telgote (2009) revealed that 40.00 per cent of farmers using bio fertilizer were educated up to high school level followed by college level 23.57 per cent. The middle school level education was possessed by 21.4 per cent of the respondents. Primary school education was availed by 13.57 per cent respondents and only 1.44 per cent respondents were illiterate.

Borman (2011) indicated that 50.00 per cent of the respondents were educated up to primary school level, while one fourth i.e. 25.00 per cent of the respondents could write only.

Chandawat *et. al*. (2014) found that nearly one fifth i. e. 21.00 per cent of respondents were educated up to secondary level and 36.00 per cent were educated up to primary level whereas 4.00 per cent and 19.00 per cent of respondents were educated up to college and higher education level respectively and 20.00 per cent were illiterate.

Anjali (2015) showed that out of total organic farmers equal percentage of farmers that is 23.33 per cent were having education up to middle school and graduation followed by higher secondary 18.33 per cent and high school education,10.00 per cent of respondents had primary education and 8.33 per cent were illiterate

Patel (2015) reported that slightly less than half i.e. 48.33 per cent of organic farming followers had passed graduation and post graduation level of education followed by 15.84 per cent 13.33 per cent and 12.50 per cent of organic farming followers had high school, middle school and functionally literate level of education respectively. Only 5.84 per cent respondents were illiterate.

Dr.Sakthi Devi (2017) indicated that 48.00 per cent of organic farming respondents were having qualification is under graduate.

Patel et.al. (2017) observed that 32.00 per cent of farmers had secondary level of education, followed by primary level was 30.00 per cent, higher secondary level 9.00 per cent and college level 6.00 whereas, 23.00 per cent farmers were illiterate.

Sushmitha (2018) presented that 39.9 per cent of the respondents were educated up to matric and secondary, followed by 34.2 per cent were primary, 18.9 per cent were illiterate, 8.1 per cent were graduate and 2.9 per cent were post graduate respectively.

Surendra Kumar (2018) noted that 14.5 per cent of the respondents were illiterate further 53.63 per cent of the respondents were

literate (primary and middle school) and only 31.81 per cent of them were educated (high school, graduate and above).

2.1.3. Family size

Kulsthrestha et.al. (2010) found that majority of respondents had small size family up to 5 members.

Adescope et.al (2012) reported that 16.70 per cent had 1-5 members, 28.90 per cent of farmers had 6-10 members 33.30 per cent had 11-15 members and very few (1.10 %) had above 16 members.

Chopade (2013) indicated that 47.50 per cent of dry land farmers had medium size of family followed by 39.70 per cent who were belonged to small size of family and only 14.33 per cent had big size family.

Damor K. C. (2013) showed that more than one half i.e. 54.00 per cent of respondents were found in small size (up to 4 members) of family and rest 45.84 per cent respondents had large size of family (more than 4 members).

Virendra Kumar (2014) observed that more than two third of the respondents (67.00%) were from large family whereas, one third i.e. 33.00 per cent of them were from small family.

Pawar (2014) observed that majority (76.00%) of organic vegetable growers had small family size that is up to 4 members followed by medium (18.00%) and only 6.00 per cent of the respondents belonged to large family size.

Anjali (2015) revealed that out of total organic farmers 55.00 per cent had medium family size followed by large (23.33%) and small (21.67%) family.

Barkade (2015) observed that 58.00 per cent of the respondents belonged to medium size of family having 4-6 members, 19.33 per cent of the respondents had small size family 1-3 members. It was followed by 16.00 per and 6.66 per cent of the respondents who were under small family size 7-9 members and very large 10 and above

members respectively. It was concluded that over half of respondents 58.00 per cent had medium size of family with 4-6 family members

Dr. Sakthi Devi (2017) noticed that most of the organic farming respondent i. e. 42.00 per are having 4-5 members in family.

Patil (2019) the data revealed that nearly half i. e. 45.00 per cent of organic soybean growers possessed medium family size having 5-6 family members followed by small size up to 4 members and large family size above.

2.1.4. Occupation

Bolgamwar (2014) stated that more than half of orange growers i.e. 54.00 per cent respondents had their occupation only farming, followed by 22.00 per cent of respondents had their occupation farming and labour and 16.00 per cent of respondents had their occupation farming and other subsidiary business and only 8.00 per cent of farmers had their occupation farming and services. In case of soybean growers majority 54.00 per cent had their occupation only farming followed by 28.00 per cent of the respondents had their occupation farming and labor.

Patel (2015) observed that 44.16 per cent of organic farming followers had farming as their main occupation whereas, 28.33 per cent, 21.67 per cent, 5.84 per cent of the respondents had farming with animal husbandry, farming + animal husbandry with business and farming, business as their main occupation respectively.

Kadu (2016) showed in her study that maximum number of the respondents i.e. 59.00 per cent were engaged in agriculture and business. Agriculture and allied occupation and agriculture and services were occupation of 9.00 per cent and 8.00 per cent of respondents respectively.

More (2016) indicated that majority (72.00%) of the banana growers had agriculture as their main occupation followed by 11.00 per cent of banana growers were having agriculture + business and only 8.00 per cent banana growers who had agriculture with ailed occupation as their main occupation. The banana growers were having occupation

agriculture + labor and agriculture + service were 5.00 per cent and 4.00 per cent respectively.

Bhaltilak (2017) concluded that nearly two fourth of the cotton growers i.e. 64.00 per cent had agriculture as their main occupation, it was followed by 15.00 per cent cotton growers having agriculture and labor whereas 13.00 per cent cotton growers having agriculture+ business as main occupation and only 3.00 per cent cotton growers had agriculture + service as their main occupation.

Sushmitha (2018) reported that more than half of the respondents i.e. 51.00 per cent had farming as their main occupation, followed by service (9.6%) and agricultural labor (3.7%) and business (2.5%).

2.1.5. Land holding

Shinde (2006) revealed that 45.00 per cent of the respondents were found in medium category, 35.00 per cent and 13.12 per cent of the respondents were belonged to semi medium and small categories of land holding respectively, while 3.75 per cent belonged to marginal category and only 2.50 per cent were belonged to large category of land holding.

Didake (2007) observed that more than three fourth i.e. 78.00 per cent of the respondents were belonged to medium land holding category of 4-8 ha.

Badodiya et.al. (2009) in their study entitled “Management of eco-friendly practices by winter vegetable growers” revealed that most of the respondents belonged to medium land holding.

Borhade (2011) indicated that more than one third respondents i. e. 36.67 per cent belonged to the medium land holding category ranging from 4-10 ha. It was followed by 22.66 per cent of respondent belonged to category of semi medium possessing land from 2-4 ha. Nearly one fifth (20.67%) of the respondents were large land holders who possessed more than 10 ha.

Neware (2011) observed that maximum percentage of the farmers i.e. 46.00 per cent belonged to category of semi medium land holding (2-4 ha.) followed by about one fourth of farmers 20.00 per cent who were possessing land between (4.01-10 ha.).

Gade (2012) found that more than one third of respondents (35.00%) belonged to semi medium land holding (2-4 ha.) followed by one fourth respondents (25.00%) possessed small land holding (1-2 ha.).

Mohite (2013) noticed that maximum no. of the respondents were belonged to semi medium category of land holding ranging from 2-4 ha. It was followed by 20.56 per cent belonging to the small land holdings possessing land from 1-2 ha. 17.22 per cent of the respondents were medium to large land holding having land more than 10 ha.

Dahore and choudhary (2014) observed that farmers of small land holding category had sufficient knowledge regarding twenty organic farmng practices.

Pawar (2014) stated that around 46.00 per cent of the respondents were noticed in semi medium land holding category followed by large/big farmers (14.00%), small (12.00%) and medium (24.00%) and lastly least 4.00 per cent belonged to marginal category.

Dhayal and Mehta (2015) in his study observed that the majority of farmers were having more than 2.00 ha land followed by small farmers and marginal farmers in the study sample.

2.1.6. Annual income

Ghopane (2008) reported that 46.66 per cent of the respondents were having low medium annual income whereas, 22.00 per cent respondents were having high annual income.

Bhosale (2014) observed that majority (53.00%) of the respondents had medium annual income followed by over one fifth of respondents 23.00 per cent had medium to high annual income whereas 12.00 per cent and 7.00 per cent of respondents had low medium and low annual income respectively. The minimum percent of respondents had high level of annual income.

Surve (2014) indicated that 38.33 per cent of the respondents had medium to high annual income between RS. 1,50,000/- to Rs. 2,00,000/- followed by 36.67 per cent of respondents had high annual income above Rs. 2,00,000/- whereas 12.50 per cent and 10 per cent of respondents had medium and low medium annual income respectively. Up to 50.00 per cent of respondents had low level of annual income.

Virendrakumar (2014) reported that 56.00 per cent of respondents earning annual income Rs. 100000/- followed by 25.00 per cent and 19.00 per cent of them who were having annual income Rs. 100000/- to Rs. 200000/- and above Rs. 200000/- respectively.

Anjali (2015) revealed that out of total organic farmers 90.00 per cent were having medium level of annual income followed by 8.33 per cent were in low income category. Only 1.7 per cent of organic farmers belonged to high income group.

Patel et.al (2017) concluded that 69.00 per cent of farmers fall in medium category of annual income followed by 27.00 per cent in low and only 4.00 per cent in high income category.

Tayade (2017) found that less than half of the respondents had annual income above Rs. 2,00,000/-.

Bhagat (2015) showed in his study that one third of Brinjal vegetable growers i.e. 33.24 per cent had high annual income followed by 28.33 per cent and 25.00 per cent Brinjal growers had low medium and medium annual income respectively. Whereas, in case of tomato growers high proportion of respondents 45.00 per cent had low annual income followed by 21.66 per cent and 18.34 per cent of respondents had medium and high annual income respectively. Less than one tenth i. e. 8.33 per cent and 6.67 per cent tomato growers had low and medium high annual income, respectively.

2.1.7. Extension Contact

Daware (2007) reported that 43.33 percent of the respondents were included medium category of extension contacts, as much as 40.00 per cent of the respondents were having low level of

extension contact. A small percentage of the respondent (16.67%) were found to be keeping higher level of contact with various extension worker for acquisition of information about organic farming.

Telgote (2009) observed that nearly two third (65.00%) of the respondents were included in medium category of extension contact. Whereas, one fourth (25.72%) percentage of the respondents had observed under low level of extension contact. A little percentage of farmers (9.28) were found to be keeping higher level of contact with various extension workers.

Mankar et. al. (2013) found that one fifth of the respondent beneficiaries i.e. 20.83 per cent took complete benefit of vermicompost unit, followed by 18.33 per respondent beneficiaries had availed complete benefits.

Mohite (2013) concluded that maximum 50.56 per of farmers were having medium level of extension contacts with extension personnel for obtaining the information about use of biofertilizer for soybean crop.

Thorat (2013) noticed that majority (59.00%) of the respondents had medium extension contact, 22.00 per cent were having high extension contact while 19.00 per cent having low extension contact.

Deogirikar (2014) indicated that majority of respondents 71.66 per had medium category of extension contact followed by 16.67 per respondents had low category of extension contact, only 11.67 per respondents had high category of extension contact.

Pawar (2014) stated that more than half of respondents i. e. 60.00 per cent regularly use to contact the Agril. Assistants working at village level. The majority (75.00%) of respondents had also contacted with Gramsevak, Mandal officer of Panchayat Samiti (44.00%), Taluka Agriculture Officer (37.00%). It was also noted that farmers contacted agriculture university scientist were 55.00 per cent and near about all farmers were contacted neighbours and Krishi Seva Kendra for information and advice about recommended packages of organic vegetables.

Virendrakumar (2014) reported that 59.00 per cent of the respondent had medium level of extension contact with different extension agencies followed by 23.50 per cent and 17.50 per cent who had low and high extension contact respectively.

Patale (2017) observed that the majority (86.67%) of the respondents kept low extension contact with extension agencies for seeking information followed by 13.33 per cent of respondents having medium extension contacts with extension agencies.

Pathak observed that more tha half i. e. 58.33 per cent of respondents had medium level of extension contact, while 28.34 per cent respondents have low level of extension contact and 13.7 per cent of them have high extension contact.

2.1.8. Social participation .

Raut (2007) observed that the respondents in large numbers were with low level of social participation regarding their adoption of organic practices.

Jalit (2012) concluded that nearly equal proportion of respondents 44.00 per cent and 43.00 per cent of the respondents had medium and low social participation in different formal and informal organization. Whereas, only 13.00 per cent oif the respondents had high participation in social organization.

Damor K. C. (2013) found that less than half 44.16 per cent of respondents had membership in one organization followed by 27.55 per cent of the respondents with membership in more than one organization and 10.84 per cent had no membership in any organization only 17.50 per cent respondents were holding executive position in organization.

Thakre (2013) noted that most of the respondents i.e. 63.33 per cent were belonged to medium level of social participation followed by 32.50 per cent of the respondents belonged to high level of social participation, whereas, only 4.17 per cent of the respondents were belonged to low level of social participation.

Dhenge (2013) observed that nearly half (52.5%) of the respondents had medium level of social participation, one fourth 25.00 per cent of the respondents had high level of social participation whereas, 22.50 per cent respondents were having low level of social participation.

Deogirikar (2014) found that more than one third (42.50%) of the respondents had low participation in any social organization followed by 37.50 per respondents were the members of informal organization like SHG, farmers club etc. 10.00 per cent of respondents were the members of formal organization like Grampanchayat, Panchayt Samiti etc. followed by 6.67 per cent were the office bearers of informal organization, only 3.33 per were formal organization.

2.1.9. Training received

Didake (2007) stated that good numbers that is nearly two third (63.00%) of the respondents had received some training on farming technology.

Raut (2007) observed that 36.80 per cent of people received training, most of the people (63.20%) people did not received any formal or informal training in farm technology.

Bolgamwar (2014) concluded that majority 86.00 per cent of orange growers were received medium level of training followed by 14.00 per cent were received high level of training. In case of cotton growers nearly two third (62.00%) of respondents were received medium level of training, followed by 38.00 per cent received high level of training. In case of soybean growers majority (88.00%) of respondents were received medium level of training and 12.00 per cent had received high level of training.

Pimpalkar (2015) indicated that nearly two third of respondents i. e. 64.00 per cent of the vegetable growers had received medium number of training (2-3), while nearly one third i. e. 60.00 per cent of the vegetable growers had received low level of training (up to 3)

whereas. 6.00 per cent of respondents had received high level of training (above 3).

Bhaltilak (2017) observed that majority of cotton growers not received any training and less than one tenth i. e. 7.00 per cent of cotton growers received medium duration training that is up to 2-3 days, followed by only 3.00 per cent of cotton growers received training up to one day.

Kad (2017) stated that more than three fourth of the respondents 78.33 per cent had not received any training related to biofetilizer followed by 15.83 per cent respondents have low level of training received whereas, only 0.83 per cent of respondents have medium level of training received and no respondent received high level of training.

Konde (2017) observed that almost all respondents 95.00 per cent had not received any training regarding soil reclamation followed by only 4.16 per cent of respondents had low training received and only (0.83%) had received high training.

Patil (2019) indicated that two third of the soybean growers 65.50 per cent had received medium duration training 8-10 days followed by 18.50 per cent, 13.50 per cent and 2.50 per cent of them received short duration training, long duration training and no training respectively.

2.1.10 Attitude

Ghopane (2008) observed that near about half of the respondents that is 49.33 per cent had medium level of attitude of organic farming. This is followed by low level category which comprised of 15.33 per cent of respondents had highly positive attitude and 35.3 percent respondents had high attitude.

Prabhakar et al. (2011) found that majority of farmers were having most favorable attitude towards rapeseed and mustard production technology as compare to non demonstrating farmers who possessed favorable attitude.

Chohan (2013) stated that majority of farmers were found to medium attitude towards improved production technology group followed by low and high attitude towards improved production technology group

Dr. James mohan (2014) noted that majority i. e. 86.69 percent of the organic farmers had favorable attitude towards organic farming followed by more favorable 10.00 per cent and less favorable 3.33 per cent attitude.

Rawat (2014) revealed that nearly three fourth 70.00 per cent of respondents had moderately favorable attitude towards organic farming and more than one fourth 30.00 per cent of the respondents had highly favorable attitude towards organic farming.

Kumar (2016) indicated that more than half of soybean growers 58.00 per cent were having moderately favorable attitude followed by 21.33 per cent were having highly favorable and latter 20.67 per cent were having low favorable attitude.

Singh et al. (2016) found more than half 55.83 per cent of respondents had somewhat favorable attitude towards raised bed sowing system of pigeon pea while less than one fourth 25.00 per cent of respondents had favorable level of attitude rest of them have 19.16 per cent had unfavorable attitude towards raised bed sowing system of pigeon pea respectively.

Kalita R.R . et. al. (2017) presented that nearly three fourth i. e. 74.17 per cent of respondents had most favorable attitude and only 12.50 per cent had unfavorable attitude towards vermicompost technology.

Surendra Kumar (2018) observed that nearly two third of respondents i. e. 61.71 per cent were found to have favorable attitude towards recommended soybean cultivation practices whereas, 11.57 per cent and 26.66 per cent of the farmers were having most favorable and least favorable attitude respectively.

2.1.11 Risk orientation

Bedre (2009) observed that most of the respondents had medium (55.00%) risk orientation and 25.84 per cent of the respondents had high risk orientation while 19.16 per cent of them in low risk orientation category.

Mallikarjun et. al. (2010) carried the study on" Entrepreneur Characteristics of vegetable growers" and observed that high risk orientation was noticed among 45.00 per cent of respondents and they adopted innovation more quickly than respondents had medium 27.86 per and low 27.14 per risk orientation.

Chopade (2013) stated that 40.00 per cent have medium and 34.17 per had low level of risk orientation, about 19.16 per and 6.67 per of them had moderate and high level of risk orientation respectively.

Pawar (2014) indicated that more than half of the respondents 56 per cent belonged to medium risk orientation followed by low risk orientation (25.00%) followed by 19 per cent of the respondents had high risk orientation.

Chohan M.R. (2016) showed that 65.00 percent of respondents belonged to medium level of risk orientation followed by 23.33 per of respondents who had occupied in low level of risk orientation. The least respondents 11.67 per were belonged to low level of risk orientation.

Kadu (2016) concluded that nearly three fourth i. e. 72.00 per cent of respondents were having medium level of risk orientation, while 16 per cent who were under low category of risk orientation whereas, 12 per cent respondents were under high category.

Korde (2017) found that about 71.67 per cent of the respondents had medium level of risk orientation followed by high i.e. 17.50 per cent and low i.e. 10.85 per cent level of risk orientation.

Reddy (2017) revealed that 54.00 per cent of the respondents had medium level of risk orientation, whereas 24 per cent of respondents had low level of risk orientation followed by 22 per cent of respondents were having high level of risk orientation.

Patil (2019) observed that exactly three fourth 75.00 per cent of organic soybean growers had medium level of risk orientation followed by 17.00 per cent and 8.00 per cent organic soybean growers had low and high level of risk orientation.

2.2. Dependent variables

2.2.1. Knowledge

Kadam (2003) found that more than one half i. e. 56.67 per cent of the respondents had medium level of knowledge. While 18.00 per cent and 25.33 per cent of the respondents belonged to high and low knowledge level respectively.

Gawande (2008) revealed that comparatively large number of the respondents i.e. 78.00 per cent were in middle category in respect of knowledge about vermicompost technology among farmers. This is followed by low category, which comprises of 20.00 per cent of the respondents, while only two per cent of respondents were found in high degree of knowledge about vermicompost technology.

Dinesh N. et. al. (2010) found that nearly two third of cotton growers i. e. 65.83 per cent had medium level of knowledge about organic farming practices in organic cotton production, followed by 18.34 per cent had high level of knowledge and low level of knowledge (15.63%).

Mohite (2013) stated that half of the respondents i. e. 24.44 per cent possessed medium level of knowledge followed by 22.00 per cent of the respondents were having low level of knowledge and remaining 20.00 per cent of respondents had high level of knowledge about bio-fertilizer.

P. Prashanth et.al. (2013) observed that three fourth i.e. 75.00 per cent of organic cotton growers had high level of knowledge followed by medium 15.00 per cent and low 10.00 per cent.

Pimpalkar (2014) indicated that more than half of respondents 52.00 per cent had medium level of knowledge and over one third of respondents 38.00 per cent had high level of knowledge about organic farming practices, only 10.00 per cent of the respondents had low level of knowledge.

Surve (2014) revealed that hundred per cent of respondents had knowledge about land preparation that is ploughing /harrowing, followed by great majority of respondents i. e. 87.50 per cent were aware

about sowing time, the equal percentage of respondents 76.67 per cent had knowledge about type of soil require and irrigation application at critical stage.

Hingane (2016) noted that 79.00 per cent of respondents had possessed medium level of knowledge followed by 12.00 per cent had high level of knowledge and 9.00 per cent had low level of knowledge about recommended practices of soybean.

Damor K. C. (2017) observed that less than one half 44.16 per cent of the respondents had high level of knowledge regarding organic farming while, 33.33 per cent of respondents had very high level of knowledge, whereas, 12.50 per cent, 8.34 per cent and 1.67 per cent of respondents had medium low and very low knowledge regarding organic farming.

2.2.2 Adoption

Talape et. al. (2011) found that more than half of the respondents 58.00 per cent had high medium level of adoption of bio fertilizer.

Neware (2011) indicated that nearly one third i.e. 32.00 per cent of the respondents used the rhizobium for inoculation to different pulse crop.

Kumar (2012) revealed that nearly two third i.e. 62.62 per cent of the farmers were included under medium category of adoption of recommended technologies followed by farmers 20.00 per cent were belonged to high category of adoption, while only 17.33 per cent of farmers had low level of adoption.

Khare (2013) observed that more than two third of the respondents 68.38 per cent had medium level of adoption. The 17.50 per cent of respondents had high level of adoption whereas, 14.17 per cent of the respondents were having low level of adoption.

Pimpalkar (2014) stated that in case of organic farming practices slightly less than two third i. e. 62.00 per cent of respondents comparatively adopting of soil related three practices like improved soil fertility by adding FYM/vermicompost, weed management 60.00 per cent

and use of biomass 59.00 per whereas over one third (35.00%) of respondents were use soil mulching practices.

Motiwale (2017) presented that more than half of the respondents 55.56 per cent had medium adoption level of organic farming practices, 32.22 per cent had low and 12.22 per cent had high level of adoption level.

Pavan kumar et. al.(2017) found majority i.e 70.00 per cent of the farmers had medium level of adoption followed by low 18.00 per cent and high (12.00%) level of adoption.

Mahant et.al. (2018) concluded that in case of adoption per cent beneficiary farmers had adopted FYM, Vermicompost. Whereas, in case of FYM 92.00 per cent this was followed by green manure 88.00 per cent NADEP compost 85.00 per cent for beneficiary and vermiwash 6.00 per cent were least adopted.

2.3. Constraints faced by farmers

Deshmukh (2006) noticed that majority of the respondents faced problems like lack of scientific knowledge about plant protection measures (62.50%), seed material is costly (54.16%), non availability of labours at the time of harvesting (50.00%), lack of knowledge about seed treatment (22.50%) and FYM is costly (42.50%).

Borhade (2011) presented than more than half i.e. 56.66 per cent of the respondents faced problem of lack of knowledge about recommended quantity of FYM during adoption of organic manure practices. Many other problems faced by farmers include inadequate source of finance (50.00%), inadequate and timely availability of FYM (40.00%), high cost of bullock pair (46.67%).

Wankhade *et al.* (2013) revealed that, hundred per cent vegetable growers expressed the major constraints such as price fluctuation in the market and no provision of insurance/risk coverage to the vegetable crops. The major constraints expressed by vegetable growers were: exploitation by middleman (85.00%), non availability of labour at the time of harvesting of vegetable crops (77.00%), high input cost (71.00%), and inadequate extension services (67.00%), Insufficient electricity

(63.00%), reducing water table (53.00%) and non-availability of quality planting (seedling) material (50.00%). In addition to this, other constraints were lack of technical knowledge (43.00%), lack of vegetable grower's cooperatives (41.00%), insufficient and untimely credit facility (37.00%), lack of transport facility (33.00%) and lack of cold storage and processing facility (30.00%).

Bansilal (2015) majority of respondents expressed the constraints like shortage of labours (85.83%), high cost of inputs (64.17%), financial constraints (55.83%), non- availability of FYM (52.50%), lack of knowledge about pest management (51.67%), fluctuations in market price (48.33%),lack of knowledge about disease management 947.50%), heavy risk due to failure of monsoon rains (40.00%) and high wage of labours (35.83%).

2.4. Conceptual model of study

A conceptual model is a framework that is initially used in research to outline the possible courses of action or to present an idea or thought. When a conceptual model is developed in logical manner, it will provide a rigor to the research process. Based on the forgoing review of the past research studies, a conceptual model has developed for the present study and same has been depicted in fig.1

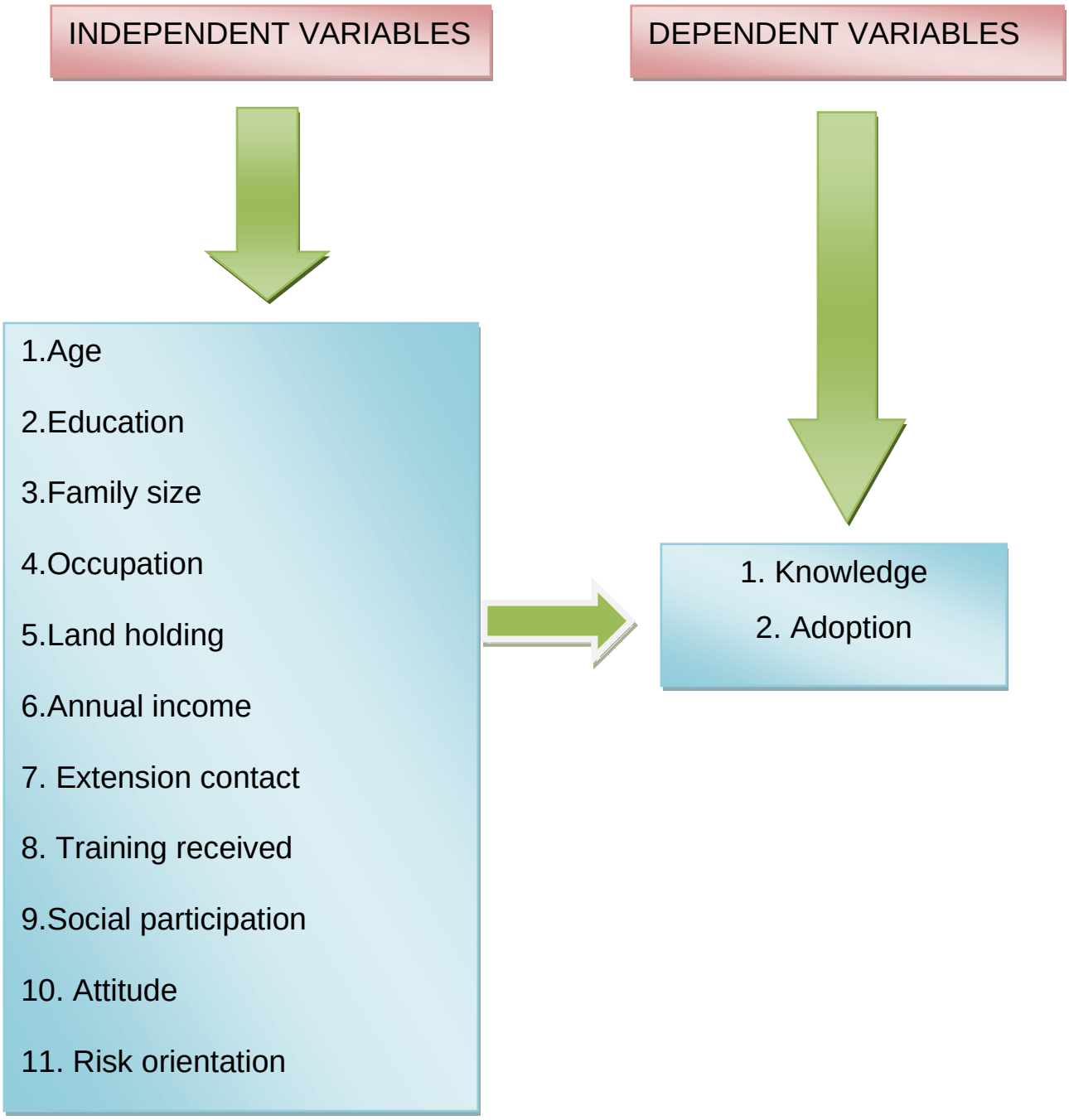


Fig. 1. Conceptual model of the study

CHAPTER III

METHODOLOGY

Research methodology is the specific procedure or techniques used to analyze information about topic. The researcher is expected to develop and use his/her own techniques to fulfill the demands of his research. For the present study detailed methodology was developed for studying various aspects inline of the specific objectives and has been explained in this chapter. The various aspects included in this chapter have been described with relevant details under following heads.

3.1 Locale of the study

3.2 Research design

3.3 Sample and sampling plan

3.4 Preparation of interview schedule

3.5 Pre-testing of interview schedule

3.6 Collection of data

3.7 Variables and their measurement

3.8 Operationalization, scoring and categorization of the variables

3.9 Constraints

3.10. Statistical methods used for analysis of data

3.1. Locale of the study

The study was conducted in Akola district of Vidarbha region of Maharashtra state as shown in Fig.2. The above district was selected purposively on the basis of major area under organic farming.

This research was conducted on major kharif crop namely, soybean and cotton.

3.2. Research design

The emphasis on the study was given on assessing knowledge, adoption and constraints faced by farmers in adoption of

recommended practices of organic farming. An exploratory research design of social research was used for the present investigation.

3.3. Method of sampling

3.3.1. Selection of talukas

Akola taluka was selected from the Akola district where adoption of organic farming was more by the farmers due to provision of training facilities to the farmers through Organic Farming Training Center, Dr. PDKV Akola.

3.3.2. Selection of villages

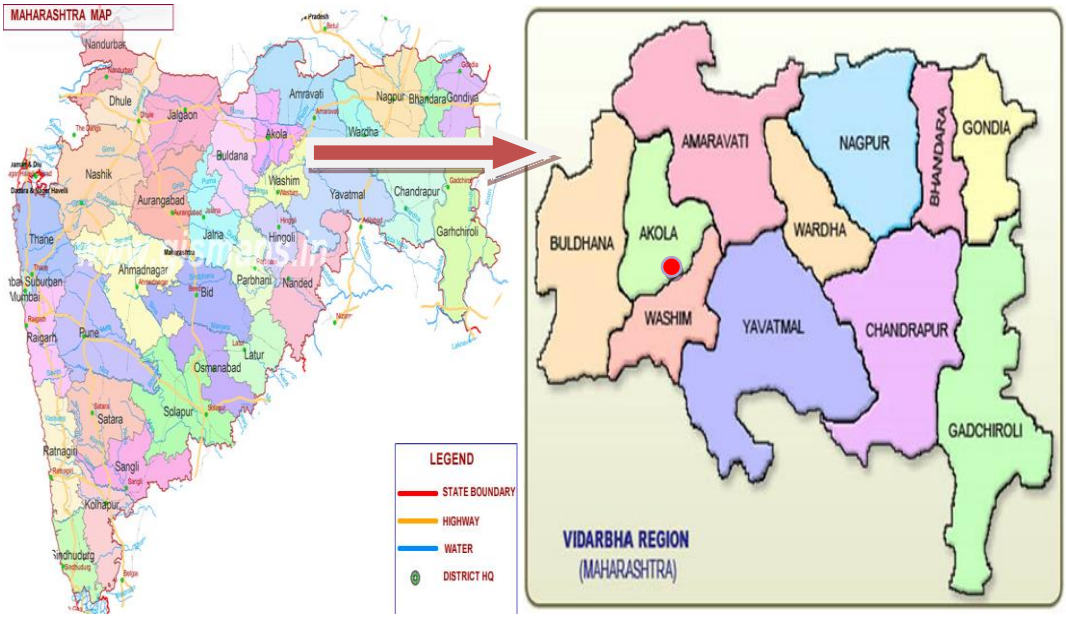
Ten villages was selected randomly from the selected taluka on the basis of maximum area under organic farming. Out of ten villages 5 villages were soybean cultivating and five were cotton cultivating villages.

Table 1. List of villages and number of respondents cultivating soybean in their field

Sl. No.	Name of the villages cultivating soybean	Number of Respondents
1.	Masa	10
2.	Shivapur	10
3.	Ramgaon	10
4.	Bahirkhed	10
5.	Khadka	10

Table 2. List of villages and number of respondents cultivating cotton in their field

Sl. No.	Name of the villages cultivating cotton	Number of Respondents
1.	Akhatwada	10
2.	Kapileshwar	10
3.	Palso badhe	10
4.	Chandur	10
5.	Mhaispur	10



Selected Distrcit

Fig.2: Map of Maharashtra indicating Vidarbha with selected Akola district

Selected talukas

Fig 3: Maps showing the selected talukas of Akola district

3.3.3. Selection of respondents

The list of respondents was obtained from ATMA office, Akola. Thus, from selected taluka and selected ten village, 100 respondents were selected out of 100 respondents 50 respondents were cotton cultivating and 50 were soybean cultivating i. e. ten respondents from each village were selected randomly and they were considered as sample respondents in the present study.

3.4 Tools for data collection

The basic instrument use for study was interview schedule. The data was collected by personal interview, so as to get valid and complete responses. Keeping the objectives of the study in view an interview schedule was developed, and personally administered**.**

3.5 Preparation of interview schedule

A structured interview schedule consisting relevant questions which were related with the objectives of the study was prepared. Necessary precautions were taken to keep the language simple so as to get desired responses from respondents. The interview schedule contained questions related to personal, socio-economic, communicational and psychological characteristics of the respondents having organic farming in Part-I. The questions about knowledge and adoption of farmers about organic farming practices were included in Part-II. The suggestions were collected through administering open end question.

3.6 Pre-testing of interview schedule

The pre-testing of interview schedule is necessary on the part of researcher. It help in ascertaining the appropriateness of the questions and their language. The interview schedule so developed was pre-tested for its accuracy, simplicity and practicability with a group of farmers in non-selected villages, considering the experience of pre-testing related questions were put together to have consistency in response. The interview schedule was finalized and 100 copies were used for data collection from the respondent.

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Plate 1. Investigator collecting the data from the respondent at his home in Masa village of Akola taluka

Plate 2. Investigator collecting the data from the respondent on his farm in Shiwapur village of Akola taluka

3.6 Collection of data

The data were collected in a face to face situation by contacting personally to the selected farmers. The farmers were contacted at their farms, homes as per their convenience. For easy and quick approach to farmers, the help of Sarpanch, Gramsevak, Police patil was sought. Before actual seeking of information, farmers were introduced with the objective of the study.

3.7 Variables and their measurement

For the present study two sets of variables, namely, independent and dependent variables were selected. The independent variables included were personal, socio-economic, communicational and psychological characteristics. The dependent variable were knowledge and adoption of organic farming practices. The details about the independent and dependent variables and their empirical measures are shown in Table 3.

Table 3. Variables and their measurements

Sl. No	Variables	Empirical measures
A.	**Independent variables**	
1.	Age	Chronological age of the respondents in completed years at the time of data collection.
2.	Education	The number years of formal schooling passed by an individual respondent was used as score.
3.	Family size	Total numbers of members in respondent's family living together under common roof.
4.	Occupation	Agriculture and other subsidiary occupations were considered and given scores accordingly.
5.	Land holding	A numerical score of one was assigned for each hectare of land possessed by farmers engaged in organic farming.
6.	Annual income	The total income of the respondent and his family members received in rupees from all the sources in a year was considered as score.

7.	Extension contact	Extension contact refers to the contact made by the respondents with Extension workers and other agencies for seeking information regarding improved organic farming practices
8.	Social participation	Participation of farmers in formal and informal organization in village or elsewhere.
9.	Training received	It is operationally define as number of training received by respondents doing organic farming in agriculture related field.
10.	Risk orientation	It was measured with the help of scale developed by Supe (1969).
11.	Attitude	Opinion of respondents about organic farming.
B.	**Dependent variable**	
1.	Knowledge	A teacher made knowledge test was used to measure the knowledge of the respondents. It refers to awareness and understood information. Possessed by respondents about organic farming
2.	Adoption	The degree of actual use of the organic farming practices by individual respondents. A teacher made adoption test was used to measure the adoption of the respondents. The response of the respondents was elicited on three point continuum i.e. complete adoption, partial adoption and non adoption with a score of 2, 1 and 0, respectively.

3.8 Operationalization, scoring and categorization of the variables

The operational definition, scoring pattern and categorization of independent and dependent variables have been delineated as under.

3.8.1 Independent variables.

3.8.1.1 Age

Age is operationally defined as a chronological age of selected individual respondent expressed in completed years, at the time of interview.

Sl. No.	Category	Age (Years)
1.	Young	Up to 35
2.	Middle	36 to 50
3.	Old	Above 50

3.8.1.2. Education

Education refers to the actual standard of formal schooling passed by an individual respondent.

Sl. No.	Category	Standard of education
1.	Illiterate	No schooling
2.	Primary school	1^{st} to 4^{th}
3.	Middle school	5^{th} to 7^{th}
4.	Secondary school	8^{th} to10^{th}
5.	Higher Secondary school/Junior College	11^{th} to 12^{th}
6.	College and above	Above 12^{th}

(As per Govt. of Maharashtra)

3.8.1.3. Family size

It is operationally defined as the total number of person living together in a family. On the basis of members respondents will be categorized as below :

Sl. No.	Category	Range
1.	Small	Up to 4 members
2.	Medium	5-6
3.	Large	Above 6

3.8.1.4. Occupation

Occupation is operationally defined as profession of the respondents for their livelihood. It includes main as well as subsidiary occupation.

Sl. No.	Occupation	Score
1.	Agriculture + labour	1
2.	Agriculture	2
3.	Agriculture + allied occupation	3
4.	Agriculture + business	4
5.	Agriculture + services	5

(As per Govt. of Maharashtra)

3.8.1.5. Land holding

Land holding is operationally defined as the actual number of hectare of land possessed by an individual respondent. The respondents will be categorized on the basis of norms given by Maharashtra State Government as given below :

Sl. No.	Category	Land holding (ha.)
1.	Marginal	Up to 1.00
2.	Small	1.01 – 2.00
3.	Semi – medium	2.01 – 4.00
4.	Medium	4.01 – 10.00
5.	Large	Above 10.00

(As per Govt. of Maharashtra)

3.8.1.6. Annual income

It refers to the gross income of all the family members of the respondents from all sources in rupees per annum. Annual income was categorized on the basis of equal interval method.

Sl No	Category	Range for soybean cultivating respondents	Range for cotton cultivating respondent
1.	Very low	Up to Rs. 1,22,000/-	Up to Rs. 1,68,000/-
2.	Low	Rs. 1,22,001/- to Rs.2,44,000/-	Rs. 1,68,001/- to Rs 3,36,000/-
3.	Medium	Rs. 2,44,001/- to Rs. 3,66,000/-	Rs. 3,36,001/- to Rs. 5,04,000/-
4.	High	Rs. 3,66,001/- to Rs. 4,88,000/-	Rs. 5,04,001/- to Rs. 6,72,000/-
5.	Very high	Above Rs. 4,88,000/-	Above Rs. 6,72,000/-

3.8.1.7. Extension contact

It was operationally defined as the various extension contact made by respondents with formal and informal extension agencies for seeking information regarding organic farming practices. Scoring was done on the basis of frequency of contact. The score for different frequencies of contact was assign as 2 for always, 1 for sometime and 0 for never. The score was summed up to obtain the total extension contact score of respondents. On the basis of mean and SD the respondents were categorized as

Sl. No.	Category	Range
1.	Low	
2.	Medium	
3.	High	

Soybean farmers Mean = 18.66 SD = 3.36

Cotton farmers Mean = 17.92 SD = 3.37

3.8.1.8. Social participation

Social participation is defined as respondent's involvement in the activities of formal or informal organization as member or office bearer.

A numerical score of 1 was assigned for the membership in informal organization, where as a score of 2 was assigned for the office beater in informal organization. Similarly, a score of 3 assigned for the membership in formal organization, where as score of 4 was assigned for the office bearer in formal organization. On the basis of mean and standard deviation the farmers were categorized as follows.

Sl. No.	**Category**	**Range**
1.	Low	
2.	Medium	
3.	High	

Soybean farmers Mean = 14.38 SD = 5.63

Cotton farmers Mean = 12.32 SD = 4.51

3.8.1 .9. Training received

It is operationally define as to educate person so as to be fitted, qualified and made proficient in doing his job. One score will be given to one training program attendant.

Respondents will be categorized on the basis of training received by them.

Sl. No.	Category	Score
1.	No training received	0
2.	Low training level	Up to 2
3.	Medium training level	3-5
4.	High training level	Above 5

3.8.1.10. Attitude

An attitude is predisposition act a mental state that provides clues regarding the action that an individuals is inclined to take in the future.

The attitude of respondents was tested on the basis of items which helps to know the mentality of the respondents towards organic farming.

The items were selected after going through the literature and discussion with the expert. The scoring was done on 3-point continuum that is fully agreed, partially agreed and disagree with score 2,1 and 0 respectively.

Sl. No.	Category	Range
1.	Less favourable	Up to 33.33
2.	Moderately favourable	33.34-66.66
3.	Highly favourable	Above 66.66

3.8.1.11. Risk orientation

Risk orientation theoretically define as the degree to which respondents are oriented towards risk and uncertainty and also have courage to face the problems in farming.

It will be measured with the help of risk orientation scale developed by Supe (1969). In this measurement technique, six statements were included and response were collected in five points scale as strongly agree, agree, undecided, disagree, and strongly disagree. Out of statements two were negative and four were positive. For positive statement the scoring technique followed 5,4,3,2,1 and for negative statement it was reverse that is 1,2,3,4,5. The categories were made on the basis of using Mean and SD.

Sl. No.	Category	Range
1.	Low	
2.	Medium	
3.	High	

Soybean farmers Mean = 20.4 SD = 3.74

Cotton farmers Mean = 19.66 SD = 5.60

3.8.2. Measurement of dependent variables

3.8.2.1. Knowledge

Knowledge is operationally defined as the body of awareness and information possessed by respondent of organic farming. Responses of the respondents was taken on two point continuum i.e. yes or no and numerical score of 1 and 0 was assigned respectively.

Obtained knowledge score will be then converted into knowledge index with the help of following formula:

$$\text{Knowledge Index (K.I.)} = \frac{\text{Actual obtained knowledge score}}{\text{Maximum obtainable knowledge score}} \times 100$$

On the basis of total score obtained, the respondents will be grouped into following categories by using mean and standard deviation formula:

Sl. No.	Category	Range
1.	Low	
2.	Medium	
3.	High	

Soybean farmers Mean = 69.15 SD = 19.57

Cotton farmers Mean = 65.99 SD = 17.07

3.8.2.2. Adoption

Rogers (1993) define adoption is the decision to make full use of innovation as the best course of action available.

Adoption was operationally define as the degree of actual use of organic farming practices by the farmers.

It was measured on three point continuum as complete adoption, partial adoption and non adoption by assigning the score of 2,1,0 respectively. On the basis of mean and SD the respondents was categorized into three group viz. low medium high .

The adoption score was then converted into adoption index by applying following formula :-

$$\text{Adoption Index (K.I.)} = \frac{\text{Actual Obtained adoption score}}{\text{Maximum obtainable adoption score}} \times 100$$

Sl. No.	Category	Range
1.	Low	
2.	Medium	
3.	High	

Soybean farmers Mean = 57.31 SD = 21.21

Cotton farmers Mean = 48.99 SD = 19.75

3.9. Constraints

Reading (1971) defined constraints as use of force to influence or prevent as action or utility or state of being compelled to do or not to do something.

In the present study, 'constraints' were operationally defined as the problem encountered or perceived by the farmer with regard to adoption of organic farming.

The number and percentage of each constraint were work out to measure the constraints encountered by the respondent.

3.10. Statistical methods used

3.10.1. Arithmetic mean

It is the sum of all the values of the observations divided by the total number of observations, symbolically, it is represented as;

$$\bar{X} = \frac{\Sigma X}{N}$$

Where,

$\bar{X}$ = Arithmetic mean

ΣX = Sum of respondent score

N = Number of respondents

3.10.2. Standard deviation

Standard deviation measure of variability calculated around mean. The usual symbol for "S.D." is the Greek letter "σ" Sigma.

$$\sigma = \sqrt{\frac{n\Sigma X^2 - (\Sigma X)^2}{n}}$$

Where,

σ = Standard deviation

ΣX^2 = Sum of square of X series

$(\Sigma X)^2$ = Square of sum of X series

N = No. of respondents

3.9.3. Coefficient of correlation

It is relationship between independent and dependent variables will be calculated with the help of following given formula of coefficient of correlation.

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

Where,

r = Coefficient of correlation

ΣX = Sum of the score of variable X

ΣY = Sum of the score of variable Y

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

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

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

n = Total number of respondent

CHAPTER IV

SOCIO-ECONOMIC FEATURES OF AKOLA DISTRICT

Akola is the district in Maharashtra State. The city of Akola is district headquarters. Maharashtra state has six revenue divisions viz., Mumbai, Pune, Nasik, Aurangabad, Amravati and Nagpur. Vidarbha region includes Amravati and Nagpur revenue divisions comprising eleven districts viz., Amaravati, Akola, Buldhana, Washim, Yavatmal, Wardha, Nagpur, Bhandara, Gondia, Chandrapur, Gadchiroli. Washim and Gondia are newly formed districts bifurcating Akola and Washim districts respectively. Nagpur division includes Bhandara, Gondia, Chandrapur, Gadchiroli and Wardha are the eastern district of Vidarbha. The western districts are Buldana, Akola, Amravati, Yavatmal and Washim. The western districts are known for its cotton crop and the eastern region is for good quality of rice. Vidarbha as a whole contributes cotton, rice, jowar, millets, oilseeds, soybean, citrus, forest, timber etc. The present study is confined to Akola district of Western Vidarbha.

4.1 Physical features of Akola district

4.1.1 Location

Akola District is situated in the central east of Maharashtra State on the banks of Morna river finding its place at 20.17^0 to 21.16^0 North latitude and 76.7^0 to 77.4^0 east longitudes. It occupies an area of 5,429 square kilometer. Akola is a city in Vidarbha region in the state of Maharashtra in central India. It is third largest city in Vidarbha, situated about 290 miles (580 km) east of state of capital, Mumbai, and 140 miles (250km) west of second capital, Nagpur. Akola is the administrative headquarter of Akola district located in Amaravti revenue division.

4.1.2 Boundaries

Akola District had mountain range of Satpuda in its north. The District touches the boundaries of Anjangaon Panchayat Samiti, Daryapur Panchayat Samiti and Nandgaon Panchayat Samiti of Amravati District in

its east. The south boundary touches to Washim District and the West boundary touches to part of Buldana District.

4.1.3 Geographical location

The Akola district lies in between 20.17° to 21.16° North latitude and 76.7° to 77.4° East longitude. The district is surrounded by Amravati district in East, Washim district in South and Buldhana district in West. The total geographical area of Akola Panchayat Samiti is 5417 sq.km. The main rivers of the district is – Pedhi, Katepurna, Morna, Nirguna and Mahan are the tributaries of the Purna river.

4.1.4 Demographics

According to 2011 census Akola district has a population of 1,818,617, roughly enough to the nation of Kosovo or the US state of Nebraska. This gives it a ranking of 262nd in India (out of total of 640). The district has a population density of 321 inhabitants per square kilometer (830/sq.m). Its population growth rate over the decade 2001-2011 was 11.6%. Akola has a sex ratio of 942 females for every 1000 males, and a literacy rate of 88.05%.

4.1.5 Area, population and administrative departments

Area of the district is 5,672.81 sq. km. According to 2011 census, the population of the district is 1,818,617 of which 60.3% population is residing in rural area. There are 12 towns in the district , of which only one town has population more than one lakh (Akola 4,25,817). The district comprises of four revenue subdivision (Akola,Murtijapur, Akot, Balapur)and seven tahsils along with one municipal corporation (Akola). There are five municipal councils , seven Panchayat Samities and 542 Gram Panchayat.

4.1.6 Topography and soil

The northern part of the Akola district lies in Purna valley which itself is a part of Tapi river basin. River Purna has formed fertile basin in Akola, Balapur and Murtizapur Tahsil of Akola. Akola district is divided into 7 tehsils for smooth administration. The district ranks fourth in respect of size and fifth in respect of population among the eleven districts

of Vidarbha region of Maharashtra. The soil of the district is basically derived from volcanic trap rock and it is quite fertile. It is classified into categories as coarse soil found in south, medium black soil found in the plain and deep black soil found in river valley.

4.1.7 Climate and rainfall

The Akola lies on 288 m above sea level. The climate here is considered to be local steppe climate. The weather during winter is too cool, while in summer it is too hot. The average maximum and minimum temperature extremities observed throughout the year was 31.1°C and21.3°C, respectively. Akola district falls in assured rainfall zone of Maharashtra state having on an average rainfall between 750 to 950 mm.

4.2 Land use pattern

Table 4. Land use pattern of Akola district

Sr. No.	Particular	Area (000' ha)
1.	Total geographical area	5417.00
2.	Forest area	40.80
3.	Land not available for cultivation	20.60
4.	Land under used other than farming	09.20
5.	Fallow land (Not useful for cultivation)	12.40
6.	Cultivable but not under use	45.00
7.	Uncultivated land other than fallow	
	Grazing land	14.60
	'E' Class	03.20
	Cultivable fallow	07.40
8.	Fallow land	
	Current fallow	07.50
	Other fallow	07.20
9.	Land under cultivation	443.70
	Sown once	437.00
	Sown more than once	06.70

(Source : Agricultural statistical information Maharashtra state, 2017)

4.3 Cropping pattern

The usual cropping pattern is determined by large number of factors. The most important factors are climate, soil, topography, customs and distance to market (Table 5).

Table 5. Cropping pattern of Akola district

Sr. No.	Crop	Area(ha)
1.	Wheat	26528
2.	Kharif jowar	63715
3.	Rabi jowar	362
4.	Bajara	820
5.	Other cereals	262
	Total cereals	93462
6.	Gram	54807
7.	Tur	51484
8.	Other pulses	467
	Total pulses	171843
	Total Food grains	265305
9.	Sugarcane	281
10.	Cotton	162173
	Total fibre	162185
11.	Safflower	3560
12.	Sunflower	5280
13.	Summer groundnut	3385
14.	Soybean	106640
	Total oilseed	118865

(Source: Directorate of Economics and Statistics, 2017)

4.4 Crop season and crop rotation

There are two important crop seasons i.e. Kharif and Rabi whereas, in summer season land generally remains fallow and preparatory tillage operations are under taken.

Cotton, jowar are important crops grown in Kharif season on large scale. Tur, mung, udid are also grown in Kharif on large scale. Soybean crop is grown by the farmers on large area. Wheat and gram are important Rabi crops grown in the area. Linseed, sunflower, safflower, some spices and vegetables, fruit crops are also grown in Rabi season, wherever the source of irrigation is mostly through wells and cannel. The manners in which crop rotations are commonly followed is presented in Table 6.

Table 6. Crop season and crop rotation

Sl. No.	Kharif	Rabi
1.	Cotton	-
2.	Cotton + tur + jowar	-
3.	Soybean	Gram
4.	Soybean + tur	Wheat
5.	Jowar	Gram
6.	Cotton + mung / udid	Safflower/ wheat
7.	Cotton + tur	Safflower
8.	Cotton + tur + jowar + mung	Sunflower
9.	Mung	Safflower
10.	Cotton + mung	-

(Source: SAO, Akola, Annual Report, 2018)

4.5 Irrigation

Information related to irrigation and rainfed area presented in Table 7.

Table 7 Irrigated and rainfed area in Akola

SL .No	Irrigation	Area (000'ha)
1.	Net irrigated area	24.51
2	Gross irrigated area	42.822
3.	Rainfed area	441.60

(Source – Contingency plan for dist. Akola – Maharashtra state)

4.6 Input supply

Agricultural inputs like seed manure, fertilizers, insecticides, pesticides etc. are required by the farmers are made available to them through number of agricultural service centers established at district level and block levels.

Maharashtra State Seed Corporation Ltd., Dr. PDKV, Akola and other private seed companies supply the quality seeds to the farmers. The farm inputs are made available to the farmers by co-operative societies and nationalize banks functioning at block level, Panchayat Samiti also provide inputs to the farmers. Co-operative society supply input against the loan sanctioned by the District Central Co-operation Bank to individual cultivator.

4.7 Credit Supply

The credit supply in Akola district is done by Primary Agriculture Co-operative Credit Society, Non-agricultural Credit Society, Panan Sanstha, Production Society and Social Service Society. Akola district has number of banks mention below-

Table 8. Agriculture credit development plan

SLNO	Bank name	Number
1	Commercial bank	105
2	RRB's	27
3	Cooperatives	65
4	PACS	412
5	Other	11

(CDPA for Akola District 2017)

4.8 Market

For the marketing of agriculture produce, agriculture produce market committees are functioning in the district. All 7 tehsils having facilities of regulated markets functioning in the district. These sub-markets are connected with roads and having facilities of banking, electricity, etc

CHAPTER V

RESULTS AND DISCUSSION

This chapter deals with the presentation of result of investigation and critical discussion of the result presented. Present investigation entitled “Knowledge and adoption of farmers about organic farming practices” was undertaken with a view to know the extent of knowledge and adoption of recommended organic farming practices in organic cotton and soybean cultivation.

This chapter deals with the results from the present investigation. The results are arranged after subjecting the data to statistical analysis.

The data collected from study have been analyzed and results are presented under following major heads:

5.1 Socio-economic, situational, communicational and psychological characteristics of the respondents

5.2 Knowledge and adoption of respondents about organic farming practices in cotton and soybean crops

5.3 Relationship of profile of respondents with their knowledge and adoption of organic farming practices.

5.4 constraints faced by the farmers in adoption of organic farming practices

5.1. Independent Variables

5.1.1. Age

Age is important factor, which determine the role of farmers in adoption of various organic farming practices in soybean and cotton crop. The age wise distribution of respondents is presented in Table 9 and diagrammatically represented in Fig. 4.

The result in Table 9 shows that more than one half (62%) of the organic soybean cultivating respondents were in middle age group of 36 to 50 years followed by 22 per cent respondents were observed in

young age group that is up to 35 years whereas, 16.00 percent of the respondents belonged to old age group.

Table 9. Distribution of Soybean and cotton cultivating respondents according to their age

Sl. No	Category	Respondents (n=100)			
		Soybean farmers (n=50)		Cotton farmers(n=50)	
		Frequency	Percentage	Frequency	Percentage
1.	Young	11	22.00	14	28.00
2.	Middle	31	62.00	25	50.00
3.	Old	8	16.00	11	22.00
	Total	50	100.00	50	100.00

While in case of organic cotton cultivating farmers exactly half (50%) of the respondents were in middle age group followed by 28 percent respondents were in young age group. The percentage of organic cotton cultivating respondents in old age group was found 22 percent.

Thus, it could be concluded that, majority of the soybean cultivating respondents (62.00%) and cotton cultivating respondents (50.00%) were in middle age group i.e. 36 to 50 years of age. Similar findings were reported by Surve (2014) Mankar et. al (2014-15) Barkade (2015), Korde (2017)

5.1.2. Education

Education is the process of bringing desirable changes in the behavior of man. On the basis of formal schooling the respondents were categories into six categories and the result obtained were depicted in Table 10 and illustrated in Fig. 5

It could be seen from the Table 10 that, majority that is 42.00 per cent of the organic soybean cultivating and 34.00 percent of organic cotton cultivating respondents were educated up to secondary school level. The percentage of organic soybean cultivating and organic cotton cultivating respondents educated up to higher secondary level was 22.00 per cent and 24.00 percent respectively.

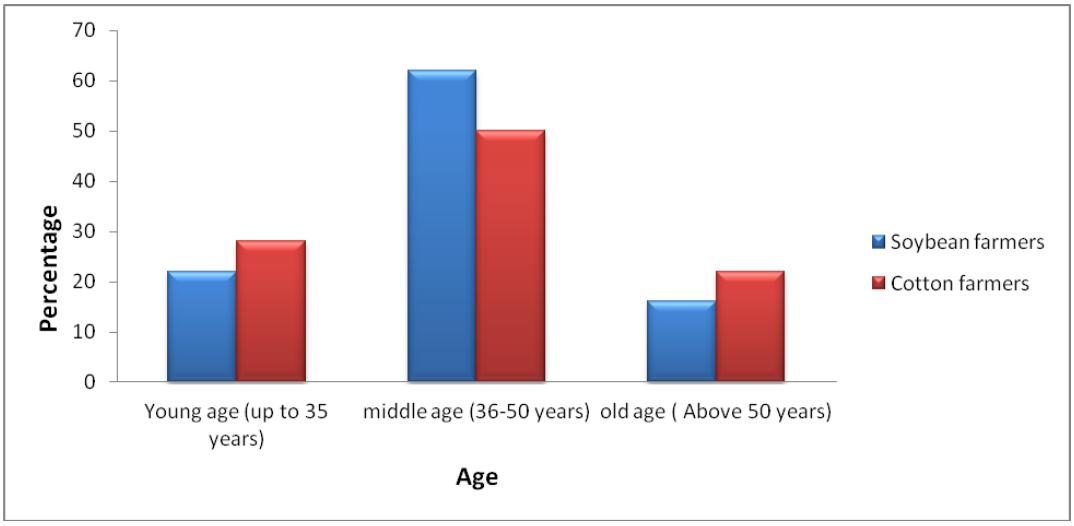


Fig. 4. Distribution of organic soybean and cotton cultivating respondents according to their age

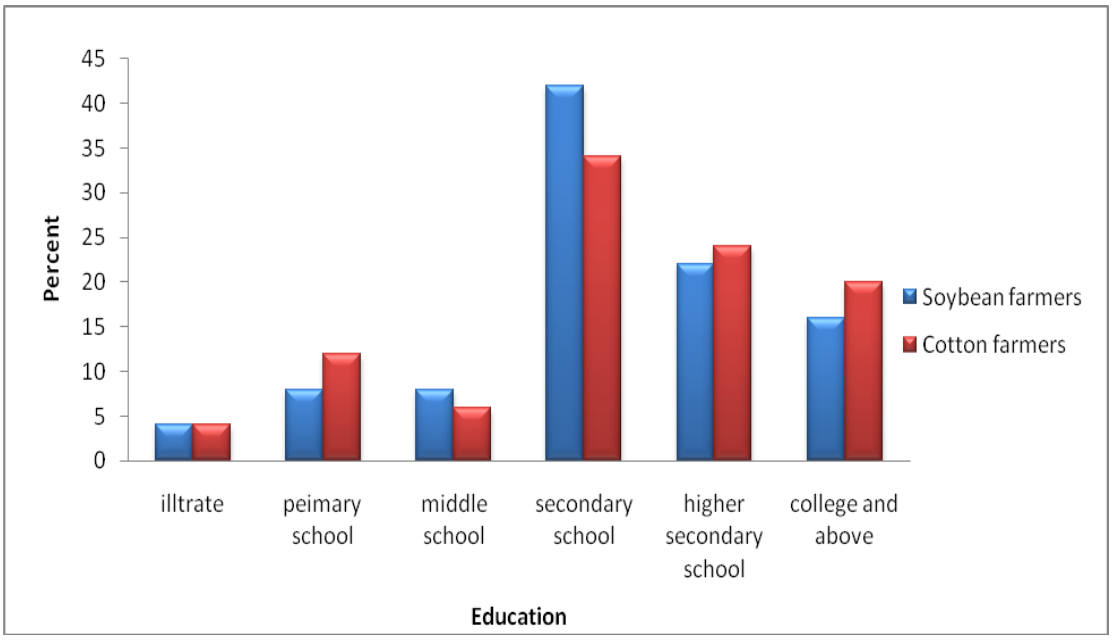


Fig. 5. Distribution of organic soybean and cotton cultivating respondents according to their education

It is followed by college level and above (16.00%), primary school (8.00%), middle school (8.00%) and only 4.00 percent respondents were illiterate in case organic soybean cultivating farmers, while in case of cotton cultivating respondents college and above (20%), primary school (12%), middle school (6%) and only 4 percent were illiterate. This result is similar to the findings of Chandvat et. al. (2014) and Patel et. al. (2017).

Table 10. Distribution of soybean and cotton cultivating respondents according to their education

Sl. No.	Category	Respondents (100)			
		Soybean farmers (50)		Cotton farmers (50)	
		Frequency	Percentage	Frequency	Percentage
1.	Illiterate	2	4.00	2	4.00
2.	Primary school	4	8.00	6	12.00
3.	Middle school	4	8.00	3	6.00
4.	Secondary school	21	42.00	17	34.00
5.	Higher secondary	11	22.00	12	24.00
6.	College and above	8	16.00	10	20.00
	Total	**50**	**100.00**	**50.00**	**100.00**

Thus, it can be said that majority of the soybean (42.00%) and cotton (34.00%) cultivating farmers were educated up to secondary school level. These findings are supported to Patel et.al (2017) and Sushmitha (2018).

5.1.3 Family size

It could be observed from Table 11 and Fig. 6 that more than one half of the organic soybean cultivating respondents (54.00%) were having medium level of family size, followed by small family size (34.00%) and large family size (12.00%). Regarding organic cotton 60.00 per cent of respondents were having medium family size followed by small (22.00%) and large (18.00%) family size.

Table 11. Distribution of soybean and cotton cultivating respondents according to their family size

Sl. No	Category	Respondents (100)			
		Soybean farmers (50)		Cotton farmers (50)	
		Frequency	Percentage	Frequency	Percentage
1.	Small (up to 4 members)	17	34.00	11	22.00
2.	Medium (5-6 members)	27	54.00	30	60.00
3.	Large (above 6 members)	6	12.00	9	18.00
	Total	**50**	**100.00**	**50**	**100.00**

Thus, it can be said that majority of the organic soybean (54.00%) and organic cotton (60.00%) cultivating respondents were belonged to medium family size. These findings supported to Anjali (2015) and Patil (2019).

5.1.4 Occupation

Occupation refers to the profession of the respondents possessed for their livelihood. The respondents were categorized in five categories based on their profession. Five categories were given in Table 12 and illustrated in Fig.7

It could be observed from Table 12 that In case of organic soybean near about half (48.00%) of the respondents were involved in agriculture occupation. Whereas 22.00 per cent respondents possessed agriculture + labour, agriculture + business (16.00%), agriculture + allied occupation (8.00%) and agriculture + service (6.00%). While in case of organic cotton 44.00% per cent of respondents were having agriculture as their main occupation, followed by agriculture + business (18.00%), agriculture + allied occupation (16.00%), agriculture + labour (14.00%) and agriculture + service (8.00%).

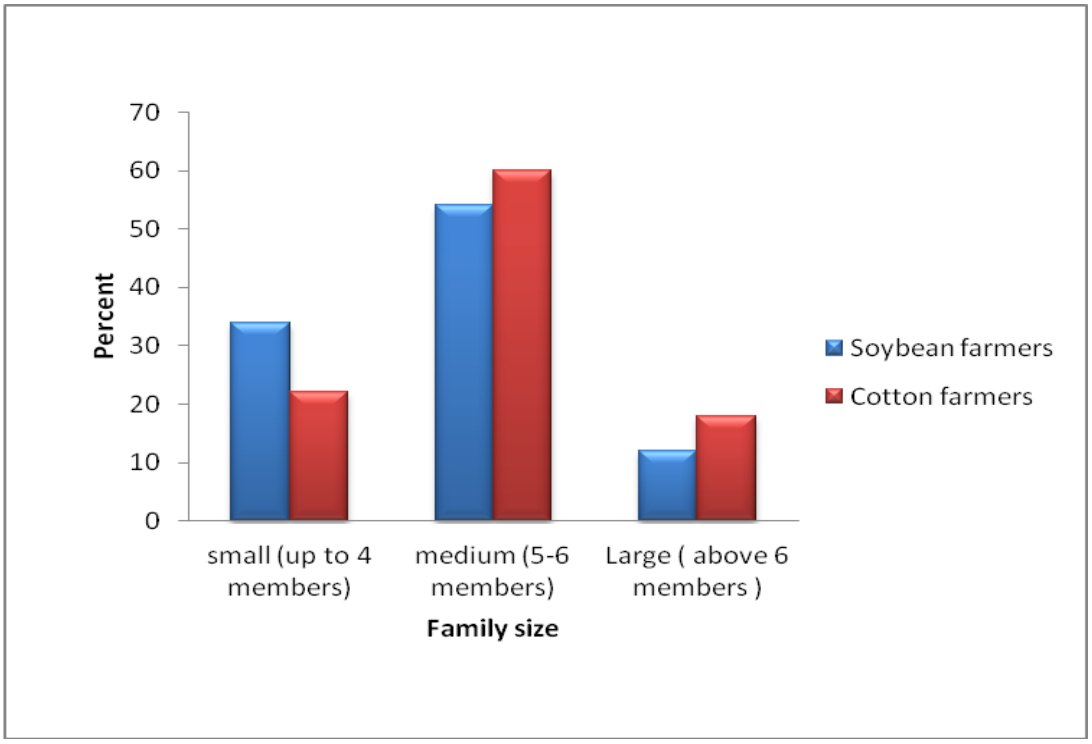


Fig. 6. Distribution of organic soybean and cotton cultivating respondents according to their family size

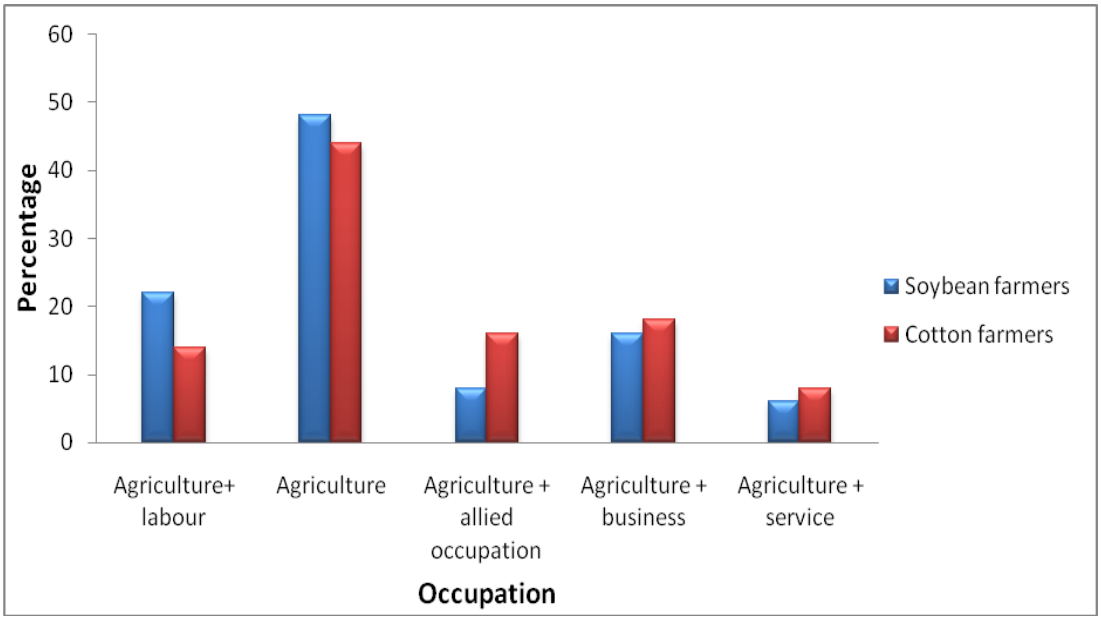


Fig. 7. Distribution of organic soybean and cotton cultivating respondents according to their occupation

Table 12. Distribution of soybean and cotton cultivating respondents according to their occupation

Sl No	Category	Respondents (100)			
		Soybean farmers (50)		Cotton farmers (50)	
		Frequency	Percentage	Frequency	Percentage
1.	Agriculture + Labour	11	22.00	7	14.00
2.	Agriculture	24	48.00	22	44.00
3.	Agri+ allied occupation	4	8.00	8	16.00
4.	Agriculture + business	8	16.00	9	18.00
5.	Agriculture+ services	3	6.00	4	8.00
	Total	**50**	**100.00**	**50**	**100.00**

Thus, it could be concluded that, majority of organic soybean (48.00%) and cotton (44.00%) cultivating respondents were involved in agriculture. The finding of the present study are similar with Bolgamwar (2014), Patel (2015), Bhaltilak (2017) who were concluded that majority of respondents had agriculture as their main occupation.

5.1.5 Land holding

The hectare of land possessed by an individual might influence on adoption of innovation and also determine the actual status of an individual in farming community.

It is seen from the distribution in Table 13 and illustrated in Fig. 8. that, in case of organic soybean half (50.00%) of the respondents belonged to semi-medium category of land holding possessing land in between 2.01 to 4 ha. 20.00 per cent of respondents were belonging to medium land holding category possessing land in between 4.01 to 10 ha. Little more than one tenth (12.00%) of the respondents belonged to large land holding category possessing land above 10 ha. Small land holding possessed by 10.00 per cent which is in between 2.01 to 4 ha and only

8.00 per cent of respondents were belonging to marginal land holding that is up to 1 ha.

Table 13. Distribution of soybean and cotton cultivating respondents according to their land holding

Sl. No.	Category	Respondents (100)			
		Soybean (50)		Cotton (50)	
		Frequency	Percentage	Frequency	Percentage
1.	Marginal (up to 1 ha)	4	8.00	2	4.00
2.	Small (1.01-2 ha)	5	10.00	9	18.00
3.	Semi medium (2.01-4ha)	25	50.00	19	38.00
4.	Medium (4.01-10 ha)	10	20.00	15	30.00
5.	Large (above 10 ha)	6	12.00	5	10.00
	Total	**50**	**100**	**50**	**100.00**

In case of organic cotton, 38.00 per cent of the respondents were belonged to semi-medium category of land holding possessing land in between 2.01 to 4 ha. Nearly, one third i. e. 30.00 per cent of the respondents were belonging to medium land holding category possessing land in between 4.01 to 10 ha. Followed by 18.00 per cent of the respondent belonged to small land holding category possessing land in between 1.01 to 2 ha. Large land holding possessed by 10.00 per cent of respondents and only 4.00 per cent of respondents were belonged to marginal land holding possessing land up to 1 ha.

It could be concluded that majority i. e. half (50.00%) of the organic soybean and more than one third (38.00) of organic cotton cultivating respondents belonged to semi medium land holding. This finding was supported to Neware (2011), Gade (2012) and Mohite (2013).

5.1.6 Annual income

The amounts of income of whole family members determine material possessed and economic conditions of family and useful in adoption of improved farm technology.

The distribution of the organic soybean cultivating farmers according to their annual income presented in Table 14 and illustrated in Fig. 9 indicated that, 38.00 per cent of the soybean cultivating respondents had annual income up to Rs.1,22,000/- and nearly one fourth i.e. 24.00 per cent of the soybean cultivating respondents had distributed equally between Rs. 1,22,001/- to Rs. 2,44,000/- and Rs. 2,44,001/- to Rs. 3,66,000/-. The income between 3, 66,001/- to 4,88,000/ and above 4,88,000/- were possessed by 8.00 per cent and 6.00 per cent respectively.

Table 14. Distribution of organic soybean cultivating respondents according to their annual income

Sl. No.	Category	Respondents (n=50)	
		Frequency	Percentage
1.	Up to Rs. 1,22,000/-	19	38.00
2.	Rs. 1,22,001/- to Rs.2,44,000/-	12	24.00
3.	Rs. 2,44,001/- to Rs. 3,66,000/-	12	24.00
4.	Rs. 3,66,001/- to Rs. 4,88,000/-	04	8.00
5.	Above Rs. 4,88,000/-	03	6.00
	Total	**50**	**100.00**

In case of the organic cotton cultivating farmers 40.00 per cent of the respondents had annual income between Rs.1,68,001/- to Rs.3,36,000/- which is denoted in Table 15. Whereas, one fourth i. e. 24.00 percent of the cotton cultivating respondents had annual income between 3,36,001 to 5,04,000/- followed by 20.00 percent respondents had their annual income up to Rs. 1,68,000/-. Only 12.00 percent of the respondents had annual income Rs. 5,04,001/- to Rs. 6,72,000/- followed by 4.00 percent of the respondents had annual income above Rs. 6,72,000/-

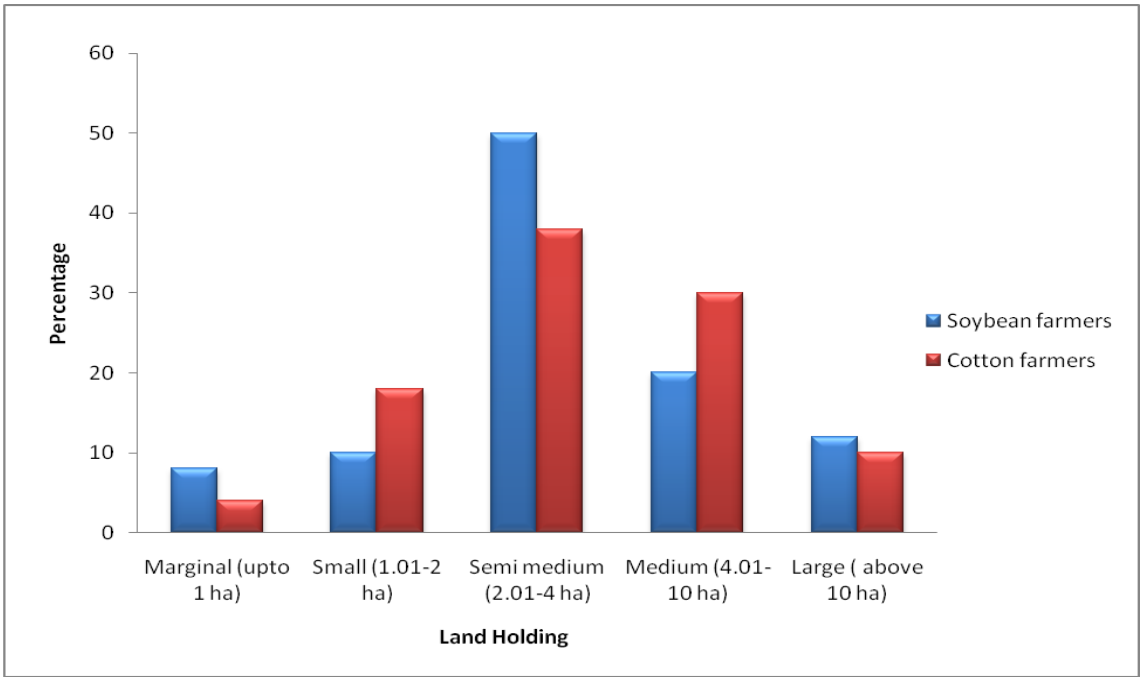


Fig. 8. Distribution of organic soybean and cotton cultivating respondents according to their land holding

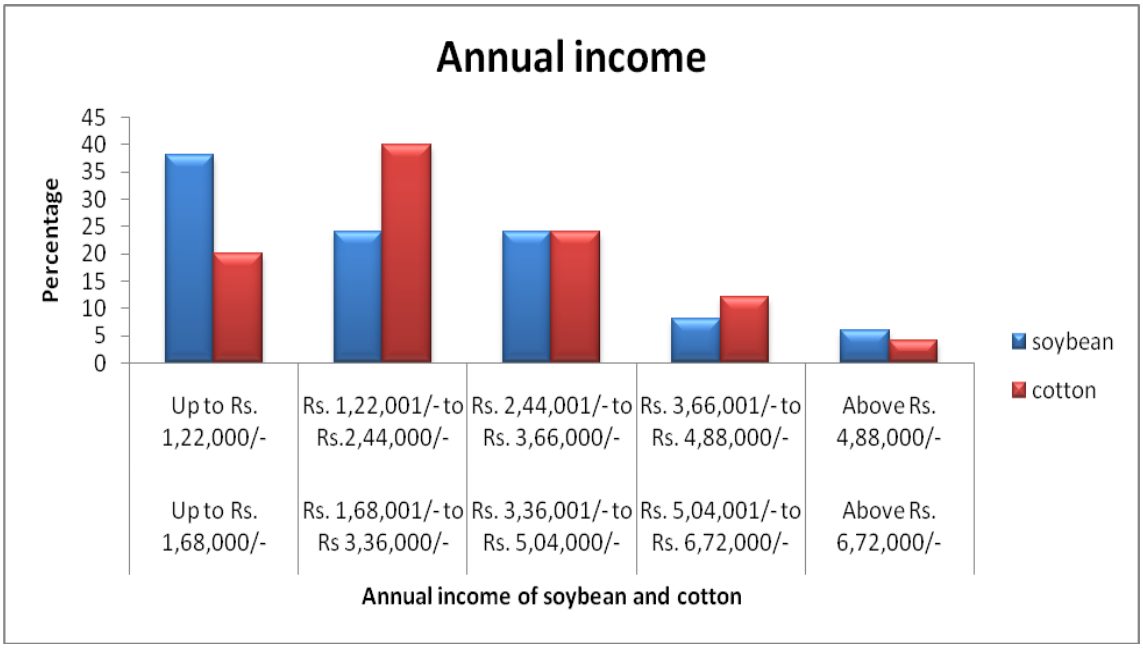


Fig.9. Distribution of organic soybean and organic cotton cultivating respondents according to their annual income

Table 15. Distribution of organic cotton cultivating respondents according to their annual income

Sl. No.	Category	Respondents (n=50)	
		Frequency	Percentage
1.	Up to Rs. 1,68,000/-	10	20.00
2.	Rs. 1,68,001/- to Rs 3,36,000/-	20	40.00
3.	Rs. 3,36,001/- to Rs. 5,04,000/-	12	24.00
4.	Rs. 5,04,001/- to Rs. 6,72,000/-	06	12.00
5.	Above Rs. 6,72,000/-	02	4.00
	Total	**50**	**100.00**

Therefore, it can be concluded that majority of the organic soybean cultivating respondents (38.00%) possessed annual income up to Rs. 1,22,000/- and organic cotton cultivating respondents (40.00) possessed annual income between Rs. 1,68,001/- to 3,36,000/-.

5.1.7 Extension contact

Extension contact may play important role from awareness point of view**.** Various extension contacts made by respondents with formal and informal extension agencies for seeking information regarding organic farming practices are presented in Table 16. and Table 17.

The distribution of formal contacts utilized by organic soybean cultivating respondents for seeking information presented in Table 16. That, more than (56.00%) of the respondents were always contacted with agriculture university followed by 42.00 per cent and 34.00 per cent of the respondents were always in contacted with Agriculture Assistants and KVK Scientists respectively whereas, only 22.00 per cent followed by 20.00 per cent of the respondents were always in contact with Gramsevak and Agril. Supervisors respectively.

Table 16. Distribution of organic soybean cultivating respondents according to their extension contact

Sl No.	Extension Contact	Always (%)	Sometime (%)	Never (%)
A. Formal contacts				
1.	Gramsevak	11 (22.00)	13 (26.00)	26 (52.00)
2.	Agril. Assistants	21 (42.00)	20 (40.00)	9 (18.00)
3.	Agril. Supervisor	10 (20.00)	12 (24.00)	28 (52.00)
4.	Agri. University	28 (56.00)	19 (38.00)	3 (6.00)
5.	KVK Scientists	17 (34.00)	32 (64.00)	1 (2.00)
B. Informal contacts				
1.	NGO	30 (60.00)	15 (30.00)	5 (10.00)
2.	Progressive farmer	34 (68.00)	14 (28.00)	2 (4.00)
3.	Neighbour/Relative/Friends	35 (70.00)	10 (20.00)	5 (10.00)
4.	Krishi Seva Kendra	20 (40.00)	17 (34.00)	13 (26.00)

(figures in parentheses indicate percentage)

Whereas, 64.00 per cent and 40.00 per cent of the respondents were sometime contacted with KVK Scientists and Agril Assistants respectively. Nearly, one half (52.00) of the respondents never contacted with Agriculture supervisors.

The distribution of informal contact utilized by organic soybean cultivating respondents for seeking information presented in Table 16, majority (70.00%) of the respondents always contacted with neighbours/ realatives/ friends followed by 68.00 per cent who were always contacted with progressive farmers. Also, NGOs and Krishi Seva Kendras were contacted regularly by the 60.00 per cent and 40.00 per cent respectively.

More than one third (34.00) of the respondents sometime contacted with Krishi seva Kendra followed by 30.00 per cent who were sometime contacted with NGO. More than one fifth (26.00) of the respondents never contacted with Krishi seva Kendra.

In case of organic cotton cultivar the distribution of formal contacts utilized by them is presented in Table 17. Little more than one half (54.00) followed by 44.00 per cent of the respondents were always in contacted with Agril. University and KVK Scientists respectively while 46.00 precent of the respondents were sometime in contacted with Agril Assistants and KVK Scientists. Whereas more than half of the respondents never contacted with Agril Supervisors followed by 44.00 per cent respondents who also never contacted with Gramsevak.

Table 17. Distribution of organic cotton cultivating respondents according to their extension contacts

Sl No.	Extension Contact	Always (%)	Sometime (%)	Never (%)
A. Formal contacts				
1.	Gramsevaks	12 (24.00)	16 (32.00)	22 (44.00)
2.	Agril. Assistants	18 (36.00)	23 (46.00)	9 (18.00)
3.	Agril. Supervisors	8 (16.00)	12 (24.00)	30 (60.00)
4.	Agri. University	27 (54.00)	20 (40.00)	3 (6.00)
5.	KVK Scientists	22 (44.00)	23 (46.00)	5 (10.00)
B. Informal contacts				
1.	NGO	28 (56.00)	15 (30.00)	7 (14.00)
2.	Progressive farmer	38 (76.00)	12 (24.00)	0 (0.00)
3.	Neighbour/Relative/Friends	31 (62.00)	19 (38.00)	0 (0.00)
4.	Krishi Seva Kendra	22 (44.00)	18 (36.00)	10 (20.00)

(figures in parentheses indicate percentage)

Distribution of informal contacts utilized by organic cotton cultivating respondents presented in Table 17. Majority i. e more than three fourth (76.00) of the respondents were always contacted with progressive farmers followed by 62.00 per cent respondents were always contacted with neighbors /relatives / friends.

While, more than one third (38.00) of the respondents sometime contacted with neighbors / relative / friends followed by 30.00 per cent of the respondents who were sometime contacted to NGO. Whereas, only 20.00 per cent of respondents never contacted with Krishi Seva Kendra.

Table 18. distribution of respondents according to their level of extension contacts

Sl. No.	Extension contacts	Soybean (n=50)		Cotton (n=50)	
		Frequency	Percentage	frequency	Percentage
1.	Low	9	18.00	6	12.00
2.	Medium	34	68.00	37	74.00
3.	High	7	14.00	7	14.00
	Total	**50**	**100**	**50**	**100**

Soybean respondents Mean= 18.66 SD= 3.36

Cotton respondents Mean= 17.92 SD=3.3

It is observed from the table that majority i.e. more than two third (68.00%) of organic soybean and nearly three fourth (74.00%) of organic cotton cultivating respondents were utilizing medium extension contact for seeking information. 18.00 per cent of organic soybean and 12.00 per cent of organic cotton cultivating respondents had low level of extension contact whereas, equal percentage that is 14.00 per cent organic soybean and cotton cultivating respondents had high level of extension contacts.

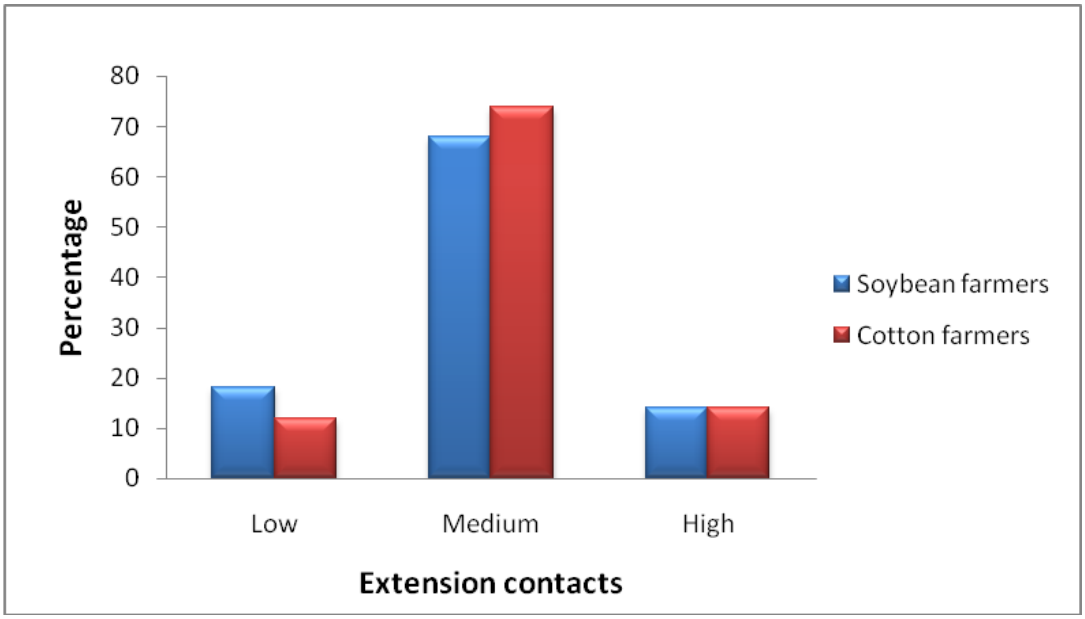


Fig.10. Distribution of organic soybean and cotton cultivating respondents according to their level of extension contacts

This finding in line with Virendrakumar (2014), Devgirikar (2014) and Telgote (2009) who reported that majority of respondents had medium level of extension contacts.

5.1.8 Social participation

Social participation shows the involvement of respondents in various activities of formal and informal organizations as either member or office bearers.

The distribution of respondents based on their social participation has been given in Table 19.

Table 19. Distribution of the respondents according to their social participation

Sl. No.	Social participation	Soybean (50)		Cotton (50)	
		Frequency	Percentage	frequency	Percentage
1.	Low	7	14.00	9	18.00
2.	Medium	34	68.00	31	62.00
3.	High	9	18.00	10	20.00
	Total	**50**	**100**	**50**	**100**

Soybean respondents Mean= 14.38 SD= 5.63

Cotton respondents Mean= 12.32 SD= 4.51

From the above Table, it can be concluded that, majority i.e. 68.00 per cent organic soybean and 62.00 per cent of organic cotton cultivating respondents were included under the medium level of social participation. Whereas, 18.00 per cent and 20.00 per cent of organic soybean and cotton cultivating respondents were included in the high level followed by 14.00 per cent organic soybean and 16.00 per cent organic cotton cultivating respondents were included in low level of social participation.

This findings were similar to Thakre (2013) and Dhenge (2013) who were reported that majority of respondents had medium level of social participation

5.1.9 Training received

The distribution of respondents based on their training received has been given in Table 20

Table 20. Distribution of the respondents according to the training received by them

Sl. No.	Category	Respondents (100)			
		Soybean (50)		Cotton (50)	
		Frequency	Percent	Frequency	Percent
1.	No training received (0)	3	6.00	4	8.00
2.	Low training received (up to 2)	23	46.00	20	40.00
3.	Medium training received (3-5)	21	42.00	24	48.00
4.	High training received (above 5)	3	6.00	2	4.00
	Total	50	100	50	100

It is observed from Table 20 in case of organic soybean 46.00% of the respondents received low level of training (1 to 2 training) followed by 42.00 per cent respondents who were received medium level of training (3 to 5 training) and i.e. 6.00 per cent of respondents were equally distributed under the categories of no training received and high training received.

In case of organic cotton nearly one half (48.00%) of the respondents received medium level of training (3 to 5 training) followed by 40.00 per cent respondents who were received low level of training (1 to 2) and 8.00 per cent respondents did not received any type of training and only 4.00 per cent respondents were received high level of training (above 5 training).

Thus, it is concluded that majority of organic soybean (46.00%) and organic cotton (48.00%) were received low and medium level of training respectively.

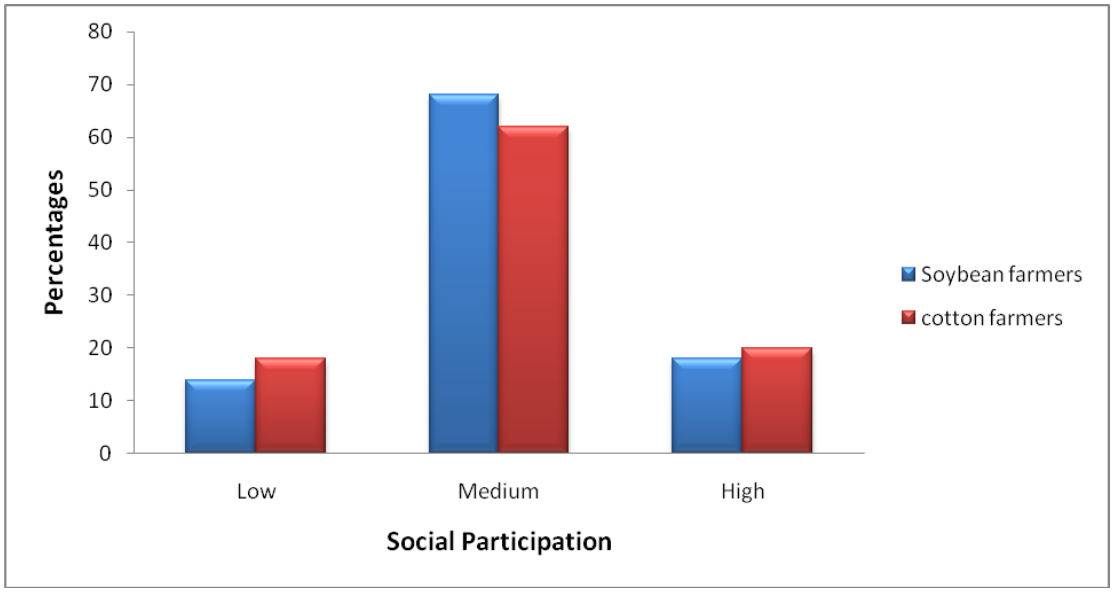


Fig.11. Distribution of organic soybean and cotton cultivating respondents according to their social participation

Fig.12. Distribution of organic soybean and cotton cultivating respondents according to training received by them

5.1.10 Attitude

The attitude of respondents on various aspects of organic farming has been measured in three point continuum that is fully agree, partially agree and disagree. The statement wise attitude has been studied and result were depicted in Table 21 which distributed the respondents according to their attitude.

Table 21. Distribution of respondents according to their attitude towards organic farming

Sl. No	Statements	Respondents (100)					
		Soybean (50)			Cotton (50)		
		FA (%)	PA (%)	DA (%)	FA (%)	PA (%)	DA (%)
1.	Do you think that organic farming is profitable?	14 (28.00)	10 (20.00)	26 (52.00)	10 (20.00)	12 (24.00)	28 (56.00)
2.	Do you think that organic farming practicable?	15 (30.00)	26 (52.00)	9 (18.00)	20 (40.00)	9 (18.00)	21 (42.00)
3.	Do you think that organic farming is sustainable?	27 (54.00)	18 (36.00)	5 (10.00)	26 (52.00)	17 (34.00)	7 (14.00)
4.	Do you think that organic manure application have relative advantage over chemical fertilizer?	21 (42.00)	20 (40.00)	9 (18.00)	20 (40.00)	22 (44.00)	8 (16.00)
5.	Do you think that organic farming practices help to improve soil health	25 (50.00)	22 (44.00)	3 (6.00)	23 (46.00)	19 (38.00)	8 (16.00)

(Figures in parentheses indicate percentage)

(FA – Fully Agree, PA – Partially Agree, DA – Disagree)

It is observed from Table 21 that in case of organic soybean majority i.e. 52.00 per cent of the respondents were not agreed with organic farming is profitable followed by 28.00 per cent and 20.00 per cent were fully agreed and partially agreed with this statement respectively.

Majority (52.00%) of the respondents were partially agreed with organic farming practicable followed by 30.00 per cent respondents fully agreed with this statement and 18.00 per cent were not agreed with this statement.

54.00 per cent of respondents were fully agreed with organic farming is sustainable followed by 36.00 per cent and 10.00 per cent were partially and not agreed with this statement respectively.

Majority (42.00%) of the respondents were fully agreed with organic manure application have relative advantage over chemical fertilizer.

Half of the respondents (50.00%) were fully agreed with organic farming practices helps to improve soil health.

In case of organic cotton majority i.e. 56.00 per cent of the respondents were not agreed with organic farming is profitable followed by 24.00 per cent and 20.00 per cent were partially agreed and fully agreed with this statement respectively.

Majority (42.00%) of the respondents were not agreed with organic farming practicable followed by 40.00 per cent respondents fully agreed with this statement and 18.00 per cent were not agreed with this statement.

52.00 per cent of respondents were fully agreed with organic farming is sustainable followed by 34.00 per cent and 14.00 per cent were partially and not agreed with this statement respectively.

Majority (44.00%) of the respondents were partially agreed with organic manure application have relative advantage over chemical fertilizer.

Nearly half of the respondents (46.00%) were fully agreed with organic farming practices helps to improve soil health.

Table 22. Distribution of respondents according to their level of attitude towards organic farming

Sl. No.	Category	Respondents (100)			
		Soybean farmer(50)		Cotton farmers (50)	
		Frequency	Percentage	Frequency	Percentage
1	Less favourable	22	44.00	15	30.00
2	Moderately favourable	23	46.00	22	44.00
3	Highly favourable	05	10.00	13	26.00
	Total	50	100	50	100

It is observed from the above table that majority of organic soybean cultivating respondents (46.00%) had moderately favorable attitude followed by 44.00 per cent were having less favorable attitude and only 10.00 per cent of respondents had highly favorable attitude. In case of organic cotton 44.00 per cent of the respondents had moderately favorable attitude and 30.00 per cent were having less favorable attitude followed by 26.00 per cent of respondents had highly favorable attitude.

Thus, it is concluded that majority of organic soybean (46.00%) and majority of organic cotton that is 44.00 per cent had moderately favorable attitude towards organic farming. This finding were similar with James Mohan (2014) and Rawat (2014).

5.1.11 Risk orientation

It refers to the ability of the respondents to take risk and face the challenges while adopting new technologies. The distribution of respondents according to risk orientation is presented in Table 23 and diagrammatically depicted in Fig. 15

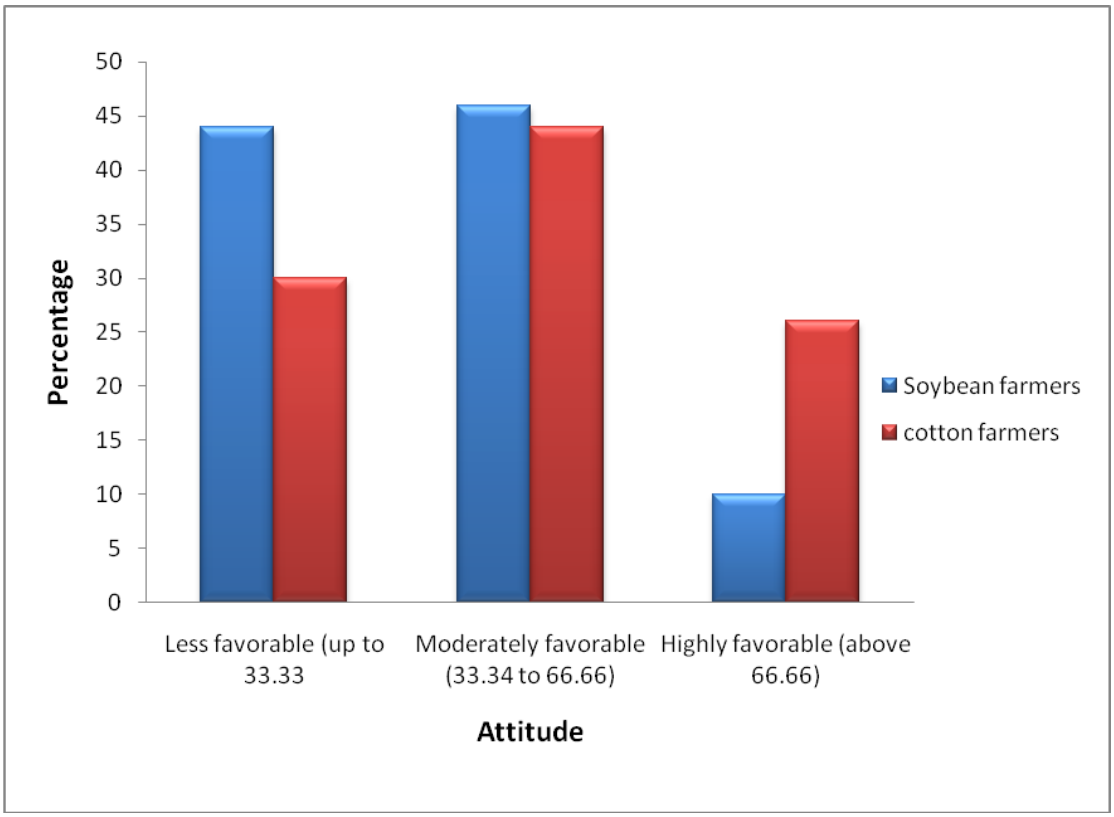


Fig. 13. Distribution of organic soybean and cotton cultivating respondents according to their attitude towards organic farming

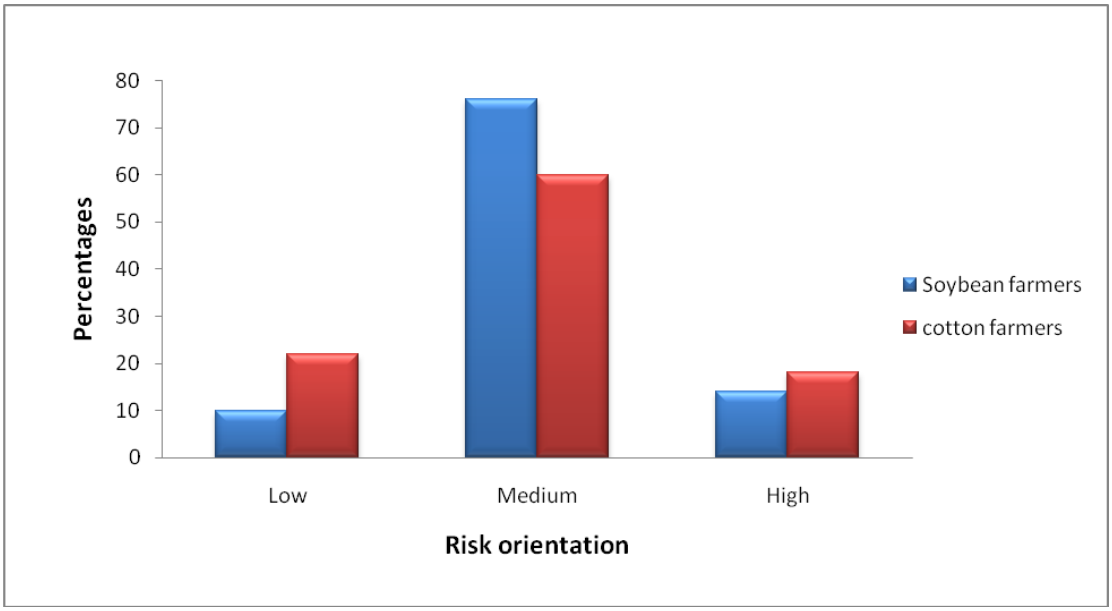


Fig. 14. Distribution of organic soybean and cotton cultivating respondents according to risk orientation

Table 23. Distribution of respondents according to risk orientation

Sl. No.	Risk orientation	Soybean (50)		Cotton (50)	
		Frequency	Percentage	frequency	Percentage
1.	Low	5	10.00	11	22.00
2.	Medium	38	76.00	30	60.00
3.	High	7	14.00	9	18.00
	Total	**50**	**100**	**50**	**100**

Soybean farmers Mean = 20.4 SD = 3.74

Cotton farmers Mean = 19.66 SD = 5.60

The distribution of respondents in Table 22 and as illustrated in Fig. indicates that, more than three fourth of the organic soybean cultivating respondents (76.00%) were included in medium category of risk orientation. 14.00 per cent of respondents were found in high category and a less percentage of respondents (10.00%) were included in low category of risk orientation. While In case of organic cotton many of the respondents (60.00%) were included in medium category of risk orientation followed by 22.00 per cent and 18.00 per cent were included in low and high category of risk orientation respectively.

It leads to conclude that higher numbers of organic soybean (76.00%) and organic cotton (60.00%) cultivating respondents were belonged to medium category of risk orientation. These findings were confirmed by Pawar (2014), Chohan (2016), Kadu (2016) and Korde (2017).

5.2 Knowledge

The knowledge refers to the actual awareness of the respondents about recommended organic farming practices in soybean and cotton crop.

5.2.1. Practice wise knowledge about recommended organic farming practices in soybean and cotton

Distribution of the respondents by practice wise knowledge of recommended organic farming practices of soybean and cotton is depicted in Table 24

Table 24. Distribution of the respondents according to their practices wise knowledge recommended for organic farming in soybean and cotton

Sl No.	Recommended Practices	Respondents (n=100)			
		Soybean farmers (50)		Cotton farmers (50)	
		Yes	No	Yes	No
		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
1.	Treatment of seed before sowing	44 (88.00)	6 (12.00)	47 (94.00)	3 (6.00)
2.	Bio fertilizer recommended for seed treatment	40 (80.00)	10 (20.00)	41 (82.00)	9 (18.00)
3.	Soil mulching	36 (72.00)	14 (28.00)	28 (56.00)	22 (44.00)
4.	Green manuring	38 (76.00)	12 (24.00)	34 (68.00)	16 (32.00)
5.	Intercrop in soybean and cotton	46 (92.00)	4 (8.00)	45 (90.00)	5 (10.00)
6.	Inter cultivation practices	50 (100.00)	Nil	50 (100.00)	Nil
7.	Method of compost preparation	40 (80.00)	10 (20.00)	41 (82.00)	9 (18.00)
8.	Recommended dose of manure and compost /ha.	31 (62.00)	19 (38.00)	41 (82.00)	9 (18.00)
9.	Bio pesticides recommended for pest control	40 (80.00)	10 (20.00)	40 (80.00)	10 (20.00)
10.	Biological measures recommended for control of diseases	41 (82.00)	9 (18.00)	44 (88.00)	6 (12.00)
11	Use of light trap	42 (84.00)	8 (16.00)	42 (84.00)	8 (16.00)
12.	Use of pheromone trap	38 (76.00)	12 (24.00)	32 (64.00)	18 (36.00)

(Figures in parentheses indicate percentage)

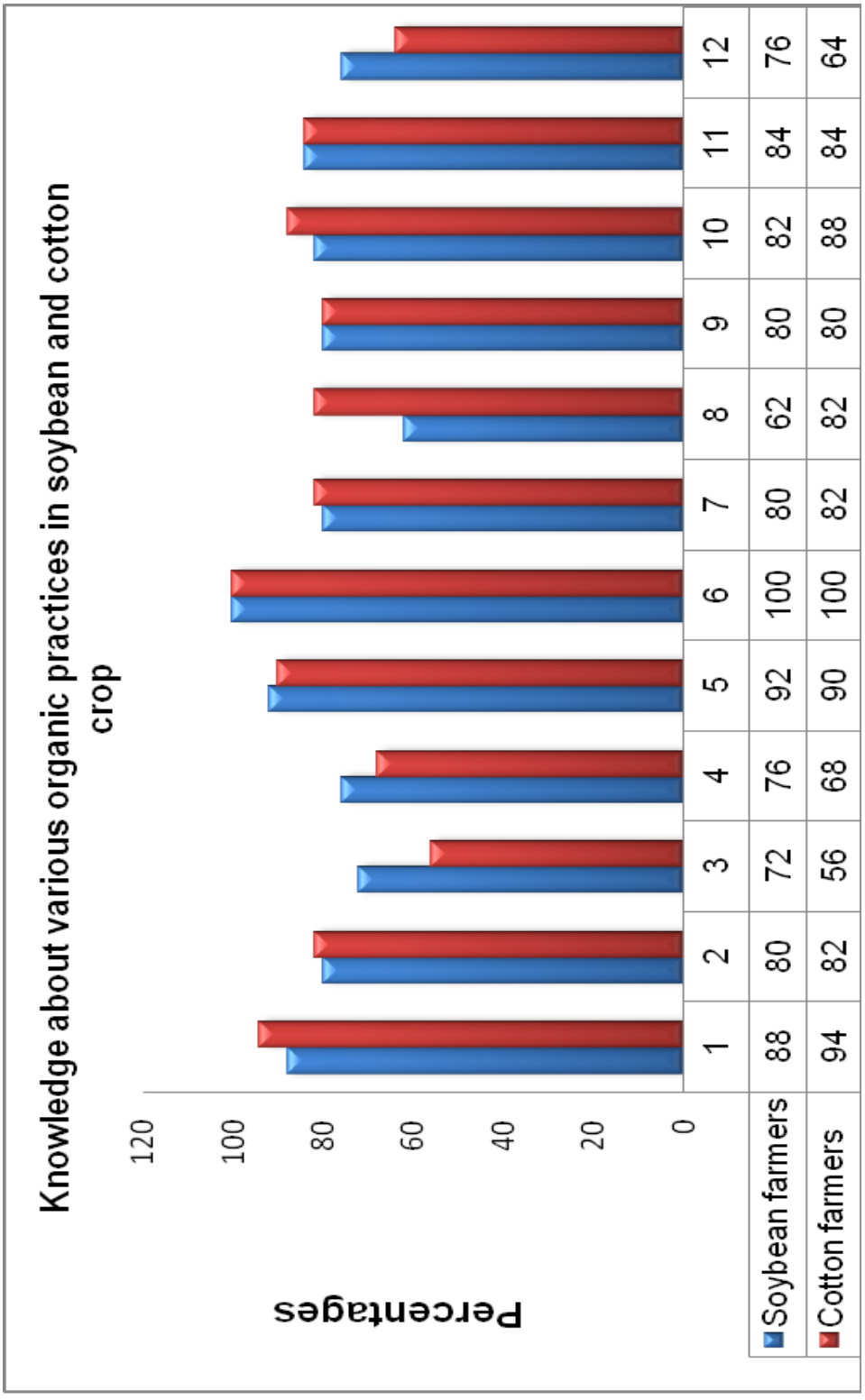


Fig. 15. Distribution of organic soybean and cotton cultivating respondents according to the practices wise knowledge of organic farming

It is observed from Table 24 that in case of organic soybean cultivation practices overwhelming cent per cent (100.00%) of respondents had knowledge about inter cultivation practices in soybean followed by higher percentage i. e. 92.00 per cent respondents had knowledge about inter crops in soybean crop and 88.00 per cent respondents had knowledge about treatment of soybean seed before sowing.

It was seen from the Table that higher numbers of respondents i. e 84.00 per cent, 82.00 per cent and 80.00 per cent had knowledge about light trap, biological measures in soybean crop recommended for control of diseases and bio pesticides recommended for pest control in soybean respectively. Also higher percentage of respondents i.e 80.00 per cent had knowledge about scientific method of compost preparation.

It was found that slightly more than three fourth (76.00%) of the respondents had knowledge about pheromone trap. less than two third i.e. only 62.00 per cent of the respondents had knowledge about recommended dose of manure/compost.

More than one third (38.00%) of the respondents had no knowledge about recommended dose of organic manure and compost/ ha in soybean.

In case of organic cotton cultivation practices overwhelming cent per cent (100.00%) of respondents had knowledge about inter cultivation practices in cotton followed by higher percentage i.e 94.00 per cent respondents had knowledge about treatment of cotton seed before sowing and 90.00 per cent respondents had knowledge about intercrops in cotton.

It was seen from table that higher numbers of respondents i.e 88.00 per cent and 84.00 per cent had knowledge about biological measures in cotton crop recommended for control of diseases and use of light trap.

Higher percentage i.e 82.00 per cent of the respondents had knowledge about method of compost preparation, recommended bio

fertilizer used for seed treatment and recommended dose of manure and compost/ ha in cotton crop. It was found that near about two third i.e 64.00 per cent of the respondents had knowledge about pheromone trap and more tham half i.e 56.00 per cent respondents had knowledge about soil mulching.

Less than half (44.00%) and more one third (36.00%) of the respondents had no knowledge about soil mulching and use of pheromone trap.

Thus we can conclude that, the respondents were having good knowledge level with regard to recommended organic farming cultivation practices of soybean and cotton crop.

Table 25. Distribution of the respondents according to their knowledge of the recommended organic cultivation practices in soybean and cotton

Sl. No.	Knowledge	Respondents (n=100)			
		soybean (50)		cotton (50)	
		Frequency	Percentage	Frequency	Percentage
1.	Low	7	14.00	7	14.00
2.	Medium	30	60.00	31	62.00
3.	High	13	26.00	12	24.00
	Total	50	100	50	100

Soybean farmers mean= 69.15 SD=19.57

Cotton farmers mean= 57.31 SD=21.21

It was observed from Table 25 and illustrated in Fig. 16 that, in case of organic soybean cultivating respondents the majority (60.00%) of the respondents had medium level of knowledge of recommended organic cultivation practices of soybean, whereas 26.00 per cent of the respondents had high level knowledge and 14.00 per cent were having low level of knowledge of recommended cultivation practices of soybean.

In case of organic cotton cultivating respondents the majority (62.00%) of the respondents had medium level of knowledge of recommended organic cultivation practices of cotton, whereas, 24.00 per

cent of the respondents had high level knowledge and 14.00 per cent were having low level of knowledge of recommended cultivation practices of cotton.

The study concluded that, majority of the respondents had medium level knowledge of organic farming practices of soybean and cotton. This finding were supported with Dinesh N. et. al. (2010) and Pimpalkar (2014) who were reported that majority of respondents possessed medium level of knowledge.

5.3. Adoption

Adoption shows the present state of use of recommended cultivation practices of organic soybean and cotton farming

5.3.1. Practice wise adoption of recommended organic farming practices in soybean and cotton

Distribution of respondents by practice wise adoption of recommended organic farming cultivation practices is depicted in Table 24.

From Table 26 and Fig.17 in case of organic soybean it is revealed that, with respect to inter cultivation practices in organic soybean, overwhelming cent per cent of the respondents (100.00%) had complete adoption about inter cultivation practices.

Majority i.e. 82.00 per cent of the respondents had complete adoption of seed treatment before sowing and 66.00 per cent of the respondents had complete adoption of biological measures recommended for control of diseases in soybean.

Less than two third i.e 62.00 per cent respondents adopted completely the recommended bio fertilizer for seed treatment followed by exactly half (50.00%) of the respondents were completely adopted inter crop in soybean.

With regards to soil mulching more than three fourth (80.00%) of the respondents possessed no adoption. In case of use of pheromone trap more than two third (68.00%) of the respondents had no adoption.

Table 26. Distribution of organic cotton cultivating respondents according to their practice wise adoption of recommended package of practice

Sl no	Recommended Practices of organic soybean cultivation	Organic soybean(50)			Organic Cotton (50)		
		CA Freq (%)	PA Freq (%)	NA Freq (%)	CA Freq (%)	PA Freq (%)	NA Freq (%)
1.	Treatment of seed before sowing	41 (82.00)	2 (4.00)	7 (14.00)	42 (84.00)	2 (4.00)	6 (12.00)
2.	Bio fertilizer recommended for seed treatment	31 (62.00)	12 (24.00)	7 (14.00)	30 (60.00)	10 (20.00)	10 (20.00)
3.	Soil mulching	1 (2.00)	9 (18.00)	40 (80.00)	4 (8.00)	15 (30.00)	31 (62.00)
4.	Green manuring	13 (26.00)	28 (52.00)	9 (18.00)	8 (16.00)	16 (32.00)	26 (52.00)
5.	Intercrop in soybean and cotton	25 (50.00)	20 (40.00)	5 (10.00)	35 (70.00)	9 (18.00)	6 (12.00)
6.	Inter cultivation practices	50 (100.00)	0 (0.00)	0 (0.00)	50 (100.00)	0 (0.00)	0 (0.00)
7.	Method of compost preparation	9 (18.00)	30 (60.00)	11 (22.00)	18 (36.00)	22 (44.00)	10 (20.00)
8.	Recommended dose of manure and compost /ha.	18 (36.00)	21 (42.00)	11 (22.00)	10 (20.00)	28 (56.00)	12 (24.00)
9.	Bio pesticides recommended for pest control	12 (24.00)	26 (52.00)	12 (24.00)	10 (20.00)	29 58.00)	11 (22.00)
10	Biological measures recommended for control of diseases	33 (66.00)	15 (30.00)	2 (4.00)	15 (30.00)	25 (50.00)	10 (20.00)
11	Use of light trap	14 (28.00)	27 (54.00)	9 (18.00)	17 (34.00)	20 (40.00)	13 (26.00)
12	Use of pheromone trap	6 (12.00)	10 (20.00)	34 (68.00)	4 (8.00)	19 (38.00)	27 (54.00)

(Figures in parentheses indicate percentage)

(CA - Complete Adoption, PA - Partial Adoption, NA -No Adoption)

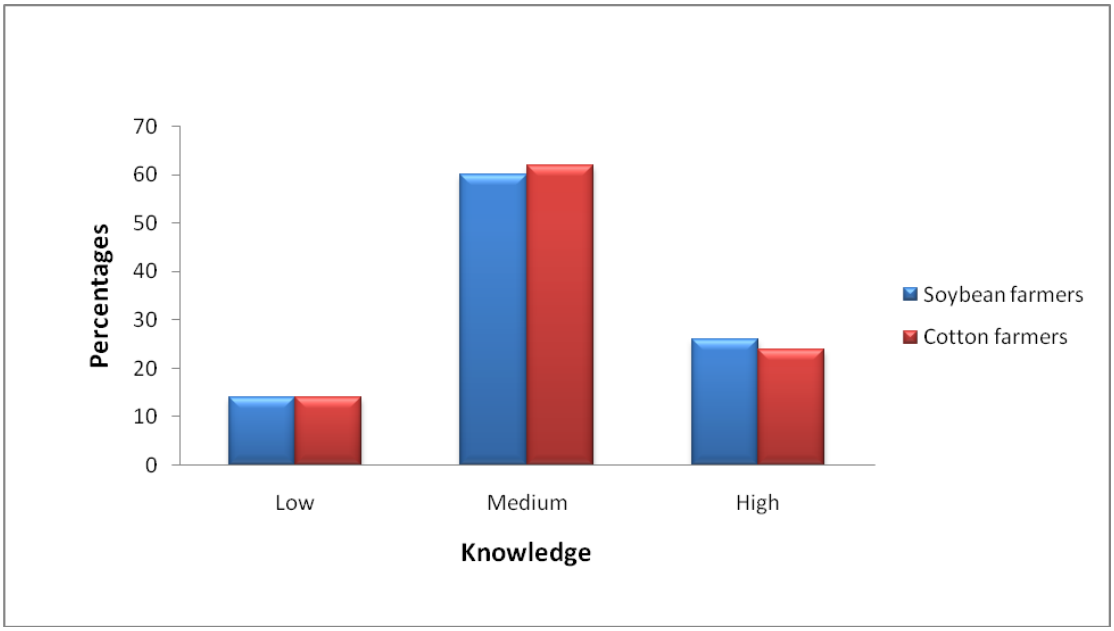


Fig. 16. Distribution of organic soybean and cotton cultivating respondents according to the overall level of knowledge

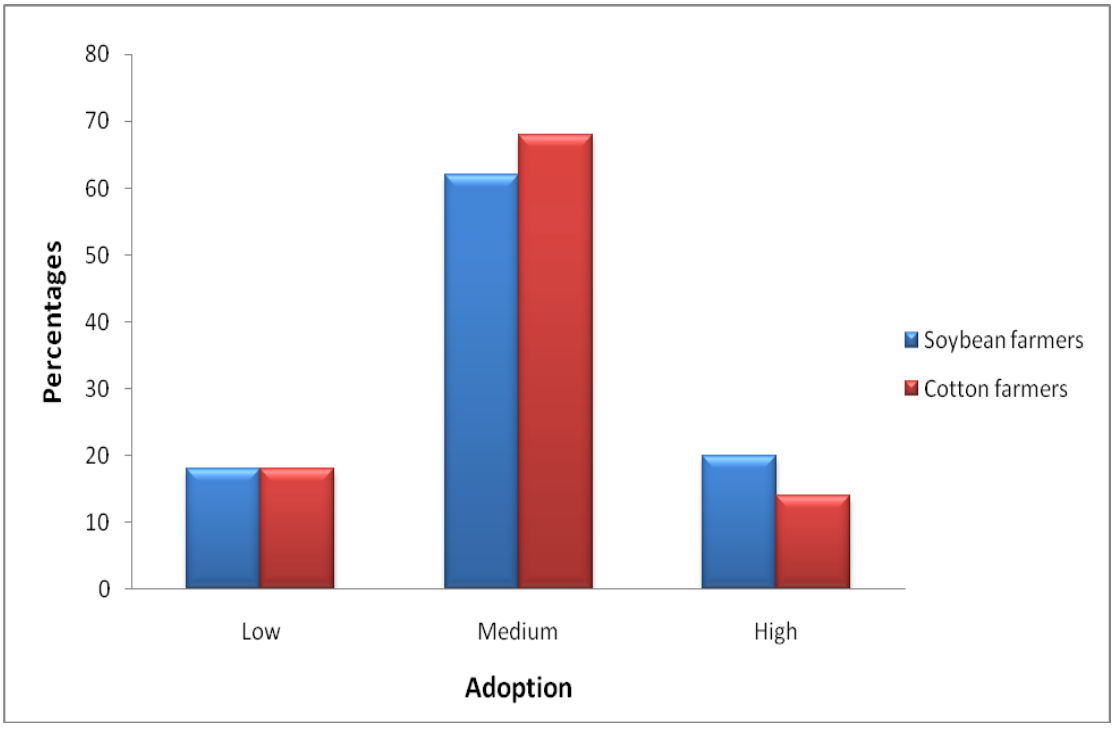


Fig. 17. Distribution of organic soybean and cotton cultivating respondents according to the overall level of adoption

In case of bio pesticide recommended for pest control near about one fourth (24.00%) and in both cases of recommended dose of manure and compost/ ha and method of compost preparation less than one fourth (22.00%) of the respondents had no adoption.

From Table 26 and Fig. 17 in case of organic cotton it is revealed that, with respect to inter cultivation practices in organic soybean, overwhelming cent per cent of the respondents (100.00%) had complete adoption about inter cultivation practices.

Majority i.e. 84.00 per cent of the respondents had complete adoption of seed treatment before sowing and 70.00 per cent of the respondents had complete adoption of recommended inter crop in cotton

More than half i.e 60.00 per cent respondents completely adopted the recommended bio fertilizer for seed treatment.

With regards to soil mulching near about two third (62.00%) of the respondents possessed no adoption. In case of use of pheromone trap more than half (54.00%) of the respondents had no adoption.

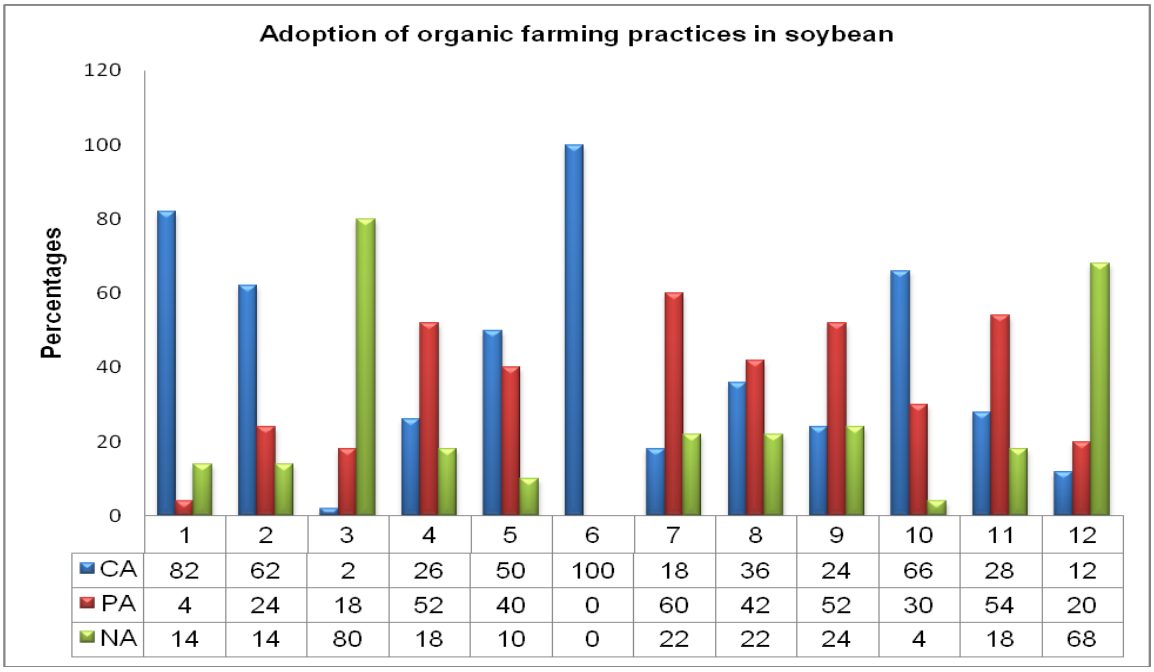
In case of green manuring slightly more than half (52.00%) respondents and in case of recommended dose of organic manure and compost/ ha near about one fourth (24.00%) of the respondents had no adoption.

Table 27. Distribution of the respondents according to the adoption of the recommended organic cultivation practices in soybean and cotton

Sl. No.	Adoption	Respondents (n=100)			
		Organic soybean farmers (50)		Organic cotton farmers (50)	
		Frequency	Percentage	Frequency	Percentage
1.	Low	9	18.00	9	18.00
2.	Medium	31	62.00	34	68.00
3.	High	10	20.00	7	14.00
	Total	50	100	50	100

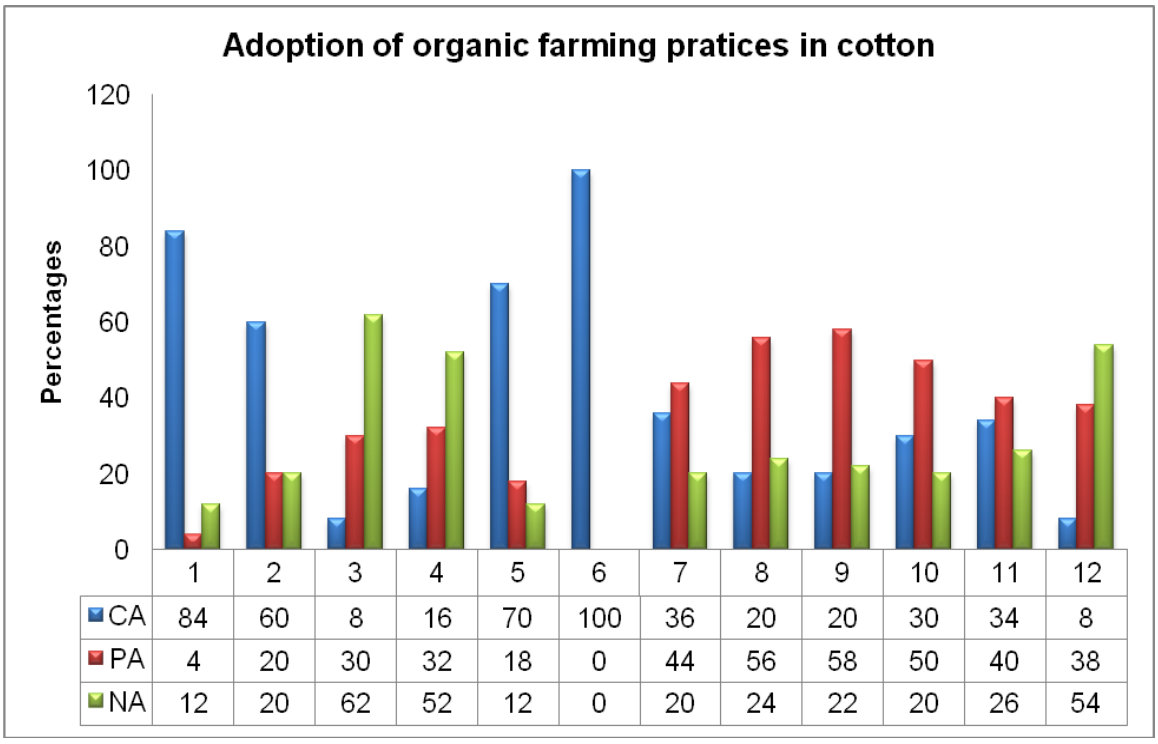
Soybean farmers mean= 65.82 SD=16.85

Cotton farmers mean= 48.99 SD=19.75



	1	2	3	4	5	6	7	8	9	10	11	12
CA	82	62	2	26	50	100	18	36	24	66	28	12
PA	4	24	18	52	40	0	60	42	52	30	54	20
NA	14	14	80	18	10	0	22	22	24	4	18	68

Fig.18. Distribution of organic soybean cultivating respondents according to the practices wise adoption



	1	2	3	4	5	6	7	8	9	10	11	12
CA	84	60	8	16	70	100	36	20	20	30	34	8
PA	4	20	30	32	18	0	44	56	58	50	40	38
NA	12	20	62	52	12	0	20	24	22	20	26	54

Fig.19. Distribution of organic soybean cultivating respondents according to the overall level of knowledge

It was observed from Table 28 and illustrated in Fig 19 that, in case of organic soybean cultivating respondents the majority (62.00%) of the respondents had medium level of adoption of recommended organic cultivation practices of soybean, whereas 20.00 per cent of the respondents had high level adoption and 18.00 per cent were having low level of adoption of recommended cultivation practices of soybean.

In case of organic cotton cultivating respondents the majority (68.00%) of the respondents had medium level of adoption of recommended organic cultivation practices of cotton, whereas 18.00 per cent of the respondents had low level of adoption and 14.00 per cent were having high level of adoption of recommended cultivation practices of cotton.

The study concluded that, majority of the respondents had medium level adoption of organic farming practices of soybean and cotton. Similar result were reported by Kumar (2012) and Motiwale (2017) who were reported that majority of the respondents had medium level of knowledge.

5.3.2. Relationship of selected characteristics of organic soybean and cotton cultivating respondents with their knowledge

The correlation coefficients of knowledge of about organic farming practices with independent variables have been depicted in Table 28

It was noted from Table 28 in case of organic soybean cultivating respondents education, land holding, annual income, extension contact, and training received were found to be positive and highly significant with knowledge at 0.01 level of probability. Whereas occupation and attitude were found to be positively significant at 0.05 level of probability, while age was negatively significant with knowledge at 0.05 level of probability.

In case of organic cotton cultivating respondents land holding, extension contact, training received, attitude and risk orientation were found to be positive and highly significant at 0.01 level of probability.

Whereas occupation, annual income, social participation were found to be positively significant at 0.05 level of probability. Therefore the null hypothesis for these variables were rejected for these variable.

Whereas the variable family size was non significantly correlated with knowledge of both soybean and cotton cultivating respondents hence null hypothesis was accepted for this variable.

Table 28. Coefficient of correlation of selected characteristics of organic soybean and cotton cultivating respondents with their knowledge

Sl. No.	Variable	Organic Soybean cultivating respondents	Organic cotton cultivating respondents
		'r' value	'r' value
1.	Age	-0.2843*	-0.1961*
2.	Education	0.4224**	0.5321*
3.	Family size	0.0995^{NS}	0.1459^{NS}
4.	Occupation	0.3017*	0.3855*
5.	Land holding	0.4057**	0.4823**
6.	Annual income	0.4486**	0.2671*
7.	Extension contact	0.3624**	0.4161**
8.	Social participation	0.1238	0.3584*
9.	Training received	0.4711**	0.3953**
10.	Attitude	0.3794*	0.4840**
11.	Risk orientation	0.2814NS	0.3687**

*- Significant at 0.05 level of probability

**- Significant at 0.01 level of probability

NS - Non- significant

Table 29. Coefficient of correlation of selected characteristics of organic soybean and cotton cultivating respondents with their adoption

Sl. No.	Variable	Organic Soybean cultivating respondents	Organic cotton cultivating respondents
		'r' value	'r' value
1.	Age	-0.3176*	-0.2167*
2.	Education	0.4171**	0.4876**
3.	Family size	0.0541^{NS}	0.2037^{NS}
4.	Occupation	0.3019*	0.2249^{NS}
5.	Land holding	0.3721*	0.6294**
6.	Annual income	0.4149**	0.3105*
7.	Extension contact	0.3046*	0.3190*
8.	Social participation	0.1418^{NS}	0.3696**
9.	Training received	0.4317**	0.4270**
10.	Attitude	0.3510*	0.6461**
11.	Risk orientation	0.3200*	0.4306**

*- Significant at 0.05 level of probability

**- Significant at 0.01 level of probability

NS - Non- significant

It was observed from Table 29 in case of organic soybean cultivating respondents education, annual income, training received were found to be positive and highly significant with adoption at 0.01 level of probability while occupation, land holding extension contacts, attitude and risk orientation were found to be positively significant with adoption at 0.05 level of probability. Therefore the null hypothesis was rejected for these variables. Whereas family size and social participation was non significantly correlated with adoption hence null hypothesis was accepted for these variables.

In case of organic cotton cultivating respondents education, land holding, social participation, training received, attitude and risk orientation were found to be positive and highly significant with adoption at 0.01 level of probability. Annual income, extension contact, were found to

be positively significant with adoption at 0.05 level of probability. Therefore the null hypothesis for these variables were rejected for these variables. Whereas, the variable family size and occupation was non significantly correlates with adoption hence null hypothesis was accepted for this variable.

5.4. Constraints

In the present study constraints referred to problems or difficulties faced by the respondents in adoption of recommended cultivation practices of black gram. The relevant data in this regard has been depicted in Table 30.

Table 30. Distribution of respondents according to the constraints faced during organic farming practices

Sl. No.	Constraints	Respondents (n=100)		Ranks
		Frequency	Percentage	
1.	Inadequate availability of organic inputs in time	80	80	I
2.	Inadequate transport facilities	55	55	X
3.	Scarcity of irrigation water	60	60	VIII
4.	Lack of control measures for pest and diseases	72	72	IV
5.	High risk and uncertainty of returns	65	65	VI
6.	Lack of quality training on organic farming practices	75	75	III
7.	Lack of technical guidance on organic farming	62	62	VII
II.	Marketing related problems			
1.	Insufficient premium price for organic produce	70	70	V
2.	Insufficient marketing channels for organic produce	77	77	II
3.	No labeling/standard for organic produce	56	56	IX

It was observed from Table 30 that majority (80.00%) of the respondents were expressed problem with inadequate availability of organic inputs in time followed by 77.00 per cent respondents were expressed the problem of insufficient marketing channels for organic produce and 70.00 per cent respondents were facing problems of lack of quality training on organic farming which ranked as I, II, III respectively. Also respondents facing problems of lack of control measures for pest and diseases (72.00%),insufficient premium price for organic produce (70.00%) which ranked IV and V respectively. Further, 65.00 per cent respondents facing problems of high risk and uncertainly, 62.00 per cent respondents expressed problem of lack of technical guidance on organic farming. Other problems like scarcity of irrigation water (60.00%), no labeling/ std for organic produce (56.00%) and inadequate transport facilities (55.00%) were faced by the respondents.

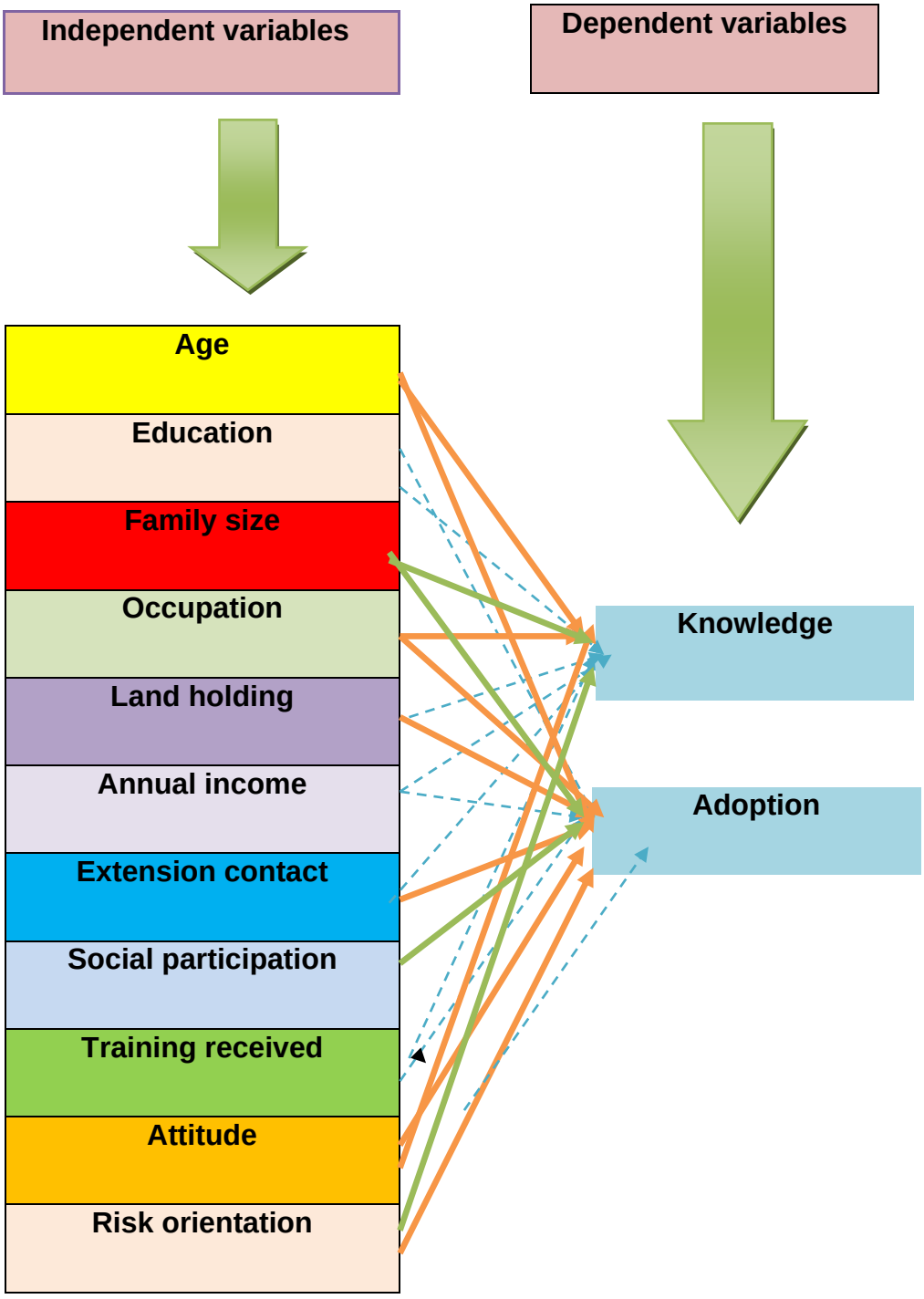


Fig. 20. Empirical model of study for organic soybean farmers

Significant at 0.01 level of probability

Significant at 0.05 level of probability

Non significant

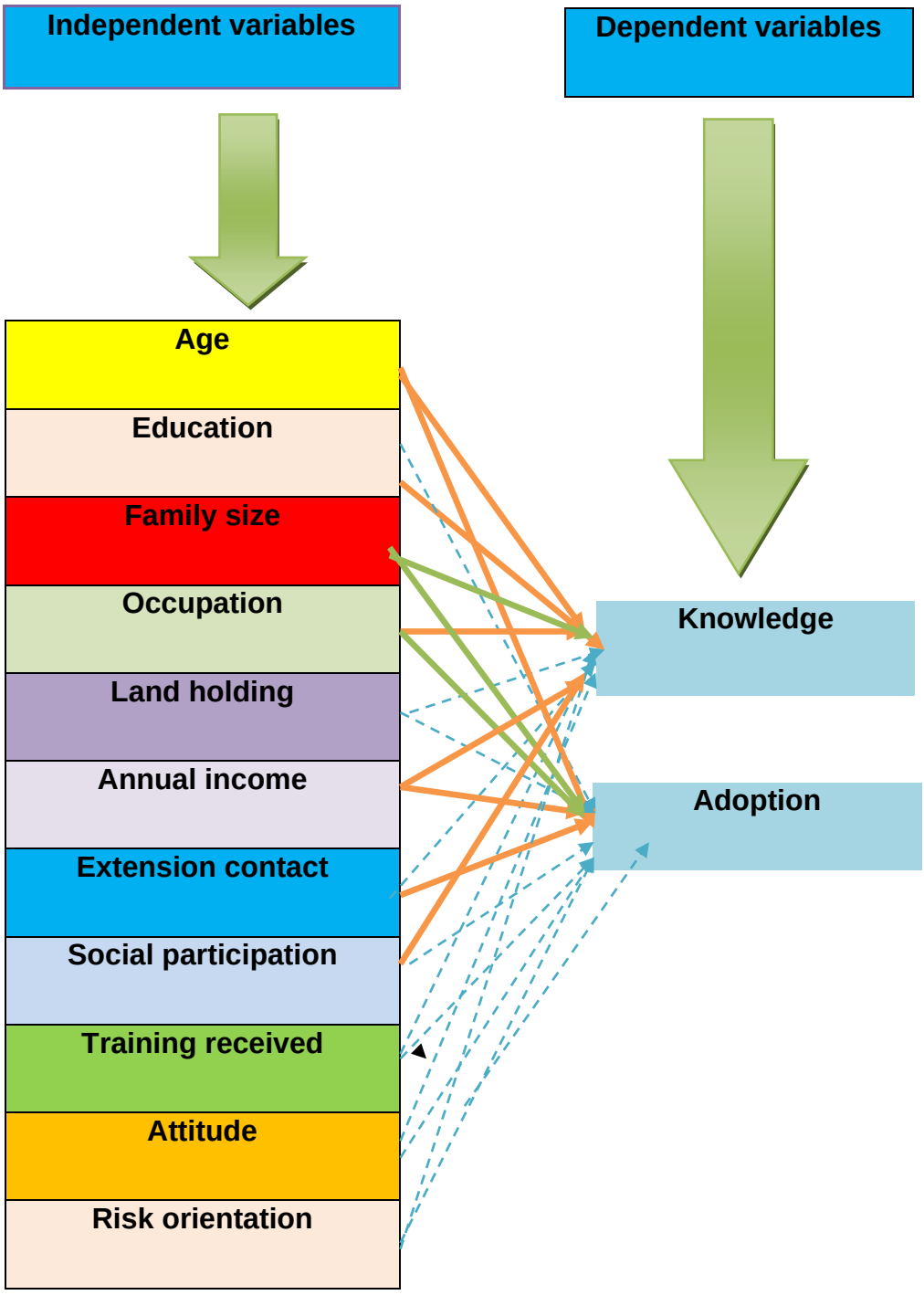


Fig. 21. Empirical model of study for organic cotton farmer

Significant at 0.01 level of probability

Significant at 0.05 level of probability

Non significant

CHAPTER VI

SUMMARY AND CONCLUSION

The present study "Knowledge and adoption of farmers about organic farming practices" was conducted in Akola taluka of Akola district. The study was planned to investigate knowledge and adoption of Organic Soybean and cotton growers about recommended organic farming practices. It was also thought to be worthwhile to ascertain the constraints faced by organic growers about recommended organic farming practices. With this view in mind the study was carried out with the following specific objectives.

1. To study the personal, socio-economic, communicational and psychological characteristics of farmers
2. To study the knowledge and adoption of the farmers about organic farming practices
3. To study the relationship between selected characteristics of the respondents with their knowledge and adoption of organic farming practices
4. To identify constraints faced by farmers in adoption of organic farming practices

The exploratory design of social research was used for the present investigation. The data was collected from Akola, Panchayat Samiti of Akola district in Maharashtra state. From this Panchayat Samiti, 10 villages were selected on the basis of large area under soybean and cotton cultivation. The list of the farmers in the selected villages was prepared in consultation with Talathi and Sarpanch. From the list 10 farmers were selected purposively from each village. Thus, 100 farmers constituted the sample for the study. Data was collected by personally interviewing the respondents with help of pre-tested and structured schedule. The data collected were tabulated and the statistical tools namely mean, standard deviation and correlation analysis were employed for interpretation of the

findings. Null hypothesis set for the study were tested for its acceptance or rejection.

The characteristics of the farmers namely age, education, family size, occupation, land holding, annual income, extension contact, social participation, training received, attitude and risk orientation were studied as independent variables. Whereas, knowledge and adoption were studied as dependent variables.

6.1 Findings

The salient findings of the study are summarized in succeeding paragraphs.

6.1.1 Profile of the respondents

1. Majority of the organic soybean (62.00%) and organic cotton (50.00%) cultivating respondents were in the middle age group of 36 to 50 years.
2. Near about one third of the organic cotton cultivating respondents i.e. 34.00 and less than half i. e. 42.00 per cent of the organic soybean cultivating respondents were educated up to secondary school.
3. Majority of the organic soybean (54.00%) and cotton (60.00%) cultivating respondents were belonged to medium level of family size having 4 to 6 members in their family.
4. Near about half of the organic soybean (48.00%) and cotton (44.00%) cultivating respondents were having agriculture as their main occupation.
5. Exactly half of the organic soybean that is 50.00 per cent and more than one third of the organic cotton (38.00%) cultivating respondents were found to be in semi medium land holding category.
6. More number of organic soybean i. e. 38.00 per cent and organic cotton i. e. 40.00 per cent of the respondents had annual income up to Rs. 1,22,0010/- and between Rs. 1,68,001/- to Rs. 3,36,000/- respectively.
7. More than two third i.e. 68.00 per cent of the organic soybean and nearly three fourth i. e. 74.00 per cent of the organic cotton cultivating

respondents were found to be in the medium level of the extension contact.

8. More than three fourth of the organic soybean i.e. 68.00 per cent and 62.00 per cent of the organic cotton cultivating respondents were in the medium level of the social participation.
9. 46.00 per cent of the organic soybean cultivating respondents received low level of training followed by 42.00 per cent who were received medium training. While in case of organic cotton cultivating respondents near about half (48.00%) of the respondents were received medium training followed by low (40.00%) training received.
10. Majority of the organic soybean (46.00%) and organic cotton (44.00%) cultivating respondents had positive attitude towards organic farming.
11. More than three fourth (76.00%) of the organic soybean and 60.00 per cent of organic cotton cultivating respondents were included in medium level of risk orientation.

6.1.2 Knowledge and adoption

6.1.2.1Knowledge of organic farming practices in soybean and cotton

In case of organic soybean cultivation practices overwhelming cent per cent (100.00%) of respondents had knowledge about inter cultivation practices in soybean followed by higher percentage i.e 92.00 per cent respondents had knowledge about inter crops in soybean crop and 88.00 per cent respondents had knowledge about treatment of soybean seed before sowing. Higher numbers of respondents i.e 84.00 per cent, 82.00 per cent and 80.00 per cent had knowledge about light trap, biological measures in soybean crop recommended for control of diseases and bio pesticides recommended for pest control in soybean respectively. Also higher percentage of respondents i.e 80.00 per cent had knowledge about scientific method of compost preparation. It was found that slightly more than three fourth (76.00%) of the respondents had knowledge about pheromone trap. less than two third i.e only 62.00 per cent of the respondents had knowledge about recommended dose of manure/compost.

More than one third (38.00%) of the respondents had no knowledge about recommended dose of organic manure and compost/ ha in soybean.

In case of organic cotton cultivation practices overwhelming cent per cent (100.00%) of respondents had knowledge about inter cultivation practices in cotton followed by higher percentage i.e 94.00 per cent respondents had knowledge about treatment of cotton seed before sowing and 90.00 per cent respondents had knowledge about intercrops in cotton.

More numbers of respondents i.e 88.00 per cent and 84.00 per cent had knowledge about biological measures in cotton crop recommended for control of diseases and use of light trap. Higher percentage i.e 82.00 per cent of the respondents had knowledge about method of compost preparation, recommended bio fertilizer used for seed treatment and recommended dose of manure and compost/ ha in cotton crop. It was found that near about two third i.e 64.00 per cent of the respondents had knowledge about pheromone trap and more tham half i.e 56.00 per cent respondents had knowledge about soil mulching.

Less than half (44.00%) and more one third (36.00%) of the respondents had no knowledge about soil mulching and use of pheromone trap.

6.1.2.2 Adoption of recommended cultivation practices in soybean and cotton

In case of organic soybean cultivation practices overwhelming cent per cent (100.00%) of respondents had complete adoption about inter cultivation practices in soybean followed by higher percentage i.e 82.00 per cent respondents had complete adoption about treatment of seed before sowing and 66.00 per cent of the respondents had completely adopted biological measures recommended for control of diseases. Majority that is 60.00 per cent of the respondents had partially adopted compost preparation followed by 54.00 per cent and 52.00 per cent of the respondents had partially adopted light trap and green manuring

respectively. Majority of the respondents that is 80.00 per cent were not adopted soil mulching followed by 68.00 per cent who were not used pheromone trap.

In case of organic cotton 100.00 per cent of the respondents had adopted inter cultivation practices in cotton followed by 84.00 per cent and 70.00 per cent respondents who were adopted treatment of seed before sowing and intercrop in cotton respectively. 58.00 per cent of the respondents had partially adopted bio pesticide recommended for pest control followed by 56.00 per cent respondents partially adopted recommended dose of manure and compost. Majority of the respondents that is 62.00 per cent respondents had not adopted soil mulching. More than half that is 54.00 per cent of the respondents had not adopted pheromone trap in cotton field followed by 52.00 per cent of the respondents not adopted green manuring.

6.1.3. Relational analysis

6.1.3.1Knowledge

In case of organic soybean cultivating respondents education, land holding, annual income, extension contact, and training received were found to be positive and highly significant with knowledge at 0.01 level of probability. Whereas occupation and attitude were found to be positively significant at 0.05 level of probability, while age was negatively significant with knowledge at 0.05 level of probability.

In case of organic cotton cultivating respondents land holding, extension contact, training received, attitude and risk orientation were found to be positive and highly significant at 0.01 level of probability. Whereas occupation, annual income, social participation were found to be positively significant at 0.05 level of probability. Therefore the null hypothesis was rejected for these variables.

6.1.3.2 Adoption

In case of organic soybean cultivating respondents education, annual income, training received were found to be positive and highly

significant with adoption at 0.01 level of probability while occupation, land holding extension contacts, attitude and risk orientation were found to be positively significant with adoption at 0.05 level of probability. Therefore the null hypothesis was rejected for these variables.

In case of organic cotton cultivating respondents education, land holding, social participation, training received, attitude and risk orientation were found to be positive and highly significant with adoption at 0.01 level of probability. Annual income, extension contact, were found to be positively significant with adoption at 0.05 level of probability. Therefore the null hypothesis was rejected for these variables.

6.1.4 Constraints

The major constraints face by respondents were inadequate availability of organic inputs in time (80.00%) followed by 77.00 per cent respondents were expressed the problem of insufficient marketing channels for organic produce and 70.00 per cent respondents were facing problems of lack of quality training on organic farming. Also respondents facing problems of lack of control measures for pest and diseases (72.00%),insufficient premium price for organic produce (70.00%) respectively. Further, 65.00 per cent respondents facing problems of high risk and uncertainly, 62.00 per cent respondents expressed problem of lack of technical guidance on organic farming. Other problems like scarcity of irrigation water (60.00%), no labeling/ std for organic produce (56.00%) and inadequate transport facilities (55.00%) were faced by the respondents.

CHAPTER VII

IMPLICATIONS

The implication based on the findings of the investigation have been presented into two parts viz., action and research. Implications with regards to research are based on experiences during the course of investigation and was useful for guidelines and suggestions for further research on same topic. The implications are therefore of vital importance and carries practical value. Thus deserved immediate attention of planners, policy makers, administrators and extension personnel engaged in agricultural development. The implications emerged from the findings of the present study have been presented as below. The implication based on the findings of the investigation have been presented into two parts viz., action and research. Implications with regards to research are based on experiences during the course of investigation and was useful for guidelines and suggestions for further research on same topic. Implication deserved immediate attention of planners, policy makers, administrators and extension personnel engaged in agricultural development. The implications emerged from the present study " Knowledge and adoption of farmers about organic farming practices" are reported in this section.

The finding of this study are useful in creating awareness among the soybean and cotton grower to reduce ill effect in agriculture. This study helps to provide more exposure to the soybean and cotton growers for adoption of organic farming practices.

7.1 Implication for action

1. The findings emerged out that majority of the farmers having medium level of knowledge and adoption about organic farming practices hence this study implied that extension functionaries should create awareness among the farming community about various organic farming practices, it will definitely useful for increasing the adoption level and indirectly to raised the productivity of soybean and cotton. It will also helpful to maintain soil health.

2. There is need of provision for profitable minimum support price for organic produce for greater motivation of the farmers to take up organic farming.
3. As majority of the farmers were middle and young age, this age group should be imparted training about various organic farming practices of different crops including vegetable crop.
4. Majority of the respondents had problems related to sale of their produce hence there is need to establish market exclusively for the sale of organic produce.
5. Many farmers had problems regarding the input availability hence large scale multiplication and distribution of organic input from concern development department, NGOs, farmers and other stakeholders.
6. Government may provide facility for processing and value addition of organic products to realize the benefits of organic farming.

7.1 Implication for future research

1. The present study is confined only to limited numbers of respondents in Akola taluka in Akola district. To be more realistic and in its true sense, research should be on wider area and large sample. Another study may be planned in different location with large sample size.
2. 2)The study was confined only to cotton and soybean crop, a detailed study including all crops grown in rabbi and summer may give clear picture about organic production and productivity of these crops. Therefore, comprensive research studies are needed to planned in future.

CHAPTER VIII

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VITA

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Sl. No.	**Name of Degrees awarded**	**Year in which obtained**	**Division/ Class**	**Name of awarding University**	**Subjects**
1.	B.Sc. (Agri)	2018	First Class	Dr. PDKV Akola	Agriculture

6. Research papers : NIL

7. Field of Interest : Research and Rural Development

Place: Akola (Jaya Vasant wankhade)

Date: / /2020 Signature of the Student

APPENDIX

INTERVIEW SCHEDULE

Title of research : KNOWLEDGE AND ADOPTION OF FARMERS ABOUT ORGANIC FARMING PRACTICES

Name of researcher : JAYA VASANT WANKHADE
Department of Extension Education,
Dr. P.D.K.V., Akola.

General Information

Name of farmer :

……..

Village : ……..….. **Tahasil :……** **Dist. :** Akola

: PART - I :

A) Personal characteristic

1. Age of farmer : …….. Years

2. Education : …….. Std.

3. No. family members : ……

4. Occupation :

a) Main :

b) Subsidiary :

5. Land holding

a) Rainfed : …….. acres

b) Irrigated : …….. acres

Total (a+b) : …… acres

6.Land under Cultivation

a) Area under cotton **: ……**acres

b) Area under soybean **: ……** acres

c) Area under fruit crop **: ……** acres

d) Area under vegetable crop **: ……** acres

7. Annual income

a) Income from agronomical crop **: Rs …….**

b) Income from horticultural crop **: Rs. …….**

(Including vegetable crop)

c) Income from subsidiary occupation **:** Rs. **……..**

Total Income (a+b+c) : Rs ……

B) Communicational characteristic

8. Extension contacts

Sl. No.	**Extension contact**	**Always (2)**	**Sometime (1)**	**Never (0)**
I.	**Formal sources**			
1.	Gramsevak			
2.	Agriculture Assistant			
3.	Agriculture Supervisor			
4.	Agriculture University Scientists			
5.	KVK Scientist			
II.	**Informal sources:**			
1.	NGO			
2.	Progressive farmer			
3.	Neighbourhood/ farmer/ relatives/ friends			
4.	Krishi Seva Kendra			

9. Social participation :

Are you a member or office bearer of any social organization ?

Sl. No.	Organization	Post- held			Total years
		Non-member	Member	Office bearer	
A.	**Formal organizations**				
1.	Co-operative society				
2.	Zilla parishad				
3.	Panchayat samite				
4.	Gram panchayat				
5.	School committee				
B.	**Informal organizations**				
1.	Bhajan mandal				
2.	Youth club				
3.	Farmer's club				
4.	Self Help Group (SHG)				
5.	Others (Specify)				

C) Psychological characteristics

10. Training received :

Have you undergone any training programme on organic farming?

Yes/No

How many training programme you attended ?(If Yes give information)

Sl.No	Name of training programme attended	Duration of training programme	Name of training institution	Year

11. Attitude

Sl no	Statements	Response		
		Fully agree (2)	Partially agree(1)	Disagree (0)
1.	Do you think that organic farming is profitable?			
2.	Do you think that organic farming practicable?			
3.	Do you think that organic farming is sustainable?			
4.	Do you think that organic manure application have relative advantage over chemical fertilizer?			
5.	Do you think that organic farming practices help to improve soil health			

12. Risk orientation:

Sl. No.	Statement	SA (5)	A (4)	UD (3)	DA (2)	SDA (1)
1.	A farmer should grow large number of crops to avoid greater risks involved in growing one or two groups.					
2.	A farmer should rather take more of change in making a big profit than to be content with a smaller but less risk profits.					
3.	A farmer who is willing to take greater risks than the average farmer usually does better financially.					
4.	It is good for a farmer to take risks 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 by a farmer involves risk, it is worth it.					

SA – Strongly agree, A – Agree, UD – Undecided, D – Disagree, SDA – Strongly agree.

: PART - II :

13.Knowledge of organic soybean practices

Sl. No	**Cultivation practices**	**Knowledge**	
		Yes(1)	No(0)
1)	Do you know about the treatment of soybean seed before sowing ?		
2)	Do you know about which biofertilizer is recommended for seed treatment? (Rhizobium japonicum, PSB, Tricodermma)		
3)	Do you know about soil mulching?		
4)	Do you know about green manuring?		
5)	Do you know about crop recommended as intercrop in soybean?		
6)	Do you know about recommended inter cultivation practices in soybean?		

7)	Do you know the method of compost preparation?		
8)	Do you know the recommended dose of manure/compost per ha? (Apply FYM @ 5-7 tonnes/ha or Compost @ 3-4 tonnes/ha or poultry manure @ 3 tonnes/ha or biogas slurry @ 12.5 tonnes/ha)		
9)	Do you know the name of bio-pesticide recommended for control of pest? (Spray 5% NSKE or spray Dashparni Ark or spray Chilli Garlic solution @ 75 gm/L or spray cow urine ash and dung mixture)		
10)	Do you know the biological measures recommended for control of the disease of soybean? (Apply 2.5 kg Tricoderma mixed with compost per ha. Or seed treatment with Bio fertilizers during field preparation)		
11)	Do you know about the setting of light trap?		
12)	Do you know about the setting of pheromone trap?(for early monitoring and controlling the *spodoptera litura* @ 10 traps/ha)		

14. knowledge of organic cotton practices

Sl.No	**Cultivation practices**	**Knowledge**	
		Yes(1)	No(2)
1)	Do you about the treatment of cotton seed before sowing?		
2)	Do you know about which biofertilizer is recommended for seed treatment? (Azotobacter, PSB, Tricodermma)		
3)	Do you know about soil mulching?		
4)	Do you know about green manuring?		
5)	Do you know about crop recommended as intercrop in cotton?		
6)	Do you know about recommended inter cultivation practices in cotton?		
7)	Do you know the method of compost preparation ?		

8)	Do you know the recommended dose of manure/compost per ha? (Apply FYM @ 10 tonnes/ha or Soybean Compost @ 5 tonnes/ha or Neem cake 500 kg/ha or use of green manure)		
9)	Do you know the name of bio-pesticide recommended for control of pest ? (Spray 5% NSKE or spray Dashparni Ark 4.5-5 lit in 200L water)		
10)	Do you know the biological measures recommended for control of the disease of cotton?(Apply 2.5 kg Tricoderma mixed with compost per ha. Or seed treatment with Bio fertilizers during field preparation)		
11)	Do you know about the setting of light trap?		
12)	Do you know about the setting of pheromone trap?(for early monitoring and controlling the sucking pest)		

15. Adoption of organic soybean practices

Sl. No	**Cultivation practices**	Adoption		
		CA (2)	PA (1)	NA(0)
1)	Have you follow the treatment of soybean seed before sowing ?			
2)	Have you used recommended biofertilizer for seed treatment? (Rhizobium japonicum, PSB, Tricodermma)			
3)	Have you used soil mulching?			
4)	Have you adopted green manuring?			
5)	Have you fallowed recommended crop as intercrop in soybean?			
6)	Have you followed all the inter cultivation practices recommended in soybean?			
7)	Have you prepared compost by scientific method?			

8)	Did you follow the recommended dose of manure/compost per ha? (Apply FYM @ 5-7 tonnes/ha or Compost @ 3-4 tonnes/ha or poultry manure @ 3 tonnes/ha or biogas slurry @ 12.5 tonnes/ha)			
9)	Have you adopted the bio-pesticide recommended for control of pest? (Spray 5% NSKE or spray Dashparni Ark or spray Chilli Garlic solution @ 75 gm/L or spray cow urine ash and dung mixture)			
10)	Did you adopted the biological measures recommended for control of the disease of soybean? (Apply 2.5 kg Tricoderma mixed with compost per ha. Or seed treatment with Bio fertilizers during field preparation)			
11)	Have you done the setting of light trap?			
12)	Have you done the setting of pheromone trap?(for early monitoring and controlling the *spodoptera litura* @ 10 traps/ha)			

16. Adoption of organic cotton practices

Sl. No	**Cultivation practices**	Adoption		
		CA (2)	PA (1)	NA(0)
1)	Have you followed the treatment of cotton seed before sowing ?			
2)	Have you adopted recommended for seed treatment? (Azotobacter, PSB, Tricodermma)			
3)	Have you know about soil mulching?			
4)	Have you adopted about green manuring?			
5)	Have you adopted the crop recommended as intercrop in cotton?			
6)	Have you adopted all the recommended cultivation practices in cotton?			
7)	Have you adopted scientific method of compost preparation ?			
8)	Did you followed the recommended dose of manure/compost per ha? (Apply FYM @ 10			

	tonnes/ha or Soybean Compost @ 5 tonnes/ha or Neem cake 500 kg/ha or use of green manure)			
9)	Have you used the recommended bio-pesticide for control of pest? (Spray 5% NSKE or spray Dashparni Ark 4.5-5 lit in 200L water)			
10)	Have you adopted any biological measures recommended for control of the disease of cotton? (Apply 2.5 kg Tricoderma mixed with compost per ha. Or seed treatment with Bio fertilizers during field preparation)			
11)	Did you adopted the setting of light trap?			
12)	Have you adopted the setting of pheromone trap?(for early monitoring and controlling the *sucing pest*)			

(CA-Complete adoption, NA- No adoption, PA-Partial adoption)

:: Part : III ::

Constraints :

1. ……..

2. ……

3. ……

4. ……