ENTREPRENEURIAL BEHAVIOUR OF ONION SEED PRODUCERS

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)

By

GAWARE KOMAL MARUTI

DEPARTMENT OF EXTENSION EDUCATION
POST GRADUATE INSTITUTE, AKOLA

DR. PANJABRAO DESHMUKH KRISHI VIDYAPEETH
KRISHINAGAR PO, AKOLA (MS) 444104

Enrolment Number -PP/3337 **2019**

DECLARATION OF STUDENT

I hereby declare that, the experimental work and its interpretation in the thesis entitled "ENTREPRENEURIAL BEHAVIOUR OF ONION SEED PRODUCERS" 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 **(Gaware Komal Maruti)**

Date: / /2019 Enrolment No. PP/3337

CERTIFICATE

This is to certify that, thesis entitled **"ENTREPRENEURIAL BEHAVIOUR OF ONION SEED PRODUCERS"** 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 **GAWARE KOMAL MARUTI** under my guidance and supervision.

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

Place: Akola
Date: / /2019

(Dr. N. P. JANGWAD)
Chairman
Advisory Committee

Countersigned

Associate Dean
Post Graduate Institute
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

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

1. Chairman **(Dr. N. P. Jangwad)** _____
2. Member **(Dr. P. K. Wakle)** _____
3. Member **(Dr. Y. B. Shambharkar)** _____
4. Member **(Dr. S. M. Ghawade)** _____
5. External Examiner ( ) _____

ACKNOWLEDGEMENT

Acknowledgement is written at last, placed at first and read the least, but still it is the only opportunity to thank one and all who are conscientious in completion of this work. As an amateur investigator, it is a matter of great pride and pleasure to present this thesis, which is the climax of my dedication to my field of interest.

In everyone's life, the day arises when one has to shape the feelings in words. Sometimes, the words become unable to express the feelings of mind; because the feelings of heart are beyond the reach of the words. When I came to complete this manuscript, so many memories have rushed through my mind, which are full of gratitude's to those who engaged to pushed me forward, enlighten by their knowledge and experience which helped in various stages of the research work and also throughout my life. It gave me immense pleasure to record my feelings at this place.

Before giving way to my feelings, I cordially want to salute the supreme cosmic consciousness from which everything originates in the beginning and to which everything goes to end. Through formal and deed words cannot carry the fragrance of emotions with them still they are the available way of expressing emotions in such formal acknowledgement.

I consider myself to be extremely fortunate for the golden opportunity to work under the guidance of knowledgeable person, **Dr. N. P. Jangwad**, Assistant Professor, Department of Extension Education, Dr. PDKV, Akola, my research guide and chairman of advisory committee. I am deeply indebted to him for valuable guidance for suggesting the research problem offering inspiration, versatile guidance during the course of investigation, taking efforts for preparing manuscript and final shaping of dissertation enable me to complete the research project.

I feel indebted to the members of my advisory committee, **Dr. P. K. Wakle**, (CAS) Professor, Head of section, College of Agriculture, **Dr. Y. B. Shambharkar**, Assistant Professor, Department of Extension Education, **Dr. S. M. Ghawade,** Junior Breeder cum Horticulturist, Chilli

and Vegetables Research Unit, Dr. PDKV, Akola for their keen interest, encouragement and valuable suggestions from time to time in pursuit of the present investigation.

I also take opportunity to express my sincere thanks to Honourable **Dr. V. M. Bhale**, Vice-Chancellor, **Dr. V. K. Kharche**, Dean (Agri.) and **Dr. Y. B. Taide**, Associate Dean, PGI, Dr. PDKV, Akola, for replenishment of indispensable dexterity during my Post-Graduation studies.

I am proud to express my sense of gratitude to **Dr. D. M. Mankar**, Professor, Department of Extension Education and Directorate of Extension, Dr. P.D.K.V., Akola, for his moral support for completing the present study and providing necessary facilities to complete the research work.

My special thanks to **Dr. V. S. Tekale**, Head of the Department, Department of Extension Education, Dr. PDKV, Akola for rendering valuable guidance from time to time and enthusiastically help during research work.

I express my heartiest thanks to Dr. P. P. Bhopale, Professor (CAS), **Dr. N. M. Kale**, Professor (CAS), **Dr. R. T. Katole**, Associate professor, **Dr. U. R. Chinchmalatpure**, Associate Professor, **Dr. S. A. Gawande**, Assistant Professor and all the staff members of the Department of Extension Education who helped me directly or indirectly during course of my research work.

I am thankful to **Mrs**. **Priti Todasam Madam**, **Varsha Sangle madam** from Department of Extension Education for their constant encouragement in completing this research wok.

I am cheered to place my gratitude to University Librarian **Mr. A. B. Bhosale** and staff members of Computer Centre (ARIS) for their help in processing the data for statistical analysis.

One is hard pressed for some way to thinking someone very close. It seems one uses the choices of words to measure the boundless love and endless sacrifice of someone. I found no such measures

adequate to quantity all that my father **Mr. Maruti Gaware** and my mother **Mrs. Bebinanda Gaware**, who have been great source of inspiration to me and whose blessing, love & caring have brought this cherished expectation true. Without their zest and zeal, the present study investigation would not have been seen in the light of the day at all. I am also thankful to my grandparents, uncle-aunty and my brothers for their heart-warming support, affection, enlivened my ability and evokes me to complete the work.

My sincere thanks to Ph. D. scholars, Miss. Pranali Thakare, Mr. Amit Gandhale and M.Sc. seniors, Miss. Mukta Solanke, Mr. Sanjay Bagul and Mr. Anuj Raut for their kind help, co-operation, moral support and constant inspiration throughout the period of study.

I would like to express special thanks from the bottom of my heart to my best friend Renuka, who is always there for me and always inspires me for doing my best.

Words cannot utter my profound sense as for gifts and devoted thanks to my friends Shital, Sindhura, Shilpa, Sanjivani, and also my batchmates, Anand, Umesh, Sunil, Mangesh, Nikhil, Kiran, Ajay, Vijay for their inspiration and support to me. I am also thankful to Shital, Mayur, Sunil, Shubham and Shivaji for their help and moral support. And I am also thankful to Dhammadip, Karan, Amol and Yogesh for their inspiration and all the help during the period of study.

I am very much thankful to all authors whose literature has been referred to formulate the research and making my result thoughtful.

I am very much thankful to all TAO, AO, PD's at ATMA and respondents for their hospitality, valuable information without whom this study would not be possible.

While, travelling on the path of life and education many hands pushed me forth heart and enlightened by their knowledge and experience. I ever rest thankful to all of them.

Place: Akola
Date: / /2019

(Gaware Komal Maruti)
Enrolment No. PP/3337

TABLE OF CONTENTS

(A) List of Tables

(B) List of Figures

C) List of Plates

(D) List of Abbreviations

%	:	Per cent
/	:	Per
AO.	:	Agriculture Officer
Agri.	:	Agriculture
ATMA	:	Agricultural Technology Management Agency
CAS	:	Career Advancement Scheme
DoA	:	Directorate of Agriculture
et al.	:	et alia (and associates)
etc.	:	Etcetera
Extn. Educ.	:	Extension Education
EDP	:	Entrepreneurial Development Programme
Fig.	:	Figure
Govt.	:	Government
ha.	:	Hectares
http	:	Hyper Text Transfer Protocol
IARI	:	Indian Agricultural Research Institute
i.e.	:	That is
Int.	:	International
J.	:	Journal
KVK	:	Krishi Vigyan Kendra
MPKV	:	Mahatma Phule Krishi Vidyapeeth
M. Sc.	:	Master of Science
NGO	:	Non-Government Organization

NSC	:	National Seed Corporation
PD	:	Project Director
PDKV	:	Dr. Panjabrao Deshmukh Krishi Vidyapeeth
Ph. D.	:	Doctor of Philosophy
Res.	:	Research
Rs.	:	Rupees
Sci.	:	Science
SD	:	Standard Deviation
SAU	:	State Agricultural University
SCA	:	State Certification Agency
Sq. km	:	Square kilometer
Std.	:	Standard
TAO.	:	Taluka Agriculture Officer
UAS	:	University of Agricultural Sciences
Unpub.	:	Unpublish
VNMKV	:	Vasantrao Naik Marathwada Krishi Vidyapeeth
www	:	World Wide Web
Yrs.	:	Years

E) THESIS ABSTRACT

a) Title of the Thesis	**:**	**ENTREPRENEURIAL BEHAVIOUR OF ONION SEED PRODUCERS**
b) Full Name of Student	**:**	**Gaware Komal Maruti**
c) Name and Address of Major Advisor	**:**	**Dr. N. P. Jangwad** Assistant Professor, Department of Extension Education, PGI, Dr. PDKV, Akola.
d) Degree to be awarded	**:**	M. Sc. (Agri.)
e) Year of award of degree	**:**	2019
f) Major subject	**:**	Extension Education
g) Total No. of pages in thesis	**:**	97
h) Number of words in abstract	**:**	560
i) Signature of the student	**:**	
j) Signature, Name and address of forwarding authority	**:**	

Head,
Department of Extension Education
Post Graduate Institute,
Akola

ABSTRACT

The present study on “Entrepreneurial behaviour of Onion seed producers” was conducted in Akola district of Maharashtra state. The exploratory research design of social research was used. In all, 120 respondents were selected by random sampling method. The data were collected by personally interviewing the respondents with the help of structured interview schedule. The data collected were carefully examined, classified, quantified and tabulated. Frequencies, mean, standard deviation and spearman rank correlation were employed for interpreting the results.

The findings of the present study revealed that, majority of the respondents (57.50%) belonged to middle age group i.e. between 36 to 50 years. 55.83 of the respondents were educated up to Higher Secondary School category (10^{th} to 12^{th} standard) and College (above 12^{th} standard), together. Nearly half (47.50%) of the respondents were engaged in agriculture as their occupation. Majority of the respondents (56.67%) possessed semi medium category of land holding (02.01 to 04.00 ha.) Higher percentile of the respondents (31.67%) had annual income between Rs. 2,00,001/- to 3,00,000/-. High percentage of the respondents (43.33%) follow bi-seasonal cropping pattern. Majority of the respondents (56.67%) had 0.61 to 1.20 ha area under Onion seed production. Majority of the respondents (57.50%) had experience up to 6 to 10 years in Onion seed production. Majority of the respondents (72.50%) had medium extension contact for seeking information. Three fourth of the respondents (75.00%) belonged to medium category of social participation. Majority of the respondents (80.00%) had medium level of scientific orientation.

Majority of the respondents (70.00%) had medium innovativeness. Majority of the respondents (71.67%) had medium achievement motivation. Majority of the respondents (71.67%) belonging to medium decision making ability category. Majority of the respondents (61.67%) found medium category of economic motivation. Nearly two third (64.17%) of the respondents had medium category of risk orientation. Majority of the respondents (72.50%) respondents belonged to medium category of leadership ability. Majority of the respondents (70.00%) respondents belongs to medium category of management orientation. Majority of the respondents (68.33%) possess medium entrepreneurial behaviour.

The results of the co-relation co-efficient between entrepreneurial behaviour of respondents and their profile clearly indicated that selected characteristics of Onion seed producer i.e. education, annual income, experience in Onion seed production, extension contact, social participation had positive and significant relationship at 0.01 level of probability with entrepreneurial behaviour whereas, occupation, land

holding, cropping pattern, area under Onion seed production and scientific orientation had positive and significant relationship at 0.05 level of probability. Further, only age of Onion seed producer establish negatively significant relationship with their entrepreneurial behaviour.

Most of the constraints faced by Onion seed producers were high incidence of pest and diseases (63.33%), followed by 57.50 per cent of the respondents expressed that they have unknown about how to remove off type plants and 53.33 per cent of the respondents expressed that they were not getting proper knowledge about seed treatment, which are ranked as I, II and III, respectively. Further 49.17 per cent respondents facing problems of lack of availability of labour in time. Rest 45.00 per cent of the respondents expressed that insurance is not availed for Onion seed production. Further, 42.50 per cent of the respondents expressed problem of sticky white substance in umbel of Onion which leads inadequate pollination in umbel of Onion plant and 40.83 per cent of respondents facing problem of lack of availability of fertilizers in time.

CHAPTER I

INTRODUCTION

1.1 Background information

Onion is one of the major bulb crops of the world and also an important commercial vegetable crop. Among the commercially grown bulbous vegetable crops in India, Onion occupies predominant place. Onion (*Allium sepa* L.), Alliaceae family and the synonymous are Kanda, Earulli, Ullagaddi, Piyaz, Pallando in various regional languages.

In India, total production of Onion in year 2016-2017 was about 22427 thousand million tonnes, cultivated in 1306 thousand hectares. Whereas, in Maharashtra, total production of Onion was about 6773.08 thousand million tonnes, cultivated in 471.66 thousand hectares of area. Particularly in Western Maharashtra, Nashik is the leading district in area and production of Onion followed by Ahmednagar and Pune. (Handbook of Horticulture statistics, Ministry of Agriculture, Gov. of India 2018.)

In Vidarbha region of Maharashtra, Buldhana and Akola district possess the largest area and production of Onion. In Akola district 2982 ha. area is under Onion production. (DSAO Akola, Annual Report, 2018.)

In India, the short day types of Onion is cultivated on large scale in the northern plains. Central and southern parts of the country except higher hills, where the long day types Onion varieties like Brown Spanish and Yellow Spanish etc. are grown over a limited area. Therefore, the seed production of the short day types of Onion is done in central parts of the country particularly in Mandarin and Khandwa region of Madhya Pradesh, Nashik, Pune, Buldhana and Akola districts of Maharashtra and Rajkot district of Gujrat. However, Northern states like Punjab, Haryana and Rajasthan are not preferred by the seed industry due to the severe attack of stem phylum and purple blotch and lower seed yield but there is a potential for seed production in north under delayed planting.

Seed is the basic and most critical input for sustainable agriculture. The response of all other inputs depends on quality of seed to a larger extent. The Indian seed programme largely adheres to the limited generation system for seed multiplication in a phased manner. The system recognizes three generations namely breeder, foundation and certified seeds which provides adequate safeguards for quality assurance in the seed multiplication chain to maintain the purity of the variety as it flows from the breeder to the farmer. With recent technological development in agriculture, seed production has become more complex business and requires careful planning for successful operations.

The seed production is systematically organized, carefully planned based on the best information available and aimed to achieve higher yields and best quality of seed out of their resources. It is the deliberate and conscious effort on the part of the seed grower to think about the seed programme in advance and adjust them according to new knowledge on technological changes in physical and economic situation, price structures etc.

Stages of Seed Multiplication

The benefits of an improved variety are not released unless enough true seed has been produced for its commercial spread. The initial amount of pure seed which is limited in quantity is multiplied under various stages or classes or seed as follow:

a. Nucleus seed

It is the initial amount of pure seed of an improved variety available with plant breeder who has involved in it. The nucleus seed is cent per cent pure genetically as well as physically and is very limited in quantity.

b. Breeder's seed

It is the seed obtained from the progeny of nucleus seed. It is directly supervised by a breeder concern with the crop. Its genetical and physical purity to be 100 per cent.

c. Foundation seed

It is a seed obtained from nucleus or breeder's seed. It is produced on seed multiplication farm of a State Govt. or Agriculture Universities. Foundation seed plots are jointly inspected by the SCA (Seed Certification Agency), but it is not as pure as the nucleus and breeder's seeds are. The bags are sealed with white colored label for easy identification of the foundation seed.

d. Registered seed

It is raised from nucleus, breeder or foundation seeds. Registered seed growers are selected from progressive farmers. The maintenance of purity of seed from time to time is must. The purity is maintained through field inspections by seed certifying agencies and seed tests. The Registered seed bags are sealed with purple colored label.

e. Certified seed

It is progeny of registered or foundation seed. The certified seed bags are sealed with blue colored label.

(Principles of Plant Breeding - Phundan Singh)

National Seeds Corporation

National Seeds Corporation (NSC) is a company wholly owned by Government of India under the administrative control of Ministry of Agriculture. NSC was established in 1963 to undertake production of foundation and certified seeds. At present, it is undertaking production of certified seeds of nearly 600 varieties of 60 crops through its registered seed growers. There are about 8000 registered seed growers all over the country who are undertaking the seed production programmes in different agro-climatic conditions.

National Seeds Corporation provides technical support to the seed producing agencies including State Seed Corporations by imparting training of personnel engaged in the production of seeds in that organization. NSC is the nodal agency for the implementation of the Central Sector Scheme to create infrastructure facilities for establishment

of processing plants and storage godowns in different states in the private sectors. The seed bank maintained by the Corporation with the grant in aid of the Govt. of India holds larger quantity of seeds of different crops/varieties that are meant to meet the demand that arises during natural calamities like flood, drought etc. NSC also takes care to meet the demand for quality seed of the farmers in the interior parts of the country like North Eastern States and other hilly regions.

1.2 The Evolution of Entrepreneurship

The word “entrepreneur” is derived from the French verb “enterprendre”. It means “to undertake” or to do something.

The Frenchmen who organized and led military expeditions were referred to as “entrepreneurs”. Around 1700 A.D. the term entrepreneur was used for architects and contractor of public works. In many countries, the term entrepreneur is often associated with a person who starts his own new business. Entrepreneurship has been considered as the propensity of mind to take calculated risk with confidence to achieve predetermined business objectives.

There are many views and opinions on the concept of entrepreneurship forwarded by some of the world famous management gurus and economists as mentioned below which will help in understanding this concept

Entrepreneur is a person who pays certain price for a product to resell it at an uncertain price thereby making decision about obtaining and using resources while assuming the risk of enterprise.

The entrepreneur as an individual who forms an organization for commercial purpose. He/She is proprietary capitalist, a supplier of capital and at the same time a manager who intervenes between the labor and the consumer.

Entrepreneur

Porchezhian (1991) defined farm entrepreneur as one who maintains one or more enterprises like poultry, dairy and sericulture apart from the main occupation of crop husbandry.

Entrepreneurship

Ganeshan (2001) stated that entrepreneurship is the capacity for innovation and caliber to introduce innovative techniques in the business operations.

Entrepreneurial Behaviour

The development of any nation depends primarily on the important role played by entrepreneurs. Hence, the part played by entrepreneurs is of vital importance in a developing country like India. Thus in all economic development activities more attention is being given to entrepreneurship development. An entrepreneur is primarily concerned with changes in the formula of production over which he has full control. Further, it is commonly believed that an entrepreneur is basically an intelligent person and has a definite ability to create something new to prove its worthiness.

The entrepreneurial behaviour is not necessarily doing new things but also doing things in a different way that already have been done. The entrepreneur is essentiallsy an economic man, who strives to maximize his profits by adoption of innovations. However, entrepreneurs are not simply innovators, they are men with a will to act, to resume risk and to bring about changes through organization of human efforts (Dannof, 1949). Now, it is increasingly being felt that, the economic growth and development of the advanced countries are largely due to entrepreneurship quality among their community rather than to capital.

Importance of Entrepreneurship

The entrepreneurs are key persons of any country for promoting economic growth and technological change. The appearance of their activities, i.e., the development of entrepreneurship is directly related to the socio-economic development of the society in India, after independence and onwards, the government decided to pursue the path of state sponsored and planned economic development. This does not mean that individual or group enterprise and initiative did not have any role to play, but that these will be assisted, guided and regulated by the state in

various ways, so that their activities can come to some results in the form of economic transformation along the lines considered appropriate and desirable by the state. The idea behind this was that the persons who have no financial resources or managerial background could be effective tools for widening the entrepreneurial base in the country. With this background, government introduced the comprehensive assistance programme for small-scale industries. Therefore, the good quality seed and the entrepreneurial characteristics play an important role in boosting the agricultural production.

In a heterogeneous and stratified society like India, it is not adequately realized that, the characteristics which distinguish entrepreneurship may not be only because of its different strata. Therefore, the entrepreneurial activity in a particular section of the population based on present objective has to be considered. Presently, development of farmers producing seeds has become the primary concern in the area of seed production. In this regard, the role played by entrepreneurs also assumes greater importance. This necessitates conducted studies on the entrepreneurial behaviour of Onion seed producing farmers. Hence, it was felt necessary to study the entrepreneurial behaviour of Onion seed producers in Akola district.

1.3 Objectives

1. To study the profile of Onion seed producers
2. To assess the entrepreneurial behaviour of Onion seed producers
3. To study the relationship between profile of Onion seed producers with their entrepreneurial behaviour
4. To identify constraints in Onion seed production as perceived by the Onion seed producers

1.4 Need of the study

The present study was conducted in Akola and Patur talukas of Akola district. In these talukas Onion seed production farms are maintained on commercial basis or as a subsidiary business to agriculture. This study was helpful to know entrepreneurial behaviour of Onion seed

producers. This study was also be helpful to extension worker to disseminate information about Onion seed producers.

The study was important to know profile of Onion seed producers and to the extension workers to solve the problems of Onion seed producers.

1.5 Hypothesis

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

(Ho): There is no significant relation between the selected profile of Onion seed producers with their entrepreneurial behaviour.

1.6 Scope of the study

During 1970's entrepreneurship was recognized as a vehicle for economic growth and industrial development and a potential solution to problems of underemployment and unemployment. However, in today's changing scenario, skills in entrepreneurial development have transformed and have become important. Many entrepreneurial opportunities are emerging in various fields such as computers, electronics, medicine, agriculture, horticulture, food technology, etc. In the field of horticulture, vegetable seed production industry in the country has tremendous scope for earning more economical returns from limited area under production. In this context, seed production of Onion would be the strong and economically viable entrepreneurship in the coming future.

Entrepreneurship is the central force of economic activity and prime mover of development. Hence, it forms an essential component for the development. The findings of this study may help the administrators and policy makers to know the entrepreneurial behaviour of Onion seed producers, the relationship between of profile with their entrepreneurial behaviour, constraints in taking Onion seed production and may help them to come out with the suitable policies and programmes. The study may also

help in further investigations on entrepreneurial behaviour of commercial seed growers.

1.7 Limitations of the study

1. Due to limitation of time and other resources, the study was confined only two talukas of Akola district.
2. Since the study was conducted in Akola and Patur talukas of Akola district the generalization of the findings would only be applicable in the areas with the similar socio-economic and agro-climatic conditions.
3. The findings of this study are based on the opinion expressed by the respondents. Therefore, its objectivity would be limited to the opinion expressed by them.

1.8 Organization of thesis

The present study, Entrepreneurial behaviour of Onion seed producer in Akola district has been presented in eight chapters.

In the first chapter, the statement of the problem under study has been introduced, the need of the study, the specific objectives and scope and limitations of the study has been presented. The second chapter namely review of literature, comprises review of relevant literature and findings of various past research studies conducted in different locations on the similar topics. The research methods, techniques and tools used for measuring variables their categorization has been presented in the methodology chapter. Fourth chapter contains socio-economic features of Akola district. The fifth chapter is devoted to the results of the present study and relevant discussion there on. The sixth chapter contains summary and conclusion of the investigation, followed by the seventh chapter implications on the basis of the findings of present investigation and eighth chapter literature cited finally, vita and appendix at the end.

CHAPTER II

REVIEW OF LITERATURE

The review of literature is an essential aspect which helps the researcher to get acquaintance with the subject matter and channelized his efforts in desirable direction. The review of literature is always necessary to compare the findings of the study undertaken by the previous research workers and to take the decisions on his own findings for drawing proper inferences. The literature related to the entrepreneurial behaviour of Onion seed producers is very limited yet an effort has been made to review the available literature having a direct or an indirect bearing on the study. The same has been presented in this chapter under the following heads:

2.1 Profile of Onion seed producers

2.2 Entrepreneurial behaviour of Onion seed producers

2.3 Relationship between profile of Onion seed producers with their entrepreneurial behaviour

2.4 Constraints in Onion seed production as perceived by the Onion seed producers

2.5 Conceptual model

2.1 Profile of the Onion seed producers

2.1.1 Age

Yashodhara (2011) in his study on ‘’A study on marketing behaviour of onion growers in Chitradurga District of Karnataka’’, observed that 68.75 per cent of the respondents were middle aged and 23.75 per cent of them were young aged. Only 07.50 per cent of the onion growers were old aged.

Bhise (2011) in his study on ‘’Training needs of the onion growers’’, revealed that 60.00 per cent of the respondents were included in the middle age group of 36 to 50 years followed by 23.00 per cent appeared in old age of above 51 years. While 17.00 per cent respondents were observed in young category.

Archana K. (2013) observed that, 53.33 per cent of the seed growers belonged to the middle age group, followed by old age 34.45 per cent and young age 12.22 per cent respectively.

Shweta Dutonde (2014) observed that more than half of the respondents (62.00%) belonged to the middle age, followed by 26.00 per cent safed musali growers from young age category and only 12.00 per cent observed in old age categories.

Roman (2015) in his study on ‘’Study on adoption of onion production technology in Satara district’’, revealed that more than half (61.66 %) of the onion growers were from middle age group whereas 18.34 per cent onion growers belonged to young age group and 20.00 per cent onion growers belonged to the old age group.

Anita Bare (2017) observed that over fifty (52.67 %) of the respondents belonged to middle age group of 36 to 50 years followed by little less than one fourth (24.00 %) appeared in young age category that is up to 35 years. A small per cent of the farmers (23.33 %) were in old age category of more than 50 years.

Raut (2018) observed that, 41.66 per cent of the respondents were from middle age group, followed by young 32.50 per cent and old 25.84 per cent age group respectively.

Jangwad (2018) observed that slight more than half (50.33%) of the respondents were found in middle age group followed by 26.33 per cent in young age group and rest 23.34 percent of respondent in old age group.

Sanodiya *et al.* (2019) revealed that 65.00 per cent of vegetable growers belonged to middle age group followed by 21.66 per cent belonged to young age group and 13.34 per cent belonged to old age group.

2.1.2 Education

Bhise (2011) in his study on ‘’Training needs of the onion growers.’’, revealed that the relatively higher proportion (48.00 %) of the respondents were educated up to the primary school level, followed by

15.00 per cent were educated up to middle school level and college level, 04.00 per cent respondents were educated up to high school. The remaining 08.00 per cent of respondents were illiterate.

Archana K. (2013) observed that, 36.67 per cent of the seed growers educated up to PUC, followed by high school 32.22 per cent, middle school 12.22 per cent, primary school 08.89 per cent, illiterate 05.56 per cent and graduate 04.44 per cent. Whereas, none of the seed growers found to be educated up to post graduation.

Thakare (2013) observed that nearly one third of the respondents (30.00%) were educated up to higher school level followed by 21.00 per cent were educated up to middle school level, 19.17 per cent of primary school level, 10.00 per cent from college and 08.33 per cent higher secondary school.

Shweta Dutonde (2014) observed that nearly one third of the respondents (38.00%) were educated up to high school level, followed by about one fifth of respondents (19.00%) were educated up to middle and primary school level.

Wadekar (2016) revealed that, 58.00 per cent of respondents were educated up to college level, where 26.00 per cent educated up to high school level and 06.00 per cent educated up to middle school level.

Anita Bare (2017) revealed that, a high school level education was availed by 36.67 per cent of the respondents followed by 30.67 per cent of the respondents had attended college level education. One fifth per cent (20.00%) of the respondents have attended up to primary school level education and the middle school level education was availed by 02.66 per cent respondents. No respondents were under the category of illiterate and functionally illiterate.

Raut (2018) revealed that, 57.50 per cent of respondents were educated up to college level, whereas 25.00 per cent educated up to high school level. Whereas 09.17 per cent were educated up to primary school level and 08.33 percent respondents were educated up to middle school level. Whereas, no respondents was observed in illiterate category.

Sanodiya *et al.* (2019) revealed that maximum number (44.16%) of vegetable growers were educated up to higher secondary school followed by 20.00 per cent were *educated* up to high school level, 18.34 per cent were illiterate and only 17.50 per cent educated up to college level.

Ravi and Patil (2019) observed that, 40.00 per cent of the respondents were educated up to primary school. 24.17 per cent were found illiterate, followed by 23.33 per cent and 12.50 per cent of the respondents were educated up to higher secondary school and graduation, respectively.

2.1.3 Occupation

Nagesha (2005) observed that majority (55.00%) of the respondents were depend only on agriculture whereas 45.00 per cent of respondents were practicing agriculture and subsidiary enterprise.

Deshmukh et.al. (2007) observed that majority of the respondents (96.52%) had agriculture as their main occupation.

Thakare (2013) reported that 44.17 per cent of the respondents engaged in agriculture as their occupation.

Ghube (2014) reported that 39.17 per cent of households were engaged in agriculture occupation, followed by Agri. + subsidiary 25.83 per cent, Agri. + business 11.67 per cent each. And Agri. + services 11.66 per cent

Shweta Dutonde (2014) reported that 40.00 per cent were engaged in agriculture occupation, followed by Agri. + subsidiary 29.00 percent, Agri. + Labour 23.00 per cent, Agri. + Services 08.00 per cent.

Yewatkar (2018) observed that majority (83.30%) of the respondents were depends only on agriculture. Whereas 06.70 per cent of the respondents were in agriculture with labour, followed by agriculture with service 06.60 per cent, agriculture with subsidiary occupation 01.70 per cent and agriculture with business 01.70 per cent as their occupation.

2.1.4 Land holding

Maghade (2007) in his study on ‘’Technological gap in onion cultivation from Rahata Tahsil in A. Nagar district’’, revealed that 43.44 per cent of the respondent onion growers had medium size of land holding (2.01 to 4.00 ha.), whereas, 34.56 per cent of them had small size of land holding (less than 2 ha.) and 22.00 per cent of the respondents had large size of land holding (above 4.01 ha.).

Yashodhara (2011) in his study on ‘’A study on marketing behaviour of onion growers in Chitradurga District of Karnataka’’, observed that 40.00 per cent of the respondents had medium size of land holding, whereas 35.00 per cent got small land holding and 25.00 per cent of the onion growers had large land holding.

Archana K. (2013) revealed that, 42.22 per cent of the seed growers belonged to medium land holding category, 20.00 per cent belonged to big land holding category, 17.78 per cent belonged to semi-medium land holding category, 11.11 per cent belonged to small land holding category and only 08.89 per cent of them were marginal farmers.

Ghube, (2014) revealed that majority of the pomegranate growers possessed medium category of land holding.

Shweta Dutonde (2014) observed that about 44.00 per cent of the respondents possessed semi-medium category of land holding.

Roman (2015) in his study on ‘’Study on adoption of onion production technology in Satara district’’, revealed that about 51.66 per cent of the onion growers had medium size of land holding i.e. 2.01 to 4.00 ha while, 23.34 per cent of the onion growers had small size of land holding followed by large size 15.00 per cent.

Anita Bare (2017) observed that little more than one-third of the farmers (38.00%) belonged to category of semi-medium land holding (2.01 ha. to 4.00 ha.). It was followed by small land holders 28.67 per cent who possess land between 1.01 ha. to 2.00 ha. The farmers in medium and marginal categories were 20.00 and 11.33 per cent respectively and only

02.00 per cent of onion growers were found to be large land holder i.e. above 10 ha.

Raut (2018) revealed that, most of the gram seed producer 35.00 per cent possessed medium category of land holding (4.01 to 10.00 ha), followed by semi medium category 30.83 per cent of land holding (2.01 to 4 ha). While 22.50per cent respondents belonged to small land holing category (1.01 to 2 ha), while 6.67 per cent of the respondents belonged to marginal land holding category (1.00 ha) and only 5.00 percent farmers have big land holding category which is above 10.01 hectares.

Ravi and Patil (2019) stated that, (33.75%) of the respondents belonged to small land holding category, followed by (30.00) respondents possessed medium category of land holding. While (20.00%) respondents belonged to large land holding category and only (16.25%) of the respondents belonged to marginal land holding category.

2.1.5 Annual Income

Archana K. (2013) observed that, 38.89 per cent of the seed growers belonged to high income category followed by medium 37.78 per cent and low 23.33 per cent respectively. Whereas, 47.78 per cent of the other farmers belonged to low income category followed by medium 41.11 per cent and high 11.11 per cent respectively.

Shweta Dutonde (2014) observed regarding annual income majority of respondents (34.00 %) had annual income Rs.75001/- to Rs.150000 /-, followed by one tenth of them had annual income up to Rs.75000/-, whereas 14.00 per cent of respondents had annual income range of Rs.225001/- to 300000/-, and only 14.00 per cent of respondents had annual income above Rs.300000/-.

Wadekar (2016) revealed that more than two third of the respondents (74.00%) had annual income above Rs. 200000/-, followed by 12.00 per cent of them had annual income range of Rs. 100001/- to 150001/-, whereas 08.00 per cent are between Rs. 150001/- to 200000, followed by 6 per cent income between Rs. 50001/- to 100001/-.

Regina Potsangbam (2017) revealed that, majority of the respondents (45.00%) had annual income of Rs. 1,00,001 to Rs. 1,50,000 while 22.50 per cent had annual income of Rs. 1,50,001 to Rs. 2,00,000, followed by 20.83 per cent of the respondents had annual income of above Rs.2,00,000 and only 11.66 per cent had annual income of Rs. 50,001 to Rs. 1,00,000.

Raut (2018) revealed that, majority of the respondents (34.17%) had annual income between Rs.300001 to 600000/-, followed by 22.51 per cent of them had annual income range upto Rs 300000. Whereas 16.66 per cent had annual income between Rs.600001 to 900000/-, followed by 14.16 per cent annual income between Rs. 900001 to 1200000/-, and 12.50 per cent annual income above Rs.1200000/-.

Yewatkar (2018) revealed that, half of the respondents (50.00%) had annual income Rs. Up to 4 lakh, while (46.60%) had annual income 4.01 to 8 lakh, followed by 01.70 per cent of the respondents who had annual income 8.01 to 12 lakh and 1.70 per cent had annual income 12.01 to 16 lakh.

Sanodiya *et al.* (2019) concluded that out of the total vegetable growers, more than half of the growers i.e. 63.33 per cent had medium economic motivation, 26.67 per cent had high economic motivation and 10.00 per cent had low economic motivation towards vegetable cultivation.

2.1.6 Cropping pattern

Dhande (2003) concluded that majority (71.33%) of the paddy growers belonged to category of 1.51 to 3.00 ha area under paddy crop. This was followed by 20.66 per cent and 06.68 per cent respondents who were in the category of up to 1.50 ha and 3.01 to 4.00 ha area under paddy, respectively A very few 01.33 per cent of respondents were having above 4.50 ha area under paddy crop.

Hadole (2005) reported that majority (78.00%) of respondents were growing only kharif crops and 16.00 per cent were growing both kharif and rabi crops, whereas 04.00 per cent had grown both kharif and summer

crops and only 02.00 per cent of respondents were practising kharif, rabi and summer crops.

Bhamare (2008) observed that, more than three fifth (61.00%) of the respondents were growing kharif, summer and annual or perennial crops, while 17.50 per cent respondents found cultivating kharif and summer' crops in year and 11.00 per cent respondents were growing kharif as well as annual or perennial crops per year.

Mihale *et al.* (2009) in their study observed that cereal crops were the most grown crops by farmers 61.90 per cent followed by legumes 13.30 per cent.

Ghosh and Ashwani Kumar (2010) noted that annual average food grain production is about 7.2 million tons out of which more than 90.00 per cent accounts for rice production. Paddy is principal food crop of the Orissa State. The crop distribution as per cent gross cropped areas are paddy 076.40 per cent, pulses 12.20 per cent, oilseeds 05.20 per cent, cash crops like sugarcane, potato, chilly 02.00 per cent and others 04.20 per cent.

Madhu (2013) reported that one fourth of the respondents (29.16%) had perennial season cropping pattern. It was followed was 25.00 per cent farmers had summer season cropping pattern. 21.67 per cent of the farmers had annual season cropping pattern followed by 17.50 per cent of the farmers had regular season cropping pattern and rest 06.67 per cent had rabi season cropping pattern.

Barkhade (2015) observed that over two third of the respondents (70.67%) follow the bi-seasonal cropping pattern, followed by 16.67 per cent of the respondents who followed annual cropping and 08.00 per cent of the respondents followed bianuual cropping patter and rest 04.66 per cent of respondents followed perennial cropping pattern.

Kajal Bhaltilak (2017) observed thatmajority of the cotton growers (62.00%) followed bi-seasonal cropping pattern, followed by 35.00 per cent of respondents who followed seasonal cropping pattern and rest 03.00 per cent of the respondents followed annual cropping pattern.

2.1.7 Area under onion seed production

Sadaphal (2000) in his study on ‘’A study of existing cultivation practices of white onion in Raigad District’’, concluded that, about 75.00 per cent of the white onion growers had area 0.05 to 0.31 hectares whereas 15.00 per cent and 13.00 per cent of them had up to 0.04 and more than 0.32 hectare area under white onion crop, respectively.

Gaikwad (2005) in his study on ‘’Knowledge and adoption of recommended cultivation by onion growers’’, observed that less than one third of the respondents 31.33 per cent had put the area of 0.20 ha under onion crop followed by 35.33 per cent and 27.34 per cent of respondents having 0.21 to 0.40 ha area under onion crop respectively.

Maghade (2007) in his study on ‘’Technological gap in onion cultivation from Rahata Tahsil in A. Nagar district’’, reported that a maximum number (64.00%) of the respondents had medium area under onion (0.6 to 0.9 ha.) while 20.50 per cent them had small area under onion crop (upto 5 ha) and 15.50 per cent has large area under onion crop.

Bhise (2011) in his study on “Training needs of the onion growers’’, observed that 40.00 per cent and 37.00 per cent of the respondents had above 0.9 ha and between 0.5 to 0.8 ha of area under onion cultivation respectively. While 23.00 per cent of respondents had up to 0.4 ha of area under onion.

Roman (2015) in his study on ‘’Study on adoption of onion production technology in Satara district’’, showed that 60.00 per cent of the respondents had medium area under onion crop, whereas, 26.66 per cent and 13.34 per cent respondents possessed large and small area under onion, respectively. Further, he concluded that relationship between the area under onion was positively and significantly related with the adoption level of management practices onion grower.

Anita Bare (2017) revealed that 65.33 per cent of the respondents had up to 0.80 ha area under onion cultivation followed by 30.67 per cent of the respondents who had 0.81 to 1.6 ha area under onion cultivation. Above 1.6 ha was under onion cultivation of 04.00 per cent of

the respondents. Thus, it can be concluded that majority of respondents belonged to small category.

Raut (2018) observed that near about half of the respondents (49.16 %) having area under gram seed up to 1.01 to 2 ha. While 26.68 per cent of respondents having area under gram seed production up to 2.01 to 4 ha. While (5.00 per cent of the respondents having area under gram seed production up to 1 ha. Whereas 08.33 per cent of the respondents having area under gram seed production up to 4.01 to 10 ha and 00.83 per cent of the respondents having area under gram seed production up to 10.01 ha. It is concluded that maximum per cent of the gram seed producer were found in small farmer category.

Sanodiya *et al.* (2019) concluded majority of vegetable growers (63.34%) had 1-25 per cent area under vegetable crops. Near to one fourth vegetable growers (23.33%) had 26-50 per cent area and 13.33 per cent had 51-75 per cent area under vegetable crops.

2.1.8 Experience in Onion seed production

Bhise (2011) in his study on ‘’Training needs of the onion growers.’’, observed that 70.00 per cent of the respondents had onion cultivation experience ranging from 10 to 22 years followed by 17.00 per cent of respondents, had onion cultivation experience upto 9 years. Remaining 03.00 per cent of the respondents had onion cultivation experience 23 years and above.

Yashodhara (2011) in his study on ‘’A study on marketing behaviour of onion growers in Chitradurga District of Karnataka’’, observed that more than one third of farmers 45.00 per cent had less onion growing experience, followed by more and medium onion growing experience i.e., 38.75 per cent and 16.25 per cent respectively**.**

Archana K. (2013) observed that 77.78 per cent of the seed growers had low seed production experience followed by medium 15.55 per cent and high level 06.67 per cent respectively.

Pawar (2014) observed that 43.00 per cent of respondents had 5 to 6 years of experience in farming, followed by 35.00 per cent of

respondents had experience up to two years and rest 22.00 per cent of respondents had 3 to 5 years of experience.

Anita Bare (2017) revealed that 46.67 per cent of the respondents had onion cultivation experience ranging from 7 to 12 years followed by 43.33 per cent of respondents, had onion cultivation experience up to 6 years. Remaining one tenth per cent 10.00 per cent of the respondents had onion cultivation experience above 12 years.

2.1.9 Extension contact

Nagesh (2006) found that more than half of the respondents (54.16%) belonged to medium extension contact category whereas, 28.33 per cent and 17.50 per cent of respondents belonged to high and low extension contact categories, respectively.

Yashodhara (2011) in his study on ‘’A study on marketing behaviour of onion growers in Chitradurga District of Karnataka’’, observed that 43.04 per cent of the onion growers were having medium extension contact followed by 31.65 per cent and 25.32 per cent of them belonged to low and high extension contact.

Ghube (2014) observed that majority of the respondents (40.00%) in moderate extension contact with extension agencies for seeking information, followed by 37.50 per cent and 22.50 per cent in low and high extension contact.

Shweta Dutonde (2014) observed that majority of the respondents (43.00%) having moderate extension contact with extension agencies for seeking information, followed by 37.00 per cent and 20.00 per cent of the respondents having low and high extension contact with extension agencies respectively.

Wadekar (2016) indicate that majority (58.00%) of the respondents having medium level extension contact followed by 22.00 per cent and 20.00 per cent respondents having low and high level extension contact.

Anita Bare (2017) observed overall distribution of respondents in extension contact shows that, little more than half (52.70%)

of the respondents had medium extension contact followed by more than one fifth (26.00%) of the respondents had high extension contact and 21.30 per cent of the respondents had low extension contact.

Raut (2018) observed that majority (60.84%) of the respondents having medium extension contact for seeking information, followed by 20.00 per cent and 19.16 per cent of the respondents having high and low extension contact respectively. Therefore, it was inferred that, majority of the respondents had medium level of extension contact.

Yewatkar (2018) observed that more than half (56.67%) of the respondents having medium extension contact for seeking information, followed by 30.00 per cent and 13.33 per cent of the respondents having low and high extension contact respectively. Therefore, it was inferred that, majority of the respondents had medium level of extension contact.

2.1.10 Social participation

Mane (2001) observed that 77.32 per cent of the respondents had medium social participation, followed by 12.00 per cent respondents having high social participation, while 10.66 per cent having no social participation.

Anitha (2004) observed that, 17.50 per cent of the respondents had high social participation, where as 44.20 per cent of respondents had medium social participation and rest 38.20 per cent of respondents had low social participation.

Thakare (2013) observed that most of the respondents (63.33%) were belong to medium level of social participation, followed by high 32.50 per cent and low 04.17 per cent respondents of social participation.

Ghube (2014) observed that most of the respondents (73.34%) belongs to medium level of social participation, followed by 15.83 per cent and 10.83 per cent in high and low level of social participation respectively.

Bansod (2016) observed that more than half of the respondents (58.34%) were in medium category of social participation,

followed by 21.66 and 20.00 per cent of respondents had high and low level of social participation.

Yewatkar (2018) observed that nearly half (40.84%) of the respondents belonged to medium category of social participation. Followed by 30.00 per cent and 29.16 per cent respondents were belongs to low and high category. Thus, it is concluded that majority of the respondents belongs to medium category, because of their interest in social activities to gather new information.

2.1.11 Scientific orientation

Sidaram *et al.,* (2010) revealed that great majority (69.17%) of the respondents possessed medium level of scientific orientation followed by low 16.67 per cent and high 14.17 per cent.

Thakare (2013) observed that maximum no. of respondents (40.00%) belonged to the medium level of scientific orientation, followed by one third of the respondents (33.33%) belonged to the low level of scientific orientation, and high level consist of 26.67 per cent of respondents.

Ghube (2014) reported that maximum number of the respondents (40.00%) belongs to medium level of scientific orientation, followed by 33.33 per cent and 26.67 per cent in low and high level of scientific orientation.

Shweta Dutonde (2014) reported that nearly half of the respondents had medium level of scientific orientation, while 29.00 per cent and 23.00 per cent of the respondents had high and low level of scientific orientation respectively.

Yewatkar (2018) that 72.50 per cent of the respondents had medium level of scientific orientation, followed by 20.83 per cent of respondents had low level of scientific orientation and 06.67 per cent of respondents had high level of scientific orientations.

Sanodiya *et al.* (2019) revealed that, out of the total vegetable growers, more than half (50.50%) were belonged to medium level of scientific orientation followed by 27.50 per cent had high scientific

orientation and 15.00 per cent had low scientific orientation towards vegetable cultivation.

2.2 Dependent variables

2.2.1 Entrepreneurial behaviour

Nagesha (2005) in his study on entrepreneurial behaviour of vegetable seed producer farmers found that majority (68.30%) of the respondents belongs to medium entrepreneurial behaviour, whereas 17.50 per cent were in low and 14.10 per cent of the respondents were in high entrepreneurial behaviour category.

Nagesh (2006) in his study on entrepreneurial behaviour of pomegranate growers in Bangalkot district of Karnataka reported that majority (70.83%) of the respondents belonged to high entrepreneurial behaviour category. Whereas, 08.33 per cent were in medium entrepreneurial behaviour category and only 10.84 per cent of the respondents were in low entrepreneurial behaviour category.

Shweta Dutonde (2014) in her study on entrepreneurial behaviour of safed musli growers of Akola and Buldana district revealed that majority (73.00%) of the respondents had medium entrepreneurial behaviour category, followed 17.00 per cent had low entrepreneurial behaviour with 10.00 per cent high entrepreneurial behaviour respectively.

Keisham (2016) observed that majority (75.00%) of the respondents had medium entrepreneurial behaviour, followed by 14.29 per cent of the respondents had high and 10.71 per cent of respondents had low entrepreneurial behaviour.

Raut (2018) observed that, about two third (68.34%) of the respondents possess medium entrepreneurial behaviour, whereas 17.50 per cent respondents had low entrepreneurial behaviour and 14.16 per cent of respondents possess high entrepreneurial behaviour.

Yewatkar (2018) observed that, majority (76.70%) of the respondents possess medium entrepreneurial behavior, where as 13.30 per cent of respondents had low entrepreneurial behavior and 10.00 per cent of the respondents had high entrepreneurial behavior.

2.2.1.1 Innovativeness

Vimalraj (2010) in his study on best practices and competencies of award winning agripreneurs of Tamil Nadu reported that, 16.70 per cent of the farmers belonged to high innovativeness category while, 46.70 per cent and 36.70 per cent of them belonged to medium and low innovativeness category respectively.

Shilpashree (2011) in her study reported that 52.50 per cent of the non-awardee farmers were under low innovativeness category followed by medium 37.50 per cent and high 10.00 per cent, category respectively.

Archana K. (2013) observed that 40.00 per cent of the seed growers belonged to high innovativeness category followed by medium 36.67 per cent and low 23.33 per cent category respectively. Whereas 44.44 per cent of the other farmers fall under low innovativeness category followed by almost equal 28.89 per cent and 26.67 per cent of them belonged to medium and high innovativeness category respectively.

Wadekar (2016) observed that, majority (78.00%) of the respondents had medium innovativeness, whereas rests distributed with in low and high category i.e. 12.00 per cent and 10.00 per cent respectively. A considerable per cent of nursery growers were found in medium category of innovativeness.

Regina Potsangbam (2017) revealed that, majority (71.61%) of the respondents were in medium medium innovativeness category however each of the 14.17 per cent of the respondents belongs to the low and high innovativeness category.

Raut (2018) observed that, majority (71.66%) of the respondents had medium innovativeness, whereas rests distributed within low and high category i.e. 20.84 per cent and 07.50 per cent respectively. A considerable per cent of gram seed producer were found in medium category of innovativeness.

Sanodiya *et al.* (2019) concluded that out of the total vegetable growers, more than half of the growers i.e. 63.33 per cent had

medium economic motivation, 26.67 per cent had high economic motivation and 10.00 per cent had low economic motivation towards vegetable cultivation.

2.2.1.2 Achievement motivation

Nagesh (2006) revealed that more than three fourth (80.84%) of the respondents had medium achievement motivation followed by 11.66 per cent and 07.50 per cent of respondents having low and high achievement motivation, respectively.

Sushma (2007) in her study on analysis of entrepreneurship development in women through EDP trainings reported that 35.39 per cent of the trained women entrepreneurs had low achievement motivation, whereas 34.61 per cent and 30.00 per cent of them had medium and high level of achievement motivation, respectively.

Shilpashree (2011), in her study reported that 47.50 per cent of the non-awardee farmers belonged to low category of achievement motivation, followed by medium 42.50 per cent and high 10.00 per cent, respectively.

Keisham (2016) revealed that majority (72.14%) of the women entrepreneur had medium level of achievement motivation. Followed by high 18.57 per cent and low 08.20 per cent level of achievement motivation respectively.

Regina Potsangbam (2017) revealed that, nearly three fourth (73.33%) of the respondents had medium category of achievement motivation followed by 18.33 per cent and 08.34 per cent of the respondents having low and high category of achievement motivation.

Raut (2018) observed that, majority (70.00%) of the respondents had medium achievement motivation followed by 15.00 per cent respondents who had high and low level of achievement motivation. It is concluded that majority of gram seed producers belonged to medium achievement motivation.

2.2.1.3 Decision making ability

Nagesh (2006) reported that nearly half of the respondents (47.50%) had intermediate decision making ability followed by 25.84 per cent and 26.66 per cent respondents belonged to rational and less rational decision making ability categories, respectively.

Ravi (2007) carried out a study on entrepreneurial behavioural characteristics of SC and ST farmers of Gulbarga district and reported that 38.75 per cent of the farmers had low farm decision making followed by medium farm decision making 33.12 per cent and 28.13 per cent of them belonged to more farm decision making ability category.

Archana K. (2013) observed that, 46.67 per cent of the seed growers belonged to intermediate decision making category followed by rational 27.78 per cent and less rational 25.55 per cent respectively. Whereas 50.00 per cent of the other farmers fall under less rational decision making category followed by intermediate 27.78 per cent and rational 22.22 per cent respectively.

Thakare (2013) observed that, majority (65.00%) of floriculturists had medium level of decision making ability followed by 15.00 per cent and 20.00 per cent high and low level of decision making ability respectively.

Ghube (2014) found that, majority of the respondents (62.50%) had medium level of decision making ability. followed 20.83 per cent and 16.67 per cent had low and high level of decision making ability.

Wadekar (2016) observed that, two third (66.00%) of the respondents belonging to medium decision making ability category. However, 18.00 per cent low and 16.00 per cent high level of decision making ability respectively. Thus, it is concluded that majority of respondents had medium level decision-making ability.

Regina Potsangbam (2017) observed that, more than three fourth (77.50%) of the respondents belongs to intermediate category, followed by 15.84 per cent and 06.66 per cent of the respondents have low and high category.

Raut (2018) indicates that, two third (73.33%) of the respondents belonging to medium decision making ability category. However, 15.84 per cent low and 10.83 per cent high level of decision making ability respectively. Thus, it is concluded that majority of respondents had medium level decision-making ability.

2.2.1.4 Economic motivation

Chandrashekhar (2007) investigated an analysis of onion production and marketing behaviour of farmers of Gadag district of Karnataka and reported that, majority of respondents (65.00 %) had high economic motivation, while 34.17 per cent had medium economic motivation and 00.83 per cent had low economic motivation.

Sabi (2012) conducted a study on Knowledge and technological gap in wheat production reported that 34.16 per cent of the respondents belonged to high economic motivation category followed by 33.34 per cent and 32.50 per cent belonged to medium and low economic motivation category respectively.

Shweta Dutonde (2014) revealed that, more than half of the respondents (52.00%) belonged to medium category of economic motivation.

Wadekar (2016) observed that, more than half of respondents (62.00%) fell under medium category of economic motivation, followed by 20.00 per cent and 18.00 per cent of respondents fell under high and low level of economic motivation. Thus, it is concluded that majority of nursery growers had medium level of economic motivation. The reason for medium economic motivation of nursery growers might be due to lack of encouragement from family members and uncertainty in nursery business.

Regina Potsangbam (2017) observed that, maximum number (88.33%) of the respondents were having medium category of economic motivation. Followed by 08.34 per cent and 03.33 per cent of the respondents had low and high category.

Raut (2018) revealed that more than half of respondents (66.67%) observed under medium category of economic motivation,

followed by 20.00 per cent and 13.33 per cent of respondents observed under low and high level of economic motivation. Thus, it is concluded that majority of gram seed producer had medium level of economic motivation.

Sanodiya *et al.* (2019) concluded that out of the total vegetable growers, more than half of the growers i.e. 63.33 per cent had medium economic motivation, 26.67 per cent had high economic motivation and 10.00 per cent had low economic motivation towards vegetable cultivation.

2.2.1.5 Risk orientation

Bhagyalaxmi *et al.* (2003) in their study on profile of rural women microentrepreneurs revealed that majority of the respondents (70.56%) had low risk orientation followed by high 15.56 per cent and medium 13.33 per cent risk orientation categories.

Suresh (2004) conducted a study on entrepreneurial behaviour of milk producers in Andhra Pradesh and inferred that majority of respondents had high level of risk orientation followed by medium and low level at the rate of 62.02 per cent, 24.58 per cent and 13.34 per cent, respectively.

Sabi (2012) in her study reported that, 38.34 per cent of the farmers belonged to low risk orientation category, followed by high 34.16 per cent and medium 27.50 per cent risk orientation category.

Archana K. (2013) revealed that, 43.33 per cent of the seed growers had high risk orientation followed by medium 30.00 per cent and low 26.67 per cent respectively. Whereas 42.22 per cent of other farmers had low risk orientation followed by high 33.33 per cent and medium 24.45 per cent respectively.

Anita Bare (2017) revealed that, maximum number of the respondents (61.34%) belonged to medium risk orientation, whereas, equal proportion 19.33 per cent of them had used low and high risk orientation.

Sanodiya *et al.* (2019) revealed that majority (66.67%) had medium risk bearing ability, 18.33 per cent had high risk bearing ability and 15.00 per cent had low risk bearing ability towards vegetable cultivation.

2.2.1.6 Leadership ability

Archana K. (2013) revealed that, 45.55 per cent of the seed growers belonged to high level leadership ability category followed by low 27.78 per cent and medium 26.67 per cent respectively. Whereas 41.11 per cent of the other farmers belonged to low level of leadership ability category followed by high 30.00 per cent and medium 28.89 per cent respectively.

Ghube (2014) observed that, majority of the respondents (72.50%) had medium level of leadership ability, followed by 15.83 per cent and 11.67 per cent had low and high leadership ability.

Thakare (2013) observed that, majority (72.50%) of floriculturists had medium level of leadership ability followed by 11.67 per cent and 15.83 per cent respondents had high and low level of leadership ability respectively**.**

Wadekar (2016) observed that, majority (76.00%) of the respondents where belonged to medium category of leadership ability followed by high 14.00 per cent and low 10.00 per cent of leadership ability respectively. Thus, it is concluded that, majority of respondents were medium level of leadership ability.

Regina Potsangbam (2017) observed that, majority (54.16%) of the respondents were belongs to medium category of leadership ability followed by high 30.84 per cent and low 15.00 per cent of leadership ability.

Raut (2018) revealed that majority (69.16%) of the respondents were belonged to medium category of leadership ability followed by low 19.18 per cent and high 11.66 per cent of leadership ability respectively. Thus, it is concluded that, majority of respondents were medium level of leadership ability.

2.2.1.7 Management orientation

Chauhan and Patel (2003) in their study on entrepreneurial uniqueness of poultry entrepreneurs reported that majority (71.25%) of the poultry entrepreneurs had medium to high degree of management orientation.

Nagesha (2005) revealed that, majority (66.70%) of the respondents belonged to high category of management orientation followed by 19.20 per cent of the respondents having medium level management orientation and 14.20 per cent of respondents having low level management orientation.

Nagesh (2006) in his study reported that majority (62.50%) of the respondents belonged to low category of management orientation, followed by 21.66 per cent of respondents having high level management orientation and 15.84 per cent of respondents having medium level management orientation.

Archana K. (2013) revealed that, 44.44 per cent of the seed growers belonged to high category of management orientation, followed by medium 28.89 per cent and low 26.67 per cent respectively. Whereas 35.56 per cent of the other farmers fall under low category of management orientation followed by high 33.33 per cent and medium 31.11 per cent respectively.

Thakare (2013) reported that majority of the respondents (70.00%) had medium management orientation, followed by equal percentage (15.00%) of the respondents having high and low management orientation, respectively.

Wadekar (2016) reported that majority (76.00%) of the respondents had medium management oeientation, followed by equal percentage (12.00%) of respondent had high and low management orientation.

2.3 Relationship between profile of Onion seed producers with their entrepreneurial behaviour

2.3.1. Age

Ghube (2014) revealed that, age of respondents found to have negative and significant relationship with their entrepreneurial behaviour.

Raut (2018) found that, age of gram seed producer was found to have negative and significant relationship with their entrepreneurial behaviour.

Yewatkar (2018) observed that, age of respondents was found to have negative and significant relationship with their entrepreneurial behaviour

2.3.2. Education

Ghube (2014) revealed that, education of respondents had positive and significant relationship with their entrepreneurial behaviour.

Raut (2018) found that, education of gram seed producer had positive and significant relationship with their entrepreneurial behaviour.

Yewatkar (2018) reported that, education of respondents had positive and significant relationship with their entrepreneurial behaviour.

2.3.3. Occupation

Ghube (2014) revealed that occupation of respondents had positive and significant relationship with their entrepreneurial behaviour.

Yewatkar (2018) observed that, occupation of the respondents should positive and significant relationship with their entrepreneurial behaviour.

2.3.4 Land holding

Ghube (2014) revealed that, land holding of respondents were found to have positive and significant relationship with their entrepreneurial behaviour.

Raut (2018) found that, land holding of gram seed producer was found positive and significant relationship with their entrepreneurial behaviour.

Yewatkar (2018) observed that, land holding of respondents were found to have positive and significant relationship with entrepreneurial behaviour.

2.3.5 Annual income

Raut (2018) found that, annual income of gram seed producer was positively and significantly correlated with their entrepreneurial behaviour.

Yewatkar (2018) observed that, annual income of respondent was positively and significantly correlated with their entrepreneurial behaviour.

2.3.6 Cropping pattern

Anita Bare (2017) observed that, cropping pattern of respondent was positively and significantly correlated with adoption behaviour.

2.3.7 Area under Onion seed production

Wadekar (2016) found that area under nursery have positive and significant relationship with entrepreneurial behaviour.

Raut (2018) found that, area under gram seed production was positively and significantly correlated with their entrepreneurial behaviour.

Yewatkar (2018) observed that, area under garlic was positively and significantly correlated with their entrepreneurial behaviour.

2.3.8 Experience in Onion seed production

Archana K. (2013) revealed that, experience in seed production is positively and significantly correlated with entrepreneurial behavior of respondents.

2.3.9 Extension contact

Raut (2018) found that, extension contact was positively and significantly correlated with their entrepreneurial behaviour.

Yewatkar (2018) reported that, extension contact was positively and significantly correlated with their entrepreneurial behaviour.

2.3.10 Social participation

Ghube (2014) revealed that, social participation of respondents have significant relationship with entrepreneurial behaviour.

Yewatkar (2018) observed that, social participation of respondents were positively and significantly correlated with their entrepreneurial behaviour.

2.3.11 Scientific orientation

Wadekar (2016) found that, scientific orientation had positive and significant relationship with entrepreneurial behaviour.

Yewatkar (2018) revealed that, scientific orientation of respondents had positive and significant relationship with their entrepreneurial behaviour.

2.4 Constraints in the Onion seed production as perceived by Onion seed producers

Nagesh (2006) in his study on pomegranate reported the constraints faced by pomegranate growers as lack of storage facility, high incidence of pest and diseases, non availability of skilled labour for pruning, expensiveness of pruning operations, costly chemicals and fertilizers and lack of processing units were the major constraints.

Maghade (2007) in his study on ‘’Technological gap in onion cultivation from Rahata Tahsil in A. Nagar district’’, reported high cost of chemical fertilizers (91.97%) lack of knowledge about improved storage structure (80.00%) shortage of labour during weeding operation (64.17%), non availability of quality seeds planting material in time (53.33%), hand weeding time and labour consuming as well as expensive (51.67%), irregular supply of electricity (35.83%) were the major constraints for existing technological gap in cultivation practices in onion.

Bhise (2011) in his study on ‘’Training needs of the onion growers’’, observed that 80.00 per cent of the respondents encountered the constraints Non-availability of plant protection measures, inadequate availability of FYM (74.00%) and 40.00 per cent of the respondents reported inadequate availability of recommended seed in time.

Shweta Dutonde, (2014) revealed the constraints faced by safed musli growers were the problem of lack of storage facility, non-availability of labour (62.00%) and high labour charges (72.00%). With

regard to other problems non availability of FYM and manures (95.00%), irregular supply of electricity (82.00%), expensive nature of the plant protection chemicals and non-availability of fertilizer at required time also faced by the safed musli growers. With respect to constraints in marketing of safed musli, high transportation charges were the important constraints. Non availability of local market was the other and most important problem for the safed musli growers.

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%).

Wadekar (2016) observed that, more than three fourth (86.00%) of the respondents were expressed financial constraint like high investment. Whereas the respondents expressed non availability of inputs like lack of quality planting material such as seed, seedling, 80 rootstock etc. (58.00%), high cost of chemical fertilizers (94.00%), and Irregular supply of electricity (86.00%). Major labour problems were faced by the respondents includes high cost of labour (90.00%), Lack of skilled labour (68.00%) and Unavailability of labour (32.00%). A major problem of technical knowledge like lack of guidance for control of pest and disease were expressed by (58.00%) of the respondent. However the respondents expressed marketing constraints like transportation problems (58.00%), Low market price of planting material (68.00%), Lack of market knowledge

(92.00%) and exploitation by middleman (62.00%) are the major problems in the area of marketing.

Raut (2018) observed that, more than two third (80.00%) of the respondents were expressed problem of pest and disease due to non availability of new variety. Whereas the respondents expressed that they have unknown about how to remove off type plant (89.16 %), Non availability of fertilizer (21.66%) and lack of irrigation water due Irregular supply of electricity (51.66%). Major labor problems were faced by the respondents includes high cost of labour (87.50%) and farmer having not getting proper knowledge about seed treatment (90.83%). A problem occurred during marketing of seed were expressed by 66.66 per cent of the respondents. However the respondents expressed problem during harvesting of seed (31.66%) because gram seed break when the RPM of harvester machine increases and if they reduced RPM of machine then dart particles come along with gram seed.

2.5. Conceptual model:

Any systemic study is based on sound theoretical model. A researcher develops a model for the purpose of his/her study, since; it helps in relational thinking about the research problem and represents the conceptualization of concepts used in research study.

Based on the discussion on forgoing review of the past research studies, a conceptual model has been developed for the present investigation and the same have been depicted in Fig. 1.

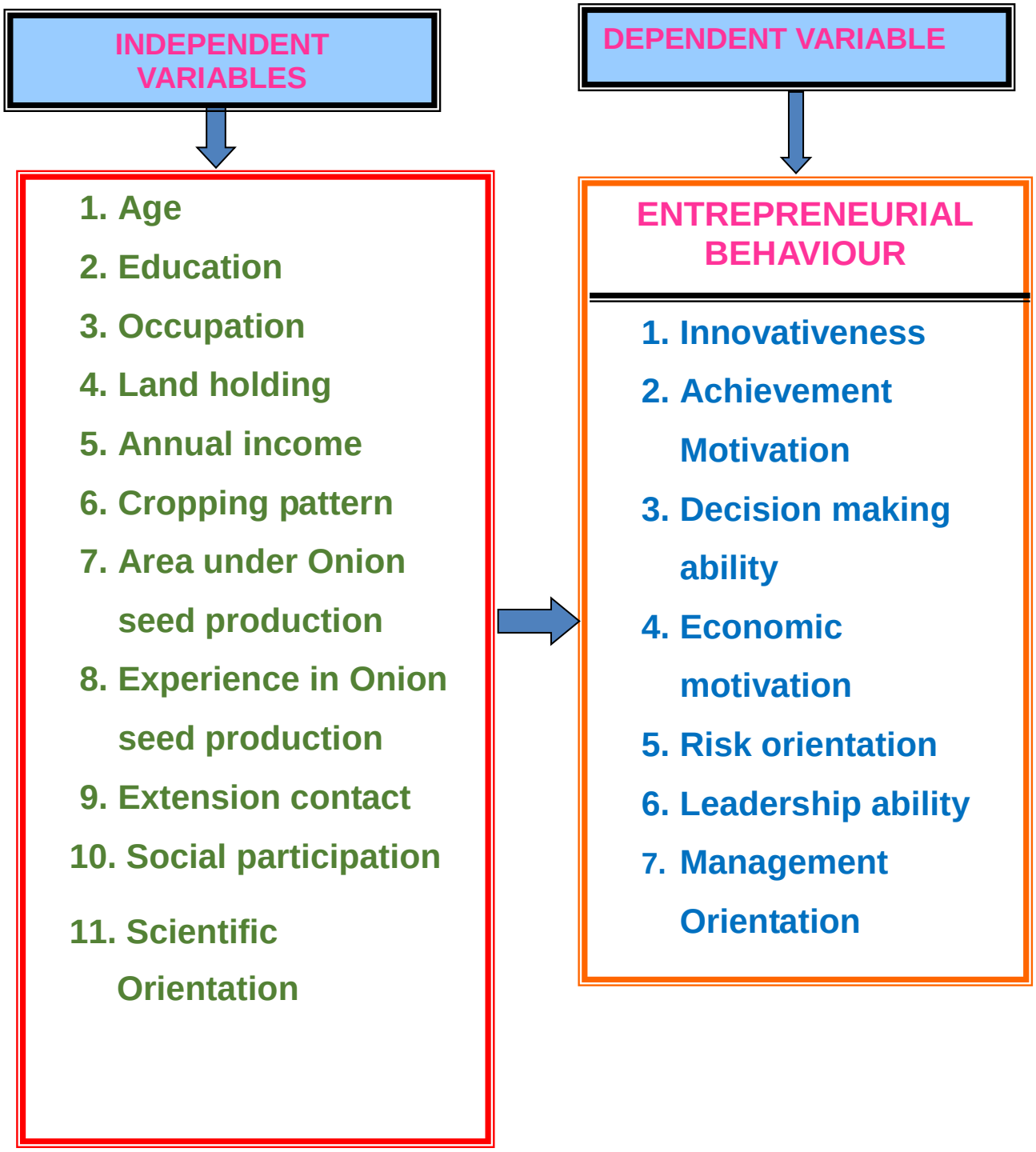


Fig.1. Conceptual Model of the study

CHAPTER III

METHODOLOGY

Research methodology deals with the description of research method and procedures used in the present study. The researcher is expected to develop and use his own techniques to fulfil the demands of his research. For the present study detailed methodology was developed for studying various aspects in line 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 Research design used in study

3.2 Locale of the study

3.3 Selection of respondents

3.4 Tools for data collection

3.5 Method of data collection

3.6 Designing of interview schedule

3.7 Collection of data

3.8 Compilation of data

3.9 Operationalization, scoring and categorization of variable

3.10 Constraints

3.11 Statistical methods used for data analysis

3.1 Research design

The present investigation was conducted to study the entrepreneurial behaviour of the Onion seed producers in Akola district. Therefore, an exploratory design of social research was used for present study aims at assessing the entrepreneurial behaviour of Onion seed producers.

3.2 Locale of the study

The present investigation was carried out 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 Onion seed production.

3.2.1 Selection of taluka

Two talukas namely Akola and Patur of Akola district was selected for the study as they are having major area under Onion seed production and based on highest cultivable area as shown in Fig.3.

3.2.2 Selection of village

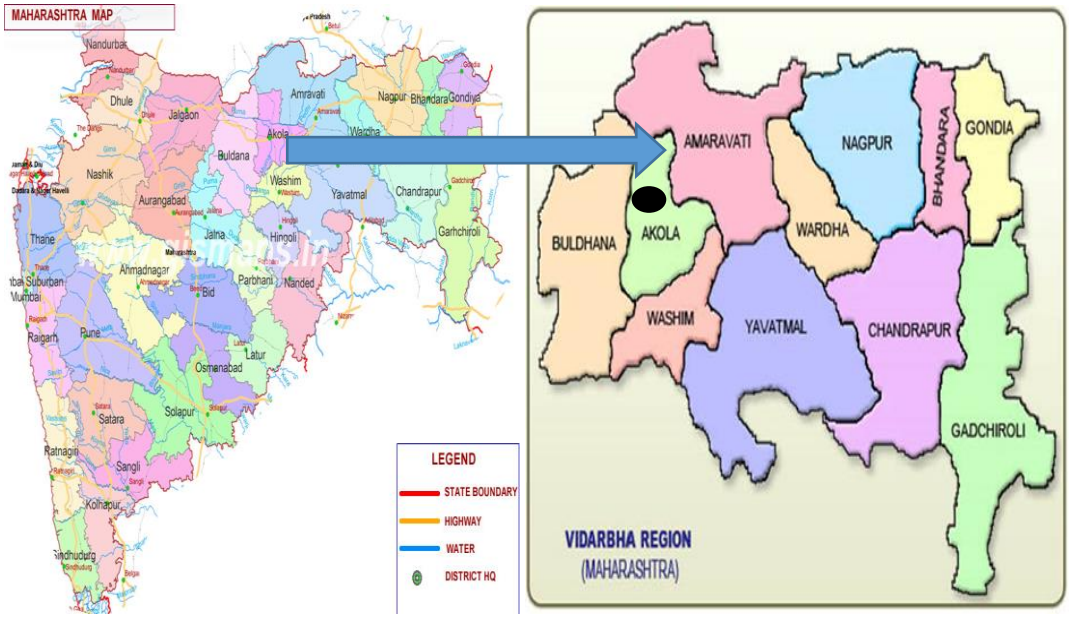
From each of the selected taluka's five villages was selected purposively based on highest area under Onion seed production. Thus total ten villages were selected for the study.

Table 1. Taluka wise list of selected villages and number of respondents from Akola district

Sl. No	Name of the villages	Number of respondents
I. Akola Taluka		
1	Chikhalgoan	12
2	Hingna	12
3	Kapashi	12
4	Mhaispur	12
5	Shivapur	12
II. Patur Taluka		
1	Aalegoan	12
2	Deulgoan	12
3	Kothari	12
4	Shekapur	12
5	Wiwara	12

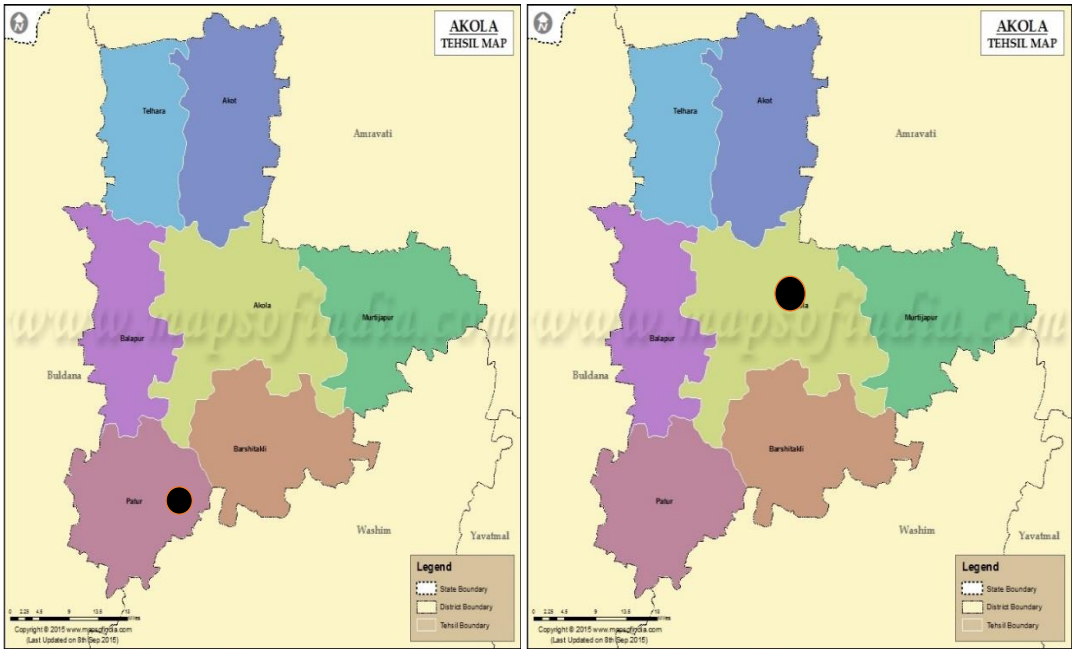
3.3 Selection of respondents

The list of Onion seed producers was obtained from TAO, Department of Agriculture. From each taluka five villages was selected in



● Selected district

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



● Selected talukas

Fig 3: Maps showing the selected talukas of Akola district

respect of Onion seed producers and from each village, twelve Onion seed producers were selected randomly. Thus, total 120 Onion seed producers were the sample size for the study. 60 respondents were selected form Akola and Patur talukas each.

Sl. No.	District	Taluka	No. of villages	No. of Onion seed producers	Total
1.	Akola	Akola	05	12	60
		Patur	05	12	60
				Total	120

3.4 Tools for data collection

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

3.5 Methods of data collection

The data was collected from the respondents by conducting personal interview.

3.6 Designing and pre testing 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 the Onion seed producers.

The interview schedule 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 language of few questions was modified for ease in understanding and eliciting accurate responses. Number of copies of interview schedule were then printed and used for collection of data.

Plate 1: Investigator investigating the farmer at his home in Mhaispur village of Akola taluka

Plate 2: Investigator investigating the farmer at his farm in Shivapur village of Akola taluka

Plate 3: Investigator investigating the farmer at his home in Deulgoan village of Patur taluka

Plate 4: Investigator investigating the farmer at his home in Aalegoan village of Patur taluka

3.7 Collection of data:

Personal interview technique was used for collection of data. Majority of the selected respondents were contacted at Onion seed production plot and theirs residence during their leisure time. In the first instance researcher introduced himself. After the introduction, purpose of visit, object and importance of the study and the significance of the co-operation of the respondents in the investigation was explained to respondents to establish proper report. Thereafter, the interview was conducted and responses were marked in the schedule. Every possible care was taken to maintain congenial atmosphere free from discomfort and outside influence to get the unbiased opinions of the respondent. The interview schedules thus filled were checked before closure of interview for its completion in all respects.

3.8 Compilation of data:

The information collected through interview was transferred from the interview schedule wherever necessary the information in qualitative form was converted into quantitative form and computation of score was done. The quantitative data were used to find out the nature of relationship between independent and dependent variables. The data were analyzed through statistical tools.

3.9 Operationalization, Scoring and Categorization of Variables:

Table 2. Variable and their measurement

Sl. No	VARIABLES	EMPIRICAL MEASURES
I.	**Independent variables**	
1.	Age	Chronological age of the Onion seed producer in completed years.
2.	Education	Actual standard of formal schooling passed by an individual.
3.	Occupation	Schedule was developed for the study
4.	Land holding	Based on norms given by Government of Maharashtra State

5.	Annual income	Gross income of the rupees of the respondents and his/her family derived from all the sources in a year.
6.	Cropping pattern	Schedule was developed for the study
7.	Area under Onion seed production	Actual area under Onion seed production by the respondent was measured in hectare.
8.	Experience of Onion seed production	It was measured in number of years
9.	Extension contact	Schedule was developed for the study
10.	Social participation	It was measured in terms of type of membership in formal and informal organization.
11.	Scientific orientation	Scale developed by Supe (1969) with due modification
B) Dependent variable (Entrepreneurial behavior)		
1.	Innovativeness	Scale developed by Moulik (1965), with due modification
2.	Achievement motivation	Procedure adopted by Chandrapaul (1998), with due modification
3.	Decision making ability	Scale developed by Supe (1969), with due modification
4.	Economic motivation	Scale developed by Supe (1969), with due modification
5.	Risk orientation	Scale developed by Supe (1969), with due modification
6.	Leadership ability	Scale developed by Nandapurkar (1980), with due modification
7.	Management orientation	Scale developed by Samantha (1977), with due modification

3.9.1 Measurement of independent variables

3.9.1.1 Age

It is conceptually defined as the chronological age of an individual in completed years. Age is operationally defined as chronological

age of a selected individual Onion seed producer in completed years at the time of data collection. A score of one was given to each completed year. It was categorized as below:

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

3.9.1.2 Education

Education is conceptually defined as formal schooling passed by an individual. Education is the level of formal education attained by the Onion seed producer. A numerical score of one was assigned to each standard passed by the Onion seed producer and following categories were formed on the basis of their educational qualification.

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

3.9.1.3 Occupation

It is operationally defined as the activities in which the Onion seed producer and his family regularly engaged and get major income out of them.

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

3.9.1.4 Land holding

Land holding is operationally defined as the actual number of hectare of land possessed by an individual Onion seed producer. The categorization of the land holding was done as per the norms of Government of Maharashtra.

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

3.9.1.5 Annual income

It is operationally defined as the total earnings in rupees of the Onion seed producer and his/her family members derived from all sources during year. Categorization of annual income was made on the basis of equal interval method.

Sl. No.	Category	Annual Income (Rs.)
1.	Very low	Up to Rs.1,00,000/-
2.	Low	Rs.1,00,001/- to Rs.2,00,000/-
3.	Medium	Rs.2,00,001/- to Rs.3,00,000/-
4.	High	Rs.3,00,001/- to Rs.4,00,000/-
5.	Very high	Above Rs.4,00,001/-

3.9.1.6 Cropping pattern

The number of crops grown in different seasons in a year by an individual farmer on his farm, based on farm resources and available technology. On the basis of yearly sequence and spatial arrangement of crops, the selected Onion producers were categorized as below.

Sl. No.	Category	Score
1.	Seasonal cropping	1
2.	Bi-seasonal cropping	2
3.	Annual cropping	3
4.	Biannual cropping	4
5.	Perennial cropping	5

3.9.1.7 Area under Onion seed production

It is operationally defined as the actual area of land in hectares put by an individual Onion seed producer on which Onion seed production taken in different seasons in a year on his farm. The individual Onion seed producer were asked about the area covered under Onion seed production and as such was considered as score. The Onion seed producers was categorized on the basis of equal interval method.

Sl. No.	Category	Area under Onion seed production (ha.)
1.	Less	Up to 0.60 ha
2.	Medium	0.61 to 1.20 ha
3.	High	Above 1.20 ha

3.9.1.8 Experience in Onion seed production

Experience in Onion seed production refers to number of years, individual Onion seed producer spent in farming. The individual Onion seed producer were asked to state the experience in Onion seed production and the respondents was categorized in three categories on the basis of equal interval method.

Sl.No.	Category	Experience in Onion seed production
1.	Low	Up to 5 years
2.	Medium	6 to 10 years
3.	Large	Above 10 years

3.9.1.9 Extension contact

It is operationaly defined as the contact of an individual Onion seed producer with various formal and informal extension agencies for seeking technical information and guidance about cultivation practices of Onion seed production. The formal and informal extension agencies was listed out and responses of individual Onion seed producer was elicited on three point continuum as Always, sometimes and never with score 2,1 and 0 respectively.

Sl. No.	Extension contact	Frequency of contact		
		Always (2)	Sometimes (1)	Never (0)
I.	**Formal sources**			
1.	Gramsevak			
2.	Agriculture Assistant			
3.	Agriculture Supervisor			
4.	Mandal Agricultural Officer			
5.	Agriculture University Scientists			
6.	KVK Scientist			
7.	Sales representative of seed company			
II.	**Informal sources:**			
1.	NGO			
2.	Progressive farmer/Farmer club members			
3.	Neighbourhood/ farmer/ relatives/ friends			
4.	Krishi Seva Kendra			

The total score was worked out by summing up the scores of all activities.

Later, the Onion seed producers was grouped into followed three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 14.27
2.	Medium	14.28 to 21.77
3.	High	Above 21.77

Mean = 18.02 SD = 3.75

3.9.1.10 Social participation

It is operationally defined as an active participation and involvement of Onion seed producers in formal and informal social organizations.

The scoring on 4 and 3 was for office bearer and members, respectively in formal organization, 2 and 1 was for office bearer and members, respectively in informal organization. The sum total score was worked out for each respondent. The participation of Onion seed producers as office bearer or member in formal and informal organization was as certain and score was assigned as given in following table.

Sl. No.	Social participation on level	Score
1.	No social participation	0
2.	Member of informal organization	1
3.	Office bearer of informal organization	2
4.	Member of formal organization	3
5.	Office bearer of formal organization	4

The Onion seed producers was grouped into followed three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 11.20
2.	Medium	11.21 to 24.40
3.	High	Above 24.40

Mean = 17.80 SD = 06.60

3.9.1.11 Scientific orientation

Scientific orientation is operationally defined as the degree to which Onion seed producer is oriented to the use of scientific methods in decision making in farming.

It was measured with the help of a scale developed by Supe (1969). The scale is of six statements amongst which the second statement alone was negative. The responses for each statement was rated over a five point continnum viz., strongly agree, agree, undecided, disagree, strongly disagree. The minimum and maximum score range from 6 and 30. Highest scale indicates better orientation towards scientific farming.

Onion seed producers were further grouped into three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 13.40
2.	Medium	13.41 to 23.02
3.	High	Above 23.02
	Mean = 18.21	SD = 04.81

3.9.2 Measurement of dependent variables

Entrepreneurial behaviour

For the present study, entrepreneurial behaviour of Onion seed producers is operationally defined as cumulative outcome of seven selected components of entrepreneurial behaviour viz., innovativeness, achievement motivation decision making ability, economic motivation, risk orientation, leadership ability and management orientation was measured by using the following methods :-

3.9.2.1 Innovativeness

This refers to the behavior pattern of an individual who has interest and desire to seek changes in farming techniques and is prepared to introduce such changes into his operations wherever practical and feasible.

For quantifying the innovativeness characters of the respondents Moulik (1965) self rating innovativeness scale was followed. The original scale consists of three sets of statements. Each set of statements contains three statement with weightages 2, 1 and 0 indicating high, medium and low degree of innovativeness.

After obtaining the responses as “most like” and “least like” choices as in original scale for each of the three sets of statements the scoring was done by assigning score “2” to “most like” and score “1” to “least like”.The final scoring was achieved by summing up the scores of the weightages of the “most like” statements and the weightages of the “least like” statements. As there was three sets of statements for innovativeness scale, the sum of scores for the three sets was considered for each respondent.

Later, the Onion seed producers was grouped into following three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 11.94
2.	Medium	11.95 to 15.38
3.	High	Above 15.38

Mean = 13.66 SD = 01.72

3.9.2.2 Achievement motivation

It is operationally defied as the desire for excellence to attain a sense of personal accomplishment. It was measure with the help of procedure adopted by Chandrapaul (1998).

The scale consist of five statements and responses was obtained on two point continuum. A weightage of 2 and 1 respectively was assigned to the response categories in the case of positive statements and the scoring was reversed for negative statements. The total score of the respondents on their achievement motivation was arrived by sum up the weightages of responses for each statement.

Later, the Onion seed producers was grouped into following three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 5.69
2.	Medium	5.70 to 7.67
3.	High	Above 7.67

Mean = 06.68 SD = 0.99

3.9.2.3 Decision making ability

The decision making ability of a farmer is operationally defined as the degree of weighing the available alternatives in terms of their desirability and their like hoods and choosing the most appropriate one for achieving maximum profit on his farming.

The scale developed by Supe (1969), with due modification was used to measure decision making ability of farmers.

The original scale modified into seven sentences for measuring the decision making in choosing the different alternatives of package of practices in Onion seed production. The weightage of 3, 2 and 1 as suggested by Supe (1969) were assigned to the three rationality levels namely ‘rational’, ‘intermediate’ and ‘less rational’, respectively.

Later, Onion seed producers were grouped into following three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 13.04
2.	Medium	13.05 to 18.50
3.	High	Above 18.50

Mean = 15.77 SD = 02.73

3.9.2.4 Economic motivation

It refers to the values or attitudes which attach greater importance to profit maximization with the ends and means**.**

This variable was measured with the scale developed by Supe (1969). It consists of six statements of which first five statements are positive and last one is negative. The responses for each statements were

rated on a five point continuum namely strongly agree, agree, undecided, disagree and strongly agree. With the scores of 5,4,3,2, and 1 for positive statements and 1,2,3,4, and 5 for the negative statements, respectively.

Later, the Onion seed producers were grouped into following three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 15.01
2.	Medium	15.02 to 22.87
3.	High	Above 22.87

Mean = 18.94 SD = 03.93

3.9.2.5 Risk orientation

Risk orientation is operationally defined as the degree to which the Onion seed producer is oriented towards risk and uncertainty in facing problems in Onion seed production.

Risk orientation was measured with the help of scale developed by Supe (1969), with due modifications. Modifications in the scoring procedure was made by giving a weightage of 3 for the ‘agree’ response, 2 for ‘undecided’ and 1 for ‘disagree’ response in case of positive statements. These was reversed in case of negative statements. The aggregate of weightages over five statements were the total score of a respondent on this variable.

Later, the Onion seed producers were grouped into following three categories on the basis of mean and standard deviation

Sl. No.	Category	Range
1.	Low	Up to 08.47
2.	Medium	08.48 to 12.29
3.	High	Above 12.29

Mean = 10.38 SD = 01.91

3.9.2.6 Leadership ability

Leadership ability is operationally defined as the degree to which an individual Onion seed producer initiates or motivates the action of others.

Scale developed by Nandapurkar (1980) with due modification was used to measure leadership ability. Leadership ability was measured along the three point rating scale “always”, “sometimes” and “never” with decreasing score from 2, 1, and 0 respectively. The total score was computed for each respondent by summing up the scores record.

Later, the Onion seed producers were grouped into following three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 05.96
2.	Medium	05.97 to 07.98
3.	High	Above 07.98

Mean = 06.97 SD = 01.01

3.9.2.7 Management orientation

It is operationally refers to the degree to which a Onion seed producer is oriented towards scientific farm management comprising planning, production and marketing functions on the farm.

In order to know the respondents’ management orientation, the scale developed by Samanta (1997) was used. The scale consists of the 16 statements representing planning, production and marketing aspects. In each group, positive and negative statements were mixed retaining more or less a psychological order of statements. The positive statements were given scores 5,4,3,2 and 1 for strongly agree, agree, undecided, disagree and strongly disagree, respectively. The scoring was reversed in case of negative statements.

Later, the Onion seed producers were grouped into following three categories on the basis of mean and standard deviation.

Sl. No.	Category	Range
1.	Low	Up to 46.17
2.	Medium	46.18 to 62.27
3.	High	Above 62.27

Mean = 54.22 SD = 08.05

3.9 Overall entrepreneurial behaviour

Entrepreneurial behavior of Onion seed producers is operationally defined as cumulative outcome of seven selected components of entrepreneurial behaviour viz., innovativeness, achievement motivation, decision making ability, economic motivation, risk orientation, leadership ability and management orientation was measured.

Entrepreneurial behaviour was measured with the help of entrepreneurial behavior index by addition of scores of seven attributes namely innovativeness, achievement motivation, decision making ability, economic motivation, risk orientation, leadership ability and management orientation. The total obtained score was converted into entrepreneurial behavior index. The entrepreneurial behavior index was calculated by the following formula.

$$\text{Entrepreneurial Behaviour Index} = \frac{\text{Sum of obtained score on seven entrepreneurial components}}{\text{Maximum obtainable score on seven entrepreneurial components}} \times 100$$

The Onion seed producers was component wise classified into three categories viz. low, medium, high, respectively on the basis of mean and standard deviation as given below.

Sl. No.	Category	Index Range
1.	Low	Up to 117.20
2.	Medium	117.21 to 137.10
3.	High	Above 137.10

Mean = 127.15 SD = 09.95

3.10. Constraints faced by farmers

On the basis of review of literature, a compendium of constraints was prepared and constraints faced by the Onion seed producers were collected through closed end question in the interview schedule according to severity.

3.11 Statistical procedure used for analysis of data:

3.11.1 Arithmetic mean ($\overline{X}$)

It was calculated by summing all the score and dividing it by number of respondents.

$$\overline{X} = \frac{\sum \mathbf{X}}{\mathbf{n}}$$

Where,

$\overline{X}$ = Mean

$\sum X$ = Score of independent respondents

n = Number of respondents

3.11.2 Standard deviation (SD)

It is measure of variability calculated around mean. The formula as under.

$$SD = \sqrt{\frac{\sum \left(X_i - \overline{X} \right)^2}{n}}$$

Where,

SD = Standard deviation

x_i = Score of each respondents

$\overline{X}$ = Mean

n = Number of respondents

3.11.3 Spearman Rank Correlation

The relationship between independent and dependent variables was calculated with the help of given formula,

$$r = 1 - \frac{6\Sigma i\, di^2}{n(n^2-1)}$$

Where,

r = Spearman's rank correlation coefficient

n = Number of data points of two variables

di = Difference in the i^{th} element of each random variable

CHAPTER IV

SOCIO-ECONOMIC FEATURES OF AKOLA DISTRICT

Maharashtra state has six revenue divisions viz., Mumbai, Pune, Nasik, Aurangabad, Amravati and Nagpur. Vidarbha area includes Amravati and Nagpur revenue divisions comprising eleven districts viz., Buldana, Akola, Washim, Amaravati, Yevatmal, Wardha, Nagpur, Bhandara, Gondia, Chandrapur, Gadchiroli. 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, vegetables (Onion, Tomato etc.) forest timber etc.

The present study is confined to Akola districts of Western Vidarbha. The agro-climatic conditions differ from place to place and even in close vicinity also.

4.1 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.

In Akola Panchayat Samiti, the soil are medium black cotton soil. The average rainfall ranges from 750 mm to 950 mm and comes in subtropical zone. The summer is severe in Akola District. The temperature touches to 45^0C to 48^0C in the month of May and slides to 8^0C to 10^0C in the month of December. The crops grown totally depend on rainfall. Cotton, sorghum, pigeon pea, green gram and sunflower are major Kharif crops. During Rabi season safflower, gram, sunflower and wheat. Also vegetables such as tomato, onion, brinjal etc. are grown.

Almost all the villages in this Panchayat Samiti are well facilitated. The educational and health care facilities through schools, colleges and primary health centers are adequately available in the study area. The transport, marketing and communication network is also well developed.

4.2 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.

4.3 Climate and rainfall

Being away from the sea, the district has extreme 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 and 21.3°C, respectively. Akola district falls in assured rainfall zone of Maharashtra state having on an average rainfall between 750 to 950 mm.

4.4 Land use pattern

The details of land use pattern of Akola district are presented in Table 3.

Table 3. Land use pattern of Akola district

Sr. No.	Particular	Area (000' ha)
1.	Total geographical area	5417
2.	Forest area	40.80
3.	Land not available for cultivation	20.6
4.	Land under used other than farming	9.2
5.	Fallow land (Not useful for cultivation)	12.4
6.	Cultivable but not under use	45
7.	Uncultivated land other than fallow	
	Grazing land	14.6
	'E' Class	3.2
	Cultivable fallow	7.4
8.	Fallow land	
	Current fallow	7.5
	Other fallow	7.2
9.	Land under cultivation	443.7
	Sown once	437.0
	Sown more than once	6.7

(Source : Agricultural statistical information Maharashtra state, 2017)

4.5 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 4. Cropping pattern of Akola district

Sl. 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.	Onion	2982
12.	Tomato	378
13.	Brinjal	447
14.	Other vegetables	612
	Total vegetables	4379
15.	Safflower	3560
16.	Sunflower	5280
	Kharif	-
	Rabi	-
	Summer	-
17.	Summer groundnut	3385
18.	Soybean	106640
	Total oilseed	118865

(Source: Directorate of Economics and Statistics, 2017)

4.6 Crop season and crop rotation

There are two important crop seasons i.e. Kharif and Rabi where as 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 5.

Table 5. 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	Onion
8.	Cotton + tur + jowar + mung	Sunflower
9.	Mung	Safflower
10.	Cotton + mung	Vegetables
11.	Onion	Wheat/ Gram

(SAO, Akola, Annual report 2018)

4.7 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 nationalized 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.

4.8 Markets

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-markers are connected with roads and having facilities of banking, electricity, etc.

4.9 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.

Table 6. Credit Supply in Akola district

Sl. No.	Credit Society	Number	Working capital (Lakh)	Loan given (Lakh)
1.	Primary Agricutural Co-operative Credit Society	412	1319	8.99
2.	Non-agricultural Credit Society	220	208.27	63.39
3.	Panan Sanstha (Marketing societies)	14	NA	-
4.	Production Society	339	-	-
5.	Social Service Society	276	-	-

(Directorate of Economics and Statistics 2017)

CHAPTER V

RESULTS AND DISCUSSION

This chapter deals with the presentation of results of investigation and critical discussion of the results presented. It presents the distribution of the onion seed producer with reference to their selected personal, social, economic characteristics. The data collected from 120 respondents were compiled and appropriate statistical tests were used for drawing the inferences.

The data collected by adopting the procedure presented earlier in the methodology. The results obtained from the analysis of the data in accordance of the study objectives along with logical discussion have been given to interpret the observed phenomena. With the help of findings of the research studies conducted earlier also been taken into account to defend the interpretation given here. The results of the investigation are presented and discussed in this chapter with following heads:

5.1 Profile of the Onion seed producer

5.2 Entrepreneurial behaviour of Onion seed producer

5.3 Relationship between profile of Onion seed producer with their entrepreneurial behaviour

5.4 Constraints faced by the Onion seed producer

5.5 Empirical model

5.1 Profile of the Onion seed producer

Here, is included the frequency and per cent distribution of the respondents with respect to their profile viz., age, education, occupation, land holding, annual income, cropping pattern, area under Onion seed production, experience of Onion seed production, extension contact, social participation, and scientific orientation of Onion seed producer. The data have been furnished as below.

5.1.1 Age

Age was considered as a factor, since it reveals the ability of an individual to take positive decisions for achieving his needs and it influences the Onion seed producer to choose and to adopt a particular technology. The results related to the age distribution of Onion seed producer are presented in the Table 7 and diagrammatically depicted in Fig.4.

Table 7. Distribution of the respondents according to their age

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Young (Up to 35 years)	40	33.33
2.	Middle (36 yrs. to 50 years)	69	57.50
3.	Old (Above 50 years)	11	09.17
Total		**120**	**100.00**

It is observed from Table 7 that, majority (57.50%) of the respondents were found in the middle age group, followed by 33.33 per cent of respondents in young age group and 09.17 per cent of respondents in old age group. Thus, it was concluded that majority (57.50 %) of respondents belonged to middle age category.

The reason for the above result may be due the fact that Onion seed production is a regular income generating enterprise. It adds significantly to the family income. The income from Onion seed production is assured source other than general agriculture produce cereals and pulses. Therefore, more number of middle age Onion seed producer are taking Onion seed production as subsidiary occupation.

This finding is in the line with the findings of Raut (2018) and Yewatkar (2018), where in, they reported that higher per cent of the respondents were in middle age group.

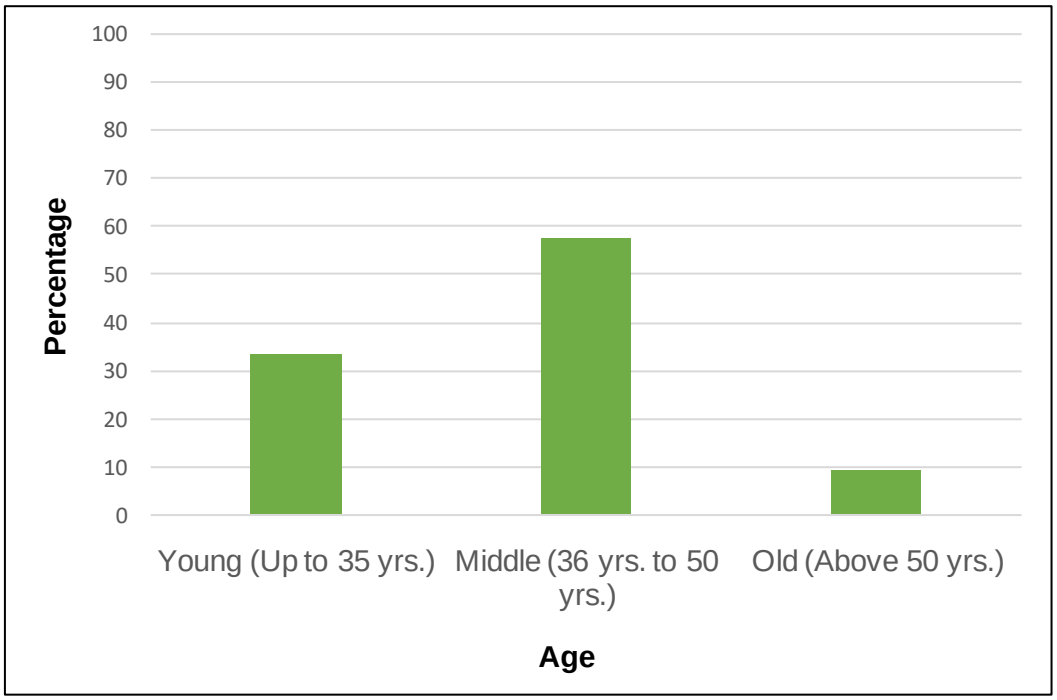


Fig.4. Distribution of the respondents according to their age

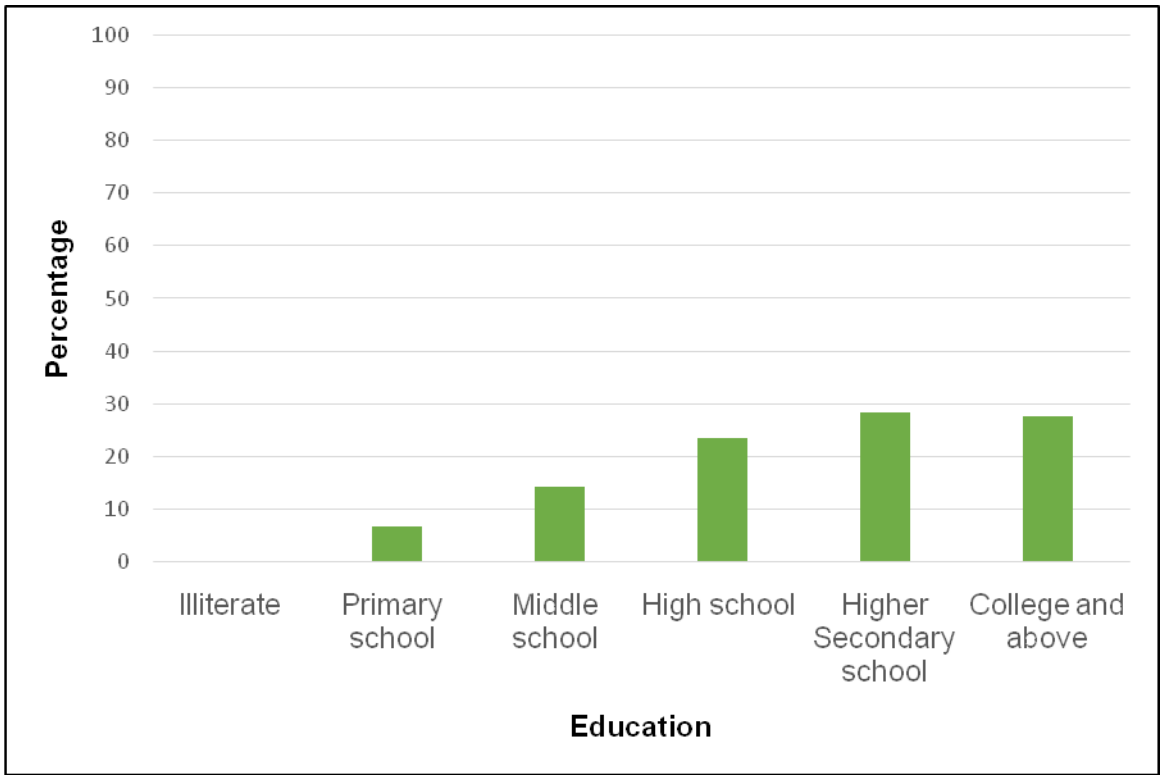


Fig.5. Distribution of the respondents according to their education

5.1.2 Education

Education is the process of bringing about desirable changes in the behaviour. Educational status of an individual is considered as one of the major factors influencing the entrepreneurial behaviour of the Onion seed production. The education of the respondents was studied and the data in this respect is in Table 8 and diagrammatically depicted in Fig.5.

Table 8. Distribution of the respondents according to their education

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Illiterate (No Education)	00	00.00
2.	Primary school (1st to 4th std.)	08	06.67
3.	Middle school (5th to 7th std.)	17	14.17
4.	High school (8th to 10thstd.)	28	23.33
5.	Higher Secondary school (11th to 12th std.)	34	28.33
6.	College and above (Above 12th)	33	27.50
Total		**120**	**100.00**

The data in Table 8 indicated that, 28.33 per cent of respondents had educated up to higher secondary school level, followed by 27.50 per cent college and above level of education. Whereas 23.33 per cent had educated up to high school level, while 14.17 per cent respondents had educated up to middle school level and 06.67 percent respondents had educated up to primary school level. Whereas, no respondents was observed in illiterate category. Thus, it is concluded that majority (55.83 %) of the respondents educated up to higher secondary and above.

As the respondents might be realized the importance of formal education and motivate them to pursue higher education. It helps the Onion seed producer to gather new information required for Onion seed production enterprise which in turn may create outlook to manage the enterprise. It is a well known fact that an educated person turns to be rational in his thinking and imagination which in turn develops

entrepreneurial skills it can be the probable reason for majority of farmers to be educated up to higher secondary and college level.

This finding is in line with the findings of Wadekar (2016) wherein, he observed that (58.00 %) of the respondents had educated up to college level.

5.1.3 Occupation

The main occupation of the household in which the farmer and his family are regularly engaged and get major income out of them. It is indicative of the employment structure of village and may through light on future prospect of more employment hence undertaken for study. The occupation of the respondents was studied and the data in this respect is in Table 9 and diagrammatically depicted in Fig.6.

Table No. 9. Distribution of respondents according to occupation

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Agriculture + Labour	09	07.50
2.	Agriculture	57	47.50
3.	Agriculture + Allied occupation	37	30.83
4.	Agriculture + Business	10	08.33
5.	Agriculture + Service	07	05.84
Total		**120**	**100.00**

It is observed from the Table 9 that, nearly half (47.50%) of the respondents were depends only on agriculture, followed by 30.83 per cent of the respondents were in agriculture with allied occupation, whereas agriculture with business (08.33 %), while agriculture with labour (07.50 %), and agriculture with service (05.84 %) as their occupation.

The more number of the respondents practicing agriculture alone might be due to the continuation of ancestral traditional occupation of agriculture. Other factor could also be the limited scope of employment in non-agriculture sector as they took traditional education which is very low

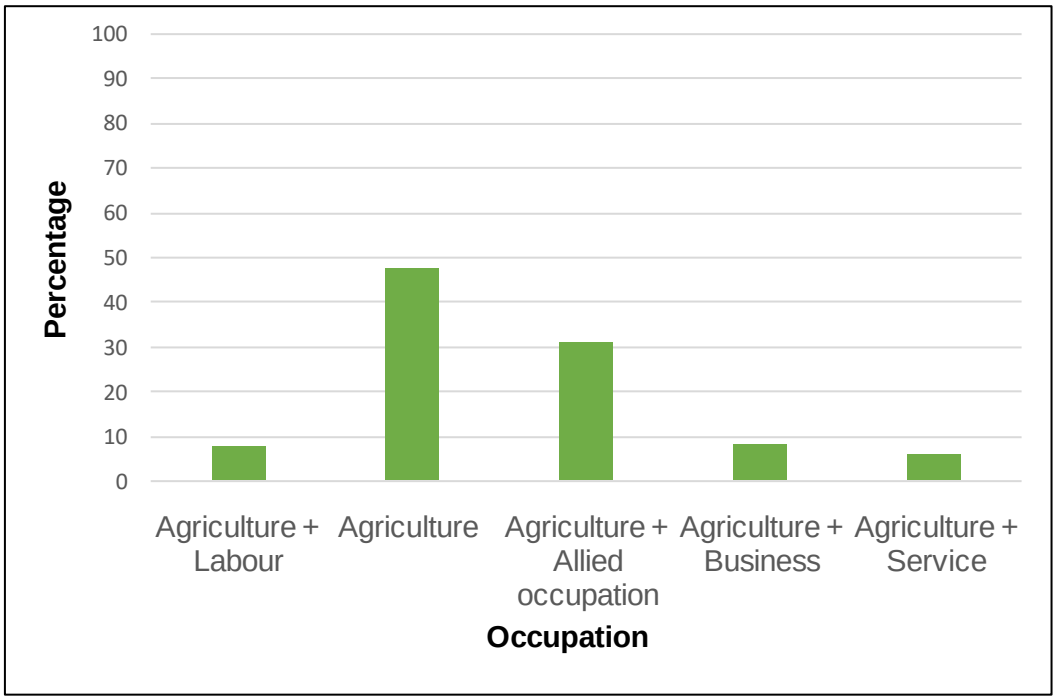


Fig.6. Distribution of respondents according to occupation

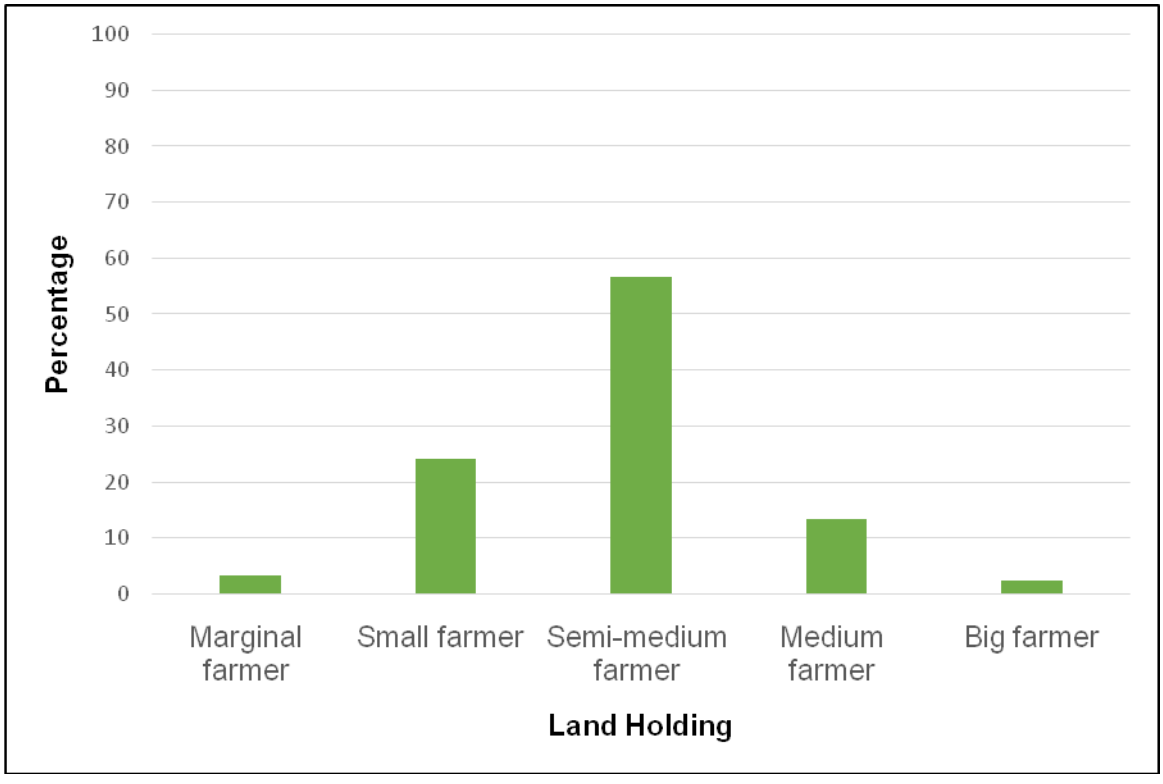


Fig.7. Distribution of respondents according to land holding

scope to get employment. And having semi-medium land holding the nature of farming should be intensive and remunerative.

The findings are in line with the studies of Shweta Dutonde (2014), wherein she observed that 40.00 per cent of the respondents were engaged in agriculture occupation.

5.1.4 Land holding

The hectare of land possessed by an individual had might influence on adoption of innovation and also determine the decision making ability and risk taking ability. The results obtained has been presented in Table 10 and diagrammatically depicted in Fig.7.

Table 10. Distribution of the respondents according their land holding

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Marginal farmer (Up to 01.00 ha)	04	03.33
2.	Small farmer (01.01 to 02.00 ha)	29	24.17
3.	Semi-medium farmer (02.01 to 04.00ha)	68	56.67
4.	Medium farmer (04.01 to 10.00 ha)	16	13.33
5.	Big farmer (Above 10.00 ha)	03	02.50
Total		**120**	**100.00**

It is evident from Table 10 that, majority (56.67%) of the Onion seed producers possess semi-medium land holding (02.01 to 04.00 ha), followed by 24.17 per cent of them possess small land holding (01.01 to 02.00 ha). While (13.33 %) respondents belonged to medium land holing category (04.01 to 10.00 ha), while (03.33 %) respondents belonged to marginal land holding category (Up to 01.00 ha) and (02.50 %) respondents have big land holding category which is above 10.00 hectares. Thus, it is concluded that majority (56.67%) per cent of the Onion seed producer were found in semi medium land holding category.

The reason for possession of higher per cent of semi medium land holding could be due to fragmentation of land because of separation

of families. Semi medium and small Onion seed producer usually needs subsidiary occupation for their better living, since uncertainty and risk are there in farming and therefore it has been considered as a gambling. In order to sustain the losses occurred to the small and semi medium farmers due to vagaries of nature.

These finding is in line with the findings of Anita Bare (2017) where in, she observed that higher per cent of the respondents were in semi-medium land holding category.

5.1.5 Annual income

Annual income refers to the total income in year of all the family members of the respondents from all the sources. Annual income of the family helps to project the overall economic position and is indication of economic stability. Income of Onion seed producer was studied and data is given in Table 11 and diagrammatically depicted in Fig.8.

Table 11. Distribution of the respondents according to their annual income

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Up to Rs.1,00,000/-	04	03.33
2.	Rs.1,00,001/- to Rs.2,00,000/-	30	25.00
3.	Rs.2,00,001/- to Rs.3,00,000/-	38	31.67
4.	Rs.3,00,001/- to Rs.4,00,000/-	29	24.17
5.	Above Rs.4,00,000/-	19	15.83
Total		**120**	**100.00**

It is apparent from Table 11 that, near about one third (31.67 %) of the respondents had annual income between Rs.2,00,001/- to Rs.3,00,000/-, followed by 25.00 per cent of them had annual income range between Rs.1,00,001/- to Rs.2,00,000/-. Whereas 24.17 per cent had annual income between Rs.3,00,001/- to Rs.4,00,000/-, followed by 15.83 per cent annual income above Rs.4,00,000/-, and rest 03.33 per cent annual income up to Rs.1,00,000/-.

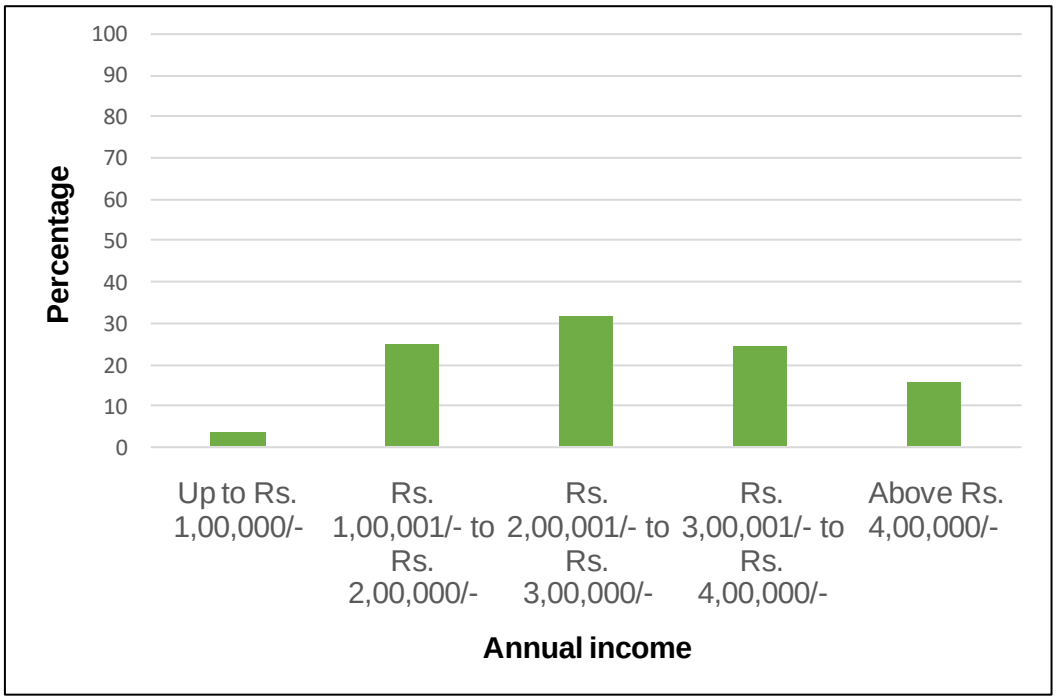


Fig.8. Distribution of respondents according to annual income

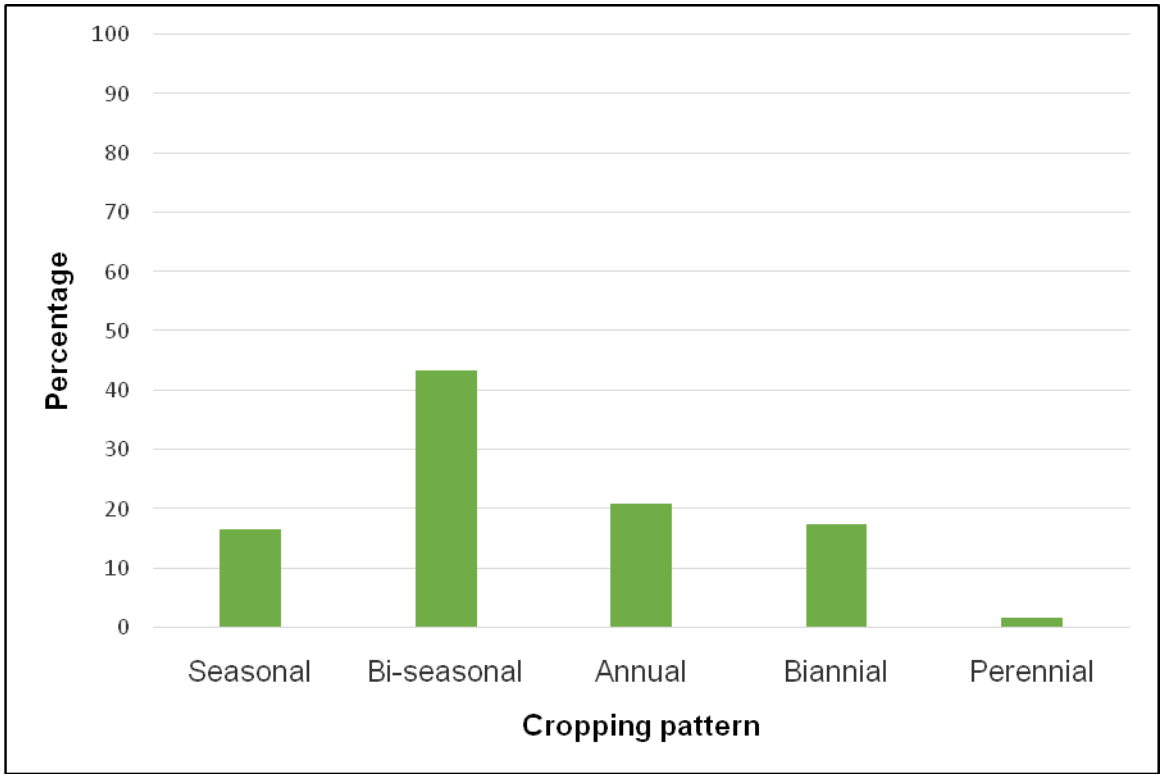


Fig.9. Distribution of respondents according to cropping pattern

Thus, it can be concluded that 31.67 per cent of the respondents belonged to annual range between Rs.2,00,001/- to Rs.3,00,000/-. This is due to the semi medium land holding possessed by the Onion seed producer and also additional income generated through Onion seed production as a probably contributed much to their total income.

These finding is in line with findings of Raut (2018), who found that majority (50.00%) of the respondents were having annual income more than Rs.2,00,000/-.

5.1.6 Cropping pattern

The number of crops grown in different seasons in a year by an individual farmer on his farm, based on farm resources and available technology. On the basis of yearly sequence and spatial arrangement of crops, the selected Onion producers were categorized as per Table 12 and diagrammatically depicted in Fig.9.

Table 12. Distribution of the respondents according to cropping pattern

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Seasonal	20	16.67
2.	Bi-seasonal	52	43.33
3.	Annual	25	20.83
4.	Biannual	21	17.50
5.	Perennial	02	01.67
Total		**120**	**100.00**

It is evident from Table 12, Higher percentile (43.33%) of the Onion seed producers were follows bi-seasonal cropping pattern, whereas 20.83 per cent respondents follows annual cropping, 17.50 per cent of the respondents follows biannual cropping, 16.67 per cent of the respondents follows seasonal cropping and only 01.67 per cent of the respondents follows perennial cropping, respectively.

These finding is in line with Barkhade (2015) and Kajal Bhaltilak (2017) who reported that majority of the respondents followed bi-seasonal cropping pattern.

5.1.7 Area under Onion seed production

It is operationally defined as the actual area of land in hectares put by an individual onion seed producer on which Onion seed production taken in different seasons in a year on his farm. It was measured on the basis of actual area in hectare put up under the Onion crop. Later, respondents was categorized in three categories on the basis of equal interval method as presented in Table 13 and diagrammatically depicted in Fig.10.

Table 13. Distribution of the respondents according to area under Onion seed production

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Less (Up to 0.60 ha)	45	37.50
2.	Medium (0.61 to 1.20 ha)	68	56.67
3.	High (Above 1.20 ha)	07	05.83
Total		**120**	**100.00**

It is observed from Table 13 that, majority of the respondents (56.67%) had area under Onion seed up to 0.61 to 1.20 ha, followed by 37.50 per cent of respondents of them had area under Onion seed production up to 0.60 ha. While 05.83 per cent of the respondents had Onion seed production above 1.20 ha area. It is concluded that majority (56.67%) of the Onion seed producer were found in medium area (0.61 to 1.20 ha) under Onion seed production category.

Similar findings were observed by Roman (2015) and Anita Bare (2017), who stated that majority (60.00%) and (65.53%) of the respondents had medium area under Onion crop, respectively.

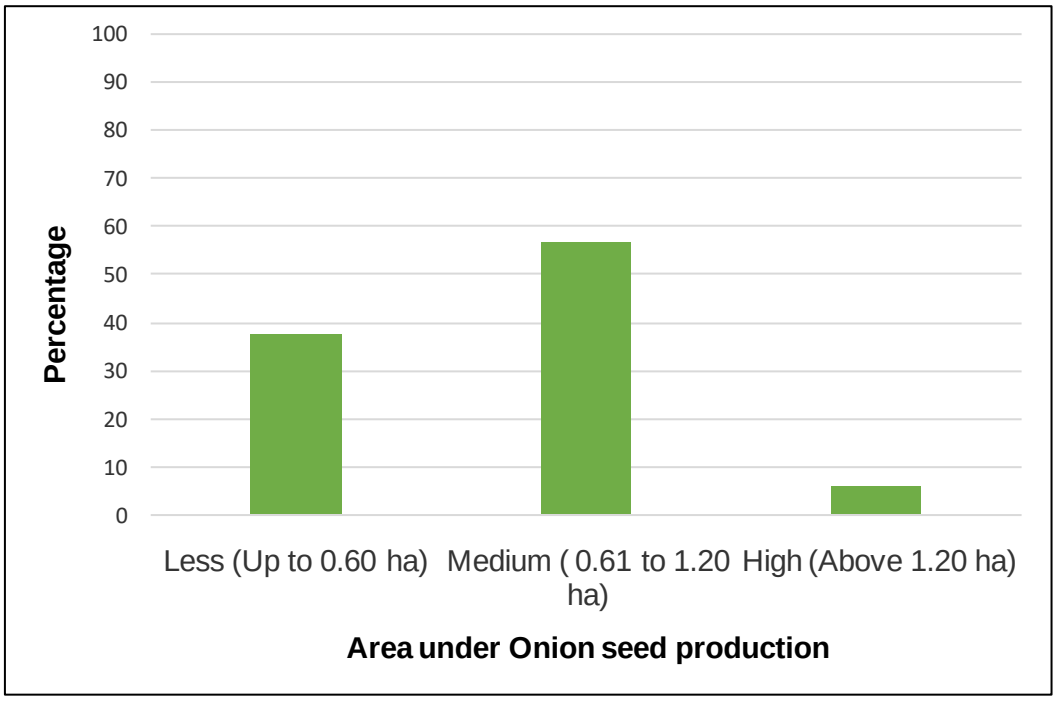


Fig.10. Distribution of respondents according to area under Onion seed production

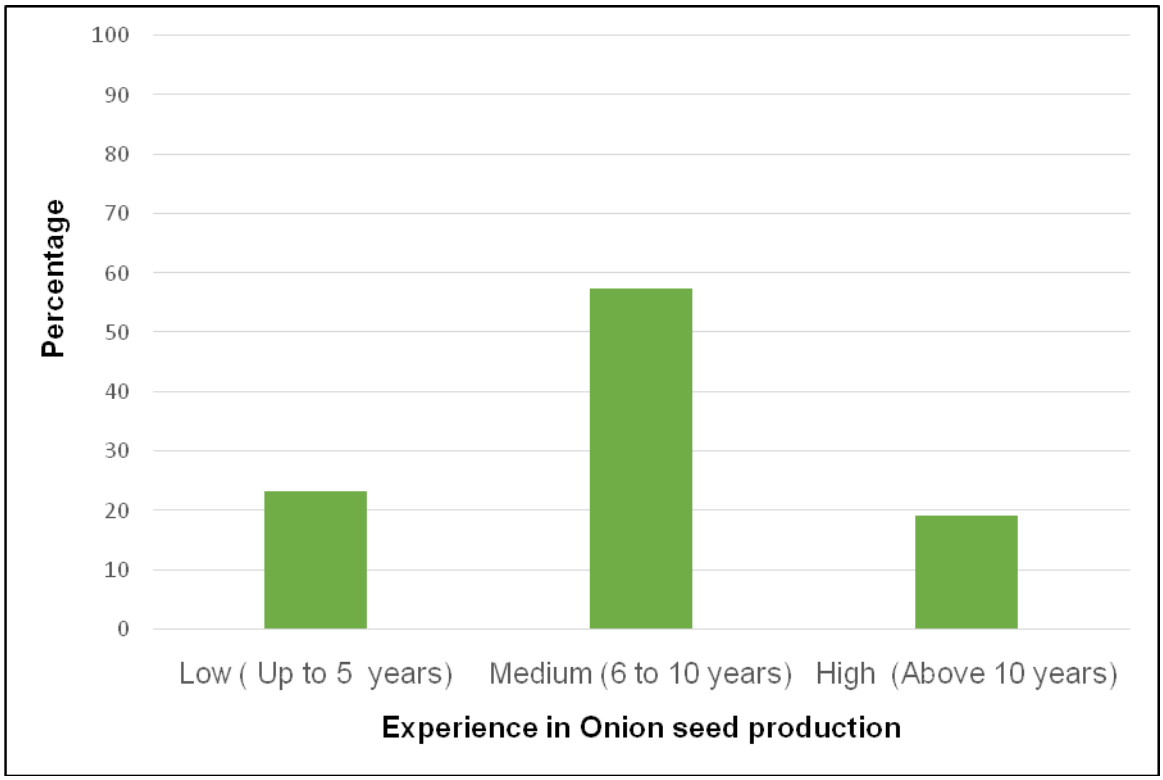


Fig.11. Distribution of respondents according to experience in Onion seed production

5.1.8 Experience in Onion seed production

Experience in Onion seed production operationally refers to number of years, individual Onion seed producer spent in farming. The individual Onion seed producer was asked to state the experience in Onion seed production and the respondents was categorized in three categories on the basis of equal interval method as presented in Table 14 and diagrammatically depicted in Fig.11.

Table 14. Distribution of the respondents according to their experience in Onion seed production

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 5 years)	28	23.33
2.	Medium (6 to 10 years)	69	57.50
3.	High (Above 10 years)	23	19.17
	Total	**120**	**100**

It is observed from Table 14 that, majority (57.50 %) of the respondents had medium level of experience (6 to 10 years) in Onion seed production, followed by 23.33 per cent of respondents had low level of experience (Up to 5 years). Rest 19.17 per cent of the respondents had high level of experience (Above 10 years) in Onion seed production. It can be concluded that 57.50 per cent of Onion seed producers were found with medium to low experience in Onion seed production.

These finding is in line with finding of Anita Bare (2017) who reported that higher percentage (46.67%) of the respondents had medium experience in Onion cultivation.

5.1.9 Extension contact

Extension contact may play important role from awareness point of view. It is presumed that the farmers having more contacts with extension workers and other agencies may derive more benefits from developmental agencies.

Table 15. Distribution of respondents according to their extension contact

	Extension contact	Contact		
		Always	Sometimes	Never
A)	**Formal contact**			
1.	Gramsevak	16 (13.33)	60 (50.00)	44 (36.67)
2.	Agriculture assistant	42 (35.00)	68 (56.67)	10 (08.33)
3.	Agriculture supervisor	07 (05.83)	44 (36.67)	69 (57.50)
4.	Mandal Agricultural Officer	12 (10.00)	72 (60.00)	36 (30.00)
5.	Agriculture university scientist	31 (25.83)	64 (53.33)	25 (20.84)
6.	KVK Scientist	23 (19.16)	56 (46.67)	41 (34.17)
7.	Sales representative of seed company	77 (64.17)	38 (31.66)	05 (04.17)
B)	**Informal contact**			
1..	NGO	19 (15.83)	46 (38.33)	55 (45.84)
2.	Progressive farmer	46 (38.33)	66 (55.00)	08 (06.67)
3.	Neighborhood/farmer/ relatives/friends	102 (85.00)	18 (15.00)	00 (00.00)
4.	Krishi Seva Kendra	68 (56.67)	34 (28.33)	18 (15.00)

(Figures in parentheses indicates percentage)

The distribution of formal contact utilized by the Onion seed producer for seeking information presented in table 15, Majority (64.17%) of the respondents always contacted to Sales representative of the companies for which they having contract for seed production, followed by 35.00 per cent of respondent always contacted Agriculture assistant. Whereas, 60.00 per cent, 56.67 per cent and 53.33 per cent of the

respondents sometimes contacted to Mandal agricultural officer, Agriculture assistant and Agriculture University Scientists respectively. Whereas 57.50 per cent, 36.67 per cent and 34.17 per cent of the respondents never contacted to Agricultural supervisor, Gramsevak and KVK scientist respectively for seeking information.

The distribution of Informal contact utilized by the Onion seed producer for seeking information presented in table 15, majority (85.00%) of respondent always contacted to Neighbours/Friends/Relatives, followed by 56.67 per cent of the respondents who always contacted to Krishi seva Kendra for seeking information. Whereas, 55.00 per cent of the respondents sometimes seeking information from progressive farmers. Whereas 45.54 per cent of the respondents never contacted to NGO for seeking information, followed by 15.00 per cent of the respondents who never contacted to Krishi Seva Kendra for seeking information about Onion seed production.

After that respondents were categorized into three categories as presented in Table 16 and diagrammatically depicted in Fig.12.

Table 16. Distribution of the respondents according to their level of extension contact

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 14.27)	17	14.17
2.	Medium (14.28 to 21.77)	87	72.50
3.	High (Above 21.77)	16	13.33
Total		**120**	**100.00**
Mean = 18.02		*SD = 03.75*	

It is observed from the Table 16 that, majority (72.50%) of the respondents were utilizing medium extension contact for seeking information, followed by 14.17 per cent and 13.33 per cent of the respondents had low and high extension contact respectively. It can be

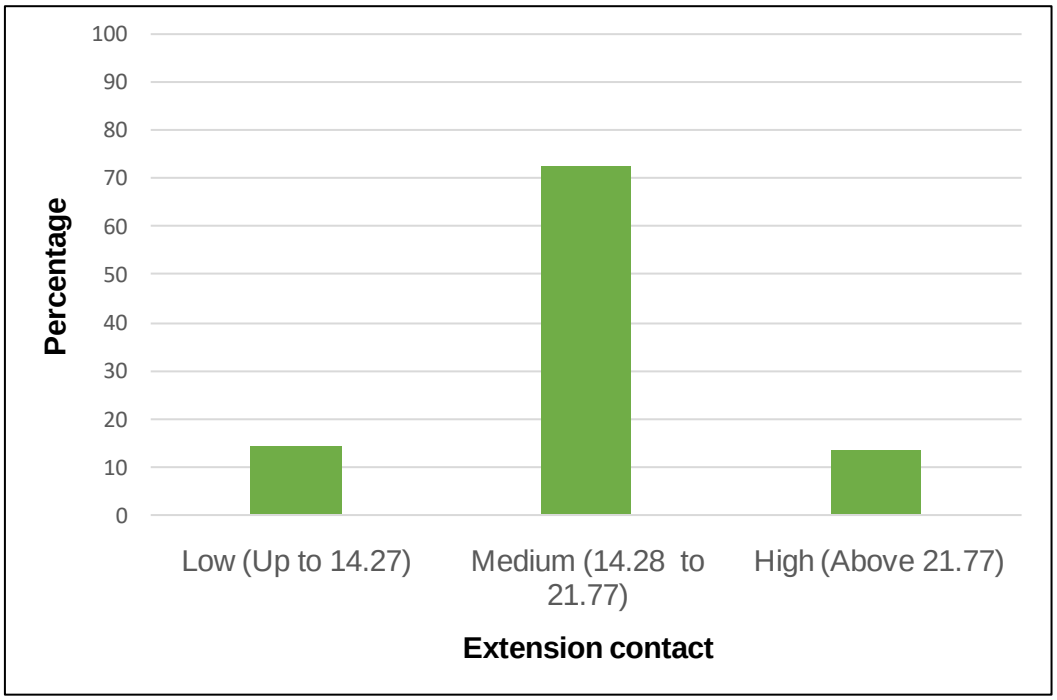


Fig.12. Distribution of respondents according to extension contact

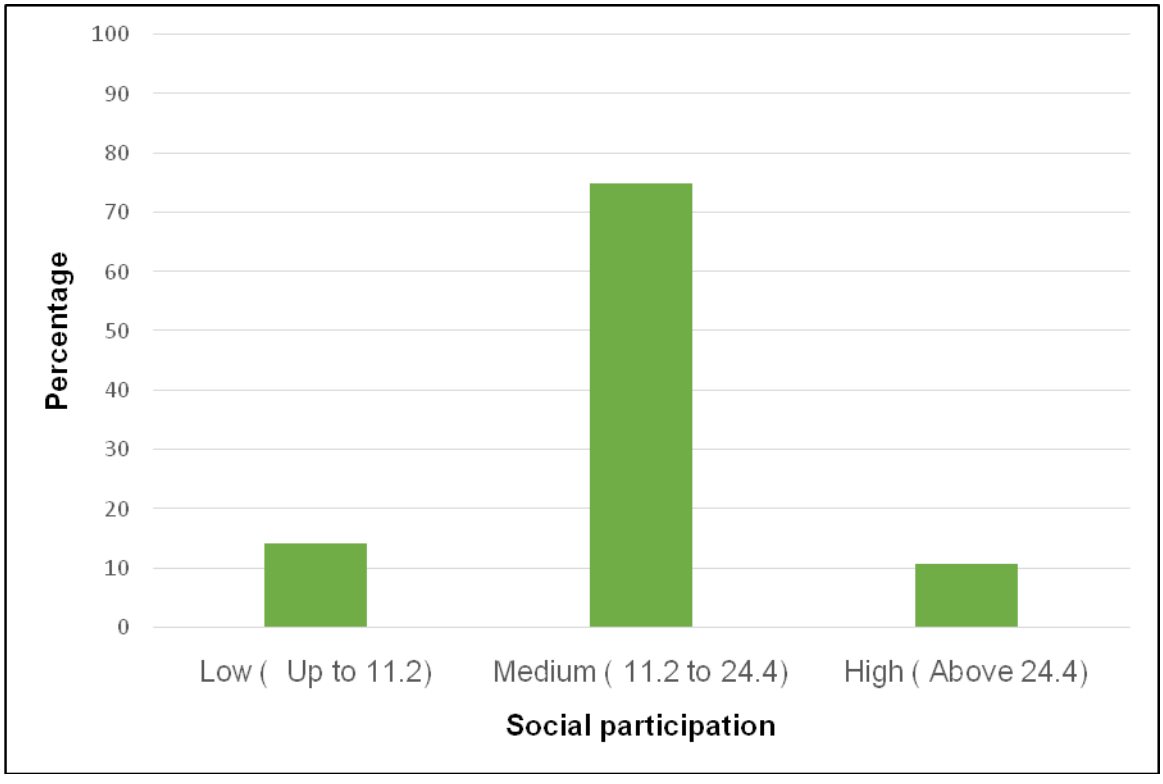


Fig.13. Distribution of respondents according to social participation

inferred that, majority (72.50%) of the respondents had medium level of extension contact.

This finding is in line with Anita Bare (2017), Raut (2018) and Yewatkar (2018), who reported that majority of the respondents had medium extension contact.

5.1.10 Social participation

Social participation is the participation of the respondents in formal and informal organisation. The distribution the respondents according to their social participation has been presented in Table 17 and diagrammatically depicted in Fig.13.

Table 17. Distribution of the respondents according to social participation

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 11.20)	17	14.17
2.	Medium (11.21 to 24.40)	90	75.00
3.	High (Above 24.40)	13	10.83
Total		**120**	**100.00**
Mean = 17.80		*SD = 06.60*	

It is observed from the Table 17, majority (75.00%) of the respondents were belongs to medium category of social participation, followed by 14.17 per cent and 10.83 per cent respondents were belonged to high and low category of social participation respectively. Thus it can be conclude that majority (75.00%) of the respondents belongs to medium category of social participation, because of their interest in social activities to gather new information.

The finding is in line with Thakare (2013) and Ghube (2014), who reported that, majority of the respondents (63.33%) and (73.34%) were belonged to medium category of social participation.

5.1.11 Scientific orientation

It is the degree to which farmer is oriented to the use of scientific methods in decision making in farming. The distribution of the respondents presented in Table 18 and diagrammatically depicted in Fig.14.

Table 18. Distribution of the respondents according to Scientific orientation

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 13.40)	15	12.50
2.	Medium (13.41 to 23.02)	96	80.00
3.	High (Above 23.02)	09	07.50
	Total	**120**	**100.00**
Mean = 18.21		*SD = 04.81*	

It is revealed from the Table 18 that, Majority (80.00%) of the respondents had medium level of scientific orientation, followed 12.50 per cent of respondents had high level of scientific orientation and rest 07.50 per cent of respondents low high level of scientific orientation.

Thus it can be concluded that, majority (80.00%) of the respondents had medium scientific orientation. Scientific orientation refers to extent of use of scientific methods in each of the action. The respondents with medium scientific orientation had medium entrepreneurial behaviour score.

The findings is in line with findings of Shweta Dutonde (2014) and Yewatkar (2018) who revealed that, majority of the respondents had medium level of scientific orientation.

5.2 Entrepreneurial behaviour of the Onion seed producer

The entrepreneurial behaviour of the Onion seed producer comprised of seven selected components of entrepreneurial behavior such as innovativeness, achievement motivation, decision making ability,

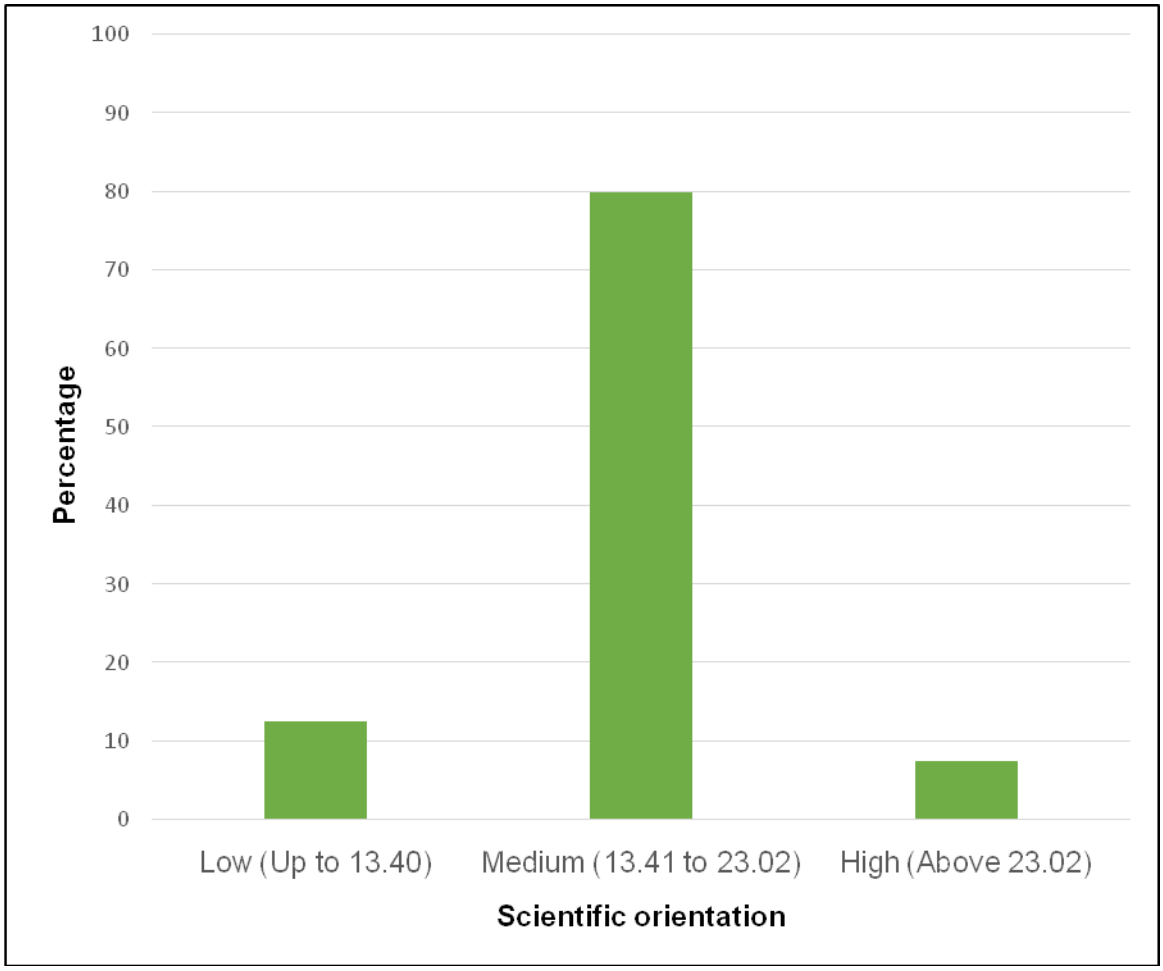


Fig.14. Distribution of respondents according to scientific orientation

economic motivation, risk orientation, leadership ability and Management orientation. In this section with regards to the component wise entrepreneurial behaviour of the Onion seed producer have been interpreted and discussed as follows.

5.2.1 Innovativeness

This refers to the behavior pattern of an Onion seed producer who has interest and desire to seek changes in farming techniques and is prepared to introduce such changes into his operations wherever practical and feasible.

Innovativeness is the important factor in Onion seed production, as it indicates the willingness of an individual to know about new things, ideas and new practices related to enterprise and up to what extend respondent is going to apply this things in his business. Therefore, the innovativeness of respondents was studied and the results presented in Table 19 and diagrammatically depicted in Fig.15.

Table 19. Distribution of the respondents according to their innovativeness

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 11.94)	14	11.67
2.	Medium (11.95 to 15.38)	84	70.00
3.	High (Above 15.38)	22	18.33
Total		**120**	**100.00**
Mean = 13.66		*SD = 01.72*	

It is observed from the Table 19 that, majority (70.00%) of the respondents had medium innovativeness, followed by 18.33 per cent and 11.67 per cent distributed within high and low innovativeness category respectively. A considerable 70.00 per cent of Onion seed producer were found in medium category of innovativeness.

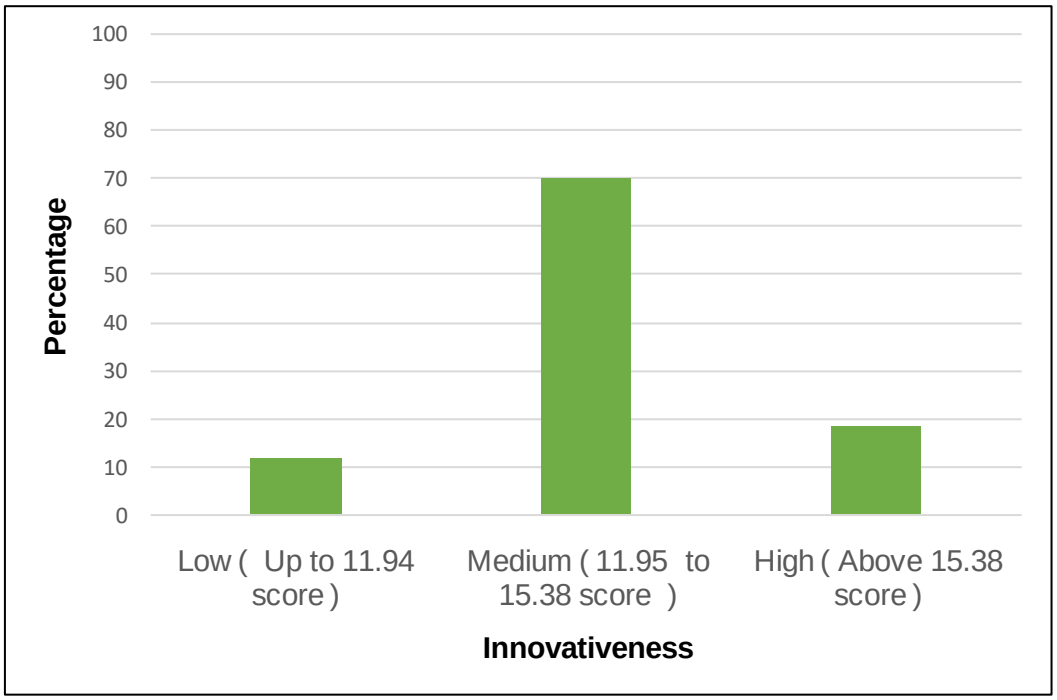


Fig.15. Distribution of respondents according to innovativeness

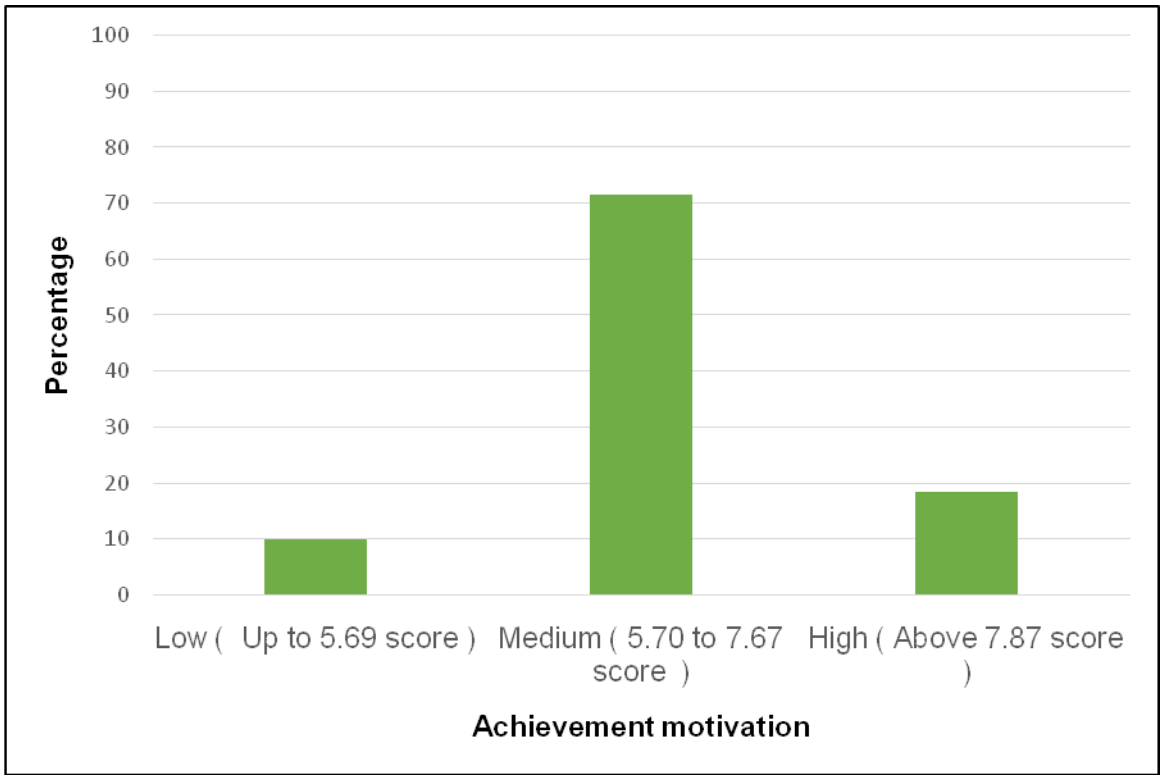


Fig.16. Distribution of respondents according to achievement motivation

The possible reason is that majority of the respondents were higher secondary and above college level education and medium annual income. Apart from this they used medium extension contact and social participation which might be contributed to their medium level of innovativeness.

These results are in accordance with the findings of Wadekar (2016), Raut (2018) who reported that majority of the respondents had medium innovativeness.

5.2.2 Achievement Motivation

Achievement motivation is the desire for excellence to establish the personal accomplishment. It is the desire of doing difficult things which gives them a satisfaction. This help to increase the work efficiency of the Onion seed producer.

The information regarding achievement motivation of the respondents collected, compiled and presented in Table 20 and diagrammatically depicted in Fig.16.

Table 20. Distribution of the respondents according to their achievement motivation

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 5.69 score)	12	10.00
2.	Medium (5.70 to 7.67 score)	86	71.67
3.	High (Above 7.87 score)	22	18.33
Total		**120**	**100.00**
Mean = 06.68		*SD = 00.99*	

It is observed from Table 20 that, majority (71.67%) of the respondents had medium achievement motivation followed by 18.33 per cent and 10.00 per cent of respondents who had high and low level of achievement motivation, respectively. It is concluded that majority of Onion seed producers belonged to medium achievement motivation.

Achievement motivation is a psychological variable. It differs from individual to individual and it forces the individual towards reaching same goal. The medium level extension contact and social participation may be the possible reason for it.

The findings are in line with the findings of Keisham (2016) and Raut (2018) who reported that, majority of respondents had medium level of achievement motivation.

5.2.3 Decision making ability

In general, the Onion seed producer have to take many decisions at every step while doing the seed production. This is the important behaviour which many times decide the success of the enterprise. That is why the decision making behaviour was studied and the results are presented in Table 21 and diagrammatically depicted in Fig.17.

Table 21. Distribution of the respondents according to their decision making ability

Sr. No.	Category	Respondents (n=120)	
		Number	Per cent
1.	Low (Up to 13.04 score)	15	12.50
2.	Medium (13.05 to 18.50 score)	86	71.67
3.	High (Above 18.50 score)	19	15.83
Total		**120**	**100.00**
Mean = 15.77		*SD = 02.73*	

It is observed from the Table 21 that, majority (71.67%) of the respondents belonged to medium decision making ability category, followed by 15.83 per cent respondents were in high and 12.50 per cent respondents were in low level of decision making ability respectively. Thus, it can be concluded that majority of respondents had medium level decision making ability.

The possible reason might be that majority (71.67%) of the respondents were in medium decision making ability who had higher

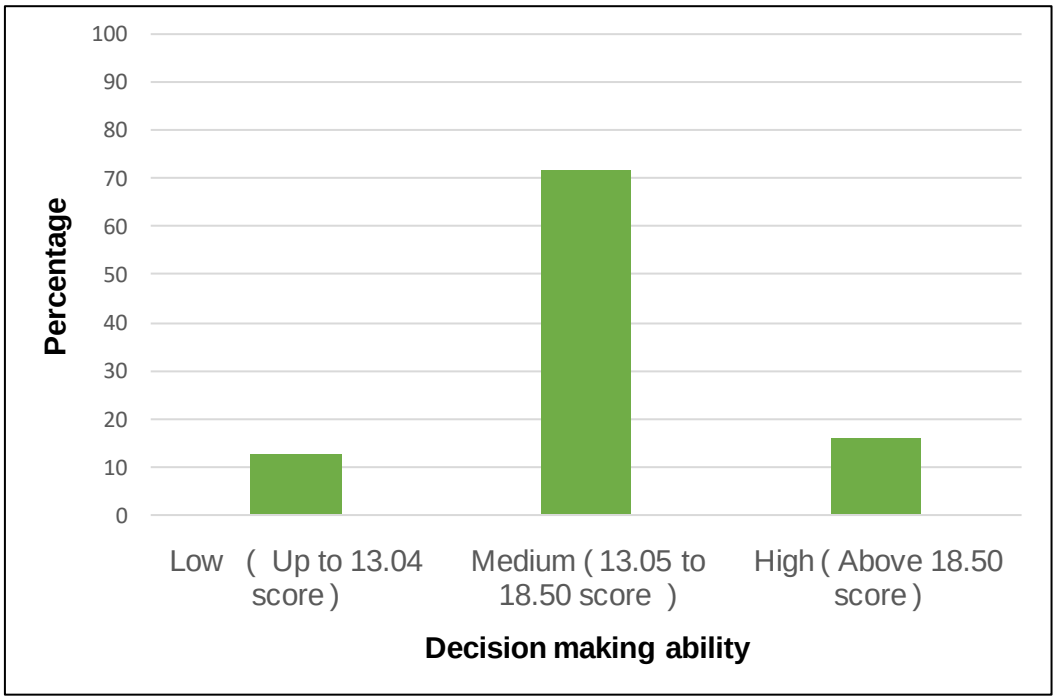


Fig.17. Distribution of respondents according to decision making ability

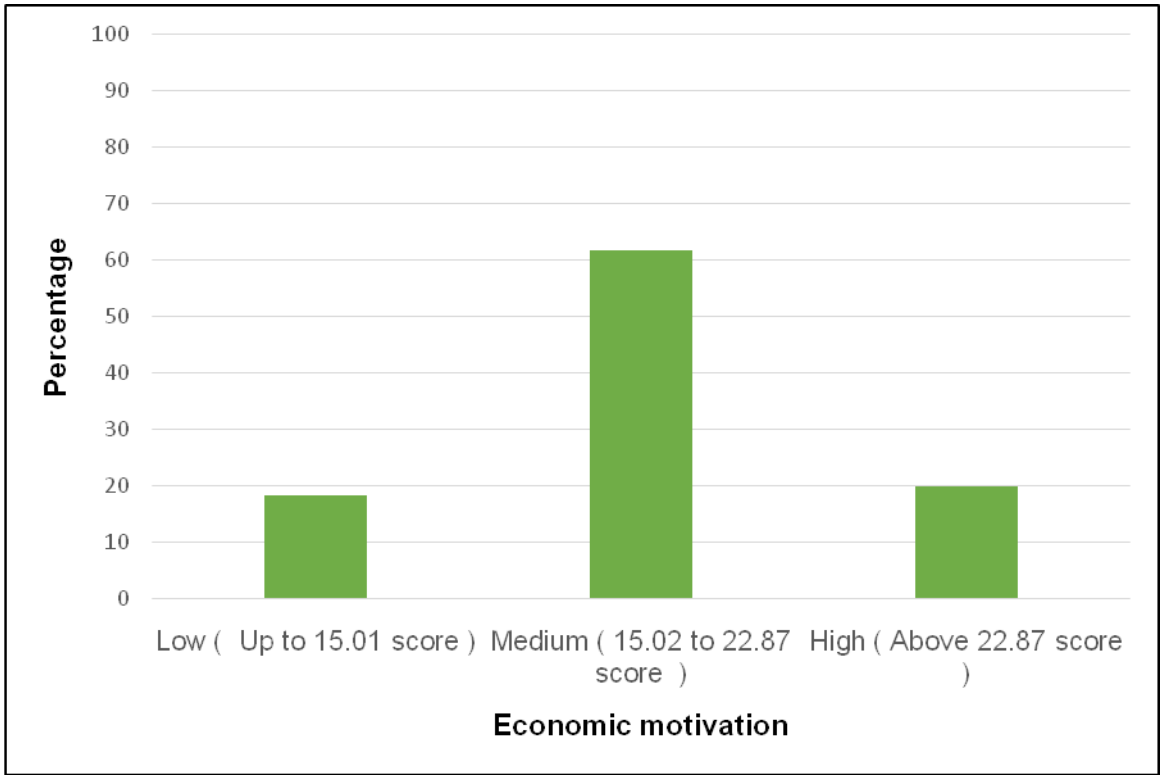


Fig.18. Distribution of respondents according to economic motivation

secondary and above college level of education, medium level of innovativeness and achievement motivation.

The finding is in line with Thakre (2013), Wadekar (2016), Raut (2018) who reported majority of respondents had medium level of decision making ability.

5.2.4 Economic motivation

Every Onion seed producer normally tends to possess the basic urge to earn more. In order to understand the level of economic motivation, pertinent data were collected and the details are presented below in Table 22 and diagrammatically depicted in Fig.18.

It is observed from the Table 22 that, Majority of respondents (61.67%) of the respondents had medium category of economic motivation, followed by 20.00 per cent and 18.33 per cent of respondents had high and low level of economic motivation. Thus, it is concluded that majority (61.67%) of Onion seed producer had medium level of economic motivation.

Table 22. Distribution of the respondents according to their economic motivation

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 15.01 score)	22	18.33
2.	Medium (15.02 to 22.87 score)	74	61.67
3.	High (Above 22.87 score)	24	20.00
Total		**120**	**100.00**
Mean = 18.94		*SD = 03.93*	

The finding is in line with the findings of Wadekar (2016) and Raut (2018) who reported that majority of respondents had medium level of economic motivation.

5.2.5 Risk orientation

In general, farmers are always facing risk and uncertainty in adopting new technology in Onion seed production. Risk orientation behaviour decides individual's innovativeness and influence positively on

the entrepreneurial behaviour. The successful Onion seed producer are the one who readily accepts to face the risk and play with nature. Therefore, the risk orientation nature of the respondents was studied and the results are presented in Table 23 and diagrammatically depicted in Fig.19.

Table 23. Distribution of the respondents according to their risk orientation

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 08.47)	18	15.00
2.	Medium (08.48 to 12.29)	77	64.17
3.	High (Above 12.29)	25	20.83
Total		**120**	**100.00**
Mean = 10.38		*SD = 01.91*	

It is revealed from the Table 23 that, majority (64.17%) of the respondents had medium risk orientation. Whereas, 20.83 per cent of respondents had high and 15.00 per cent of respondents had low level of risk orientation, respectively.

It depends on personal and socio- economic characteristics. The individual with good income possess better risk orientation. Majority of the respondents possess medium level of risk orientation.

The result of present study is in accordance with Anita Bare (2017), Sanodiya *et al.* (2019), who observed that majority of the respondents had medium level of risk orientation.

5.2.6 Leadership ability

Leadership is the process of influencing the behavior of the individual in given situation. Thus, leadership is the phenomenon of influencing, guiding and directing the action and thoughts of the people in the intended direction. It is important behaviour in entrepreneurship development among the Onion seed producer.

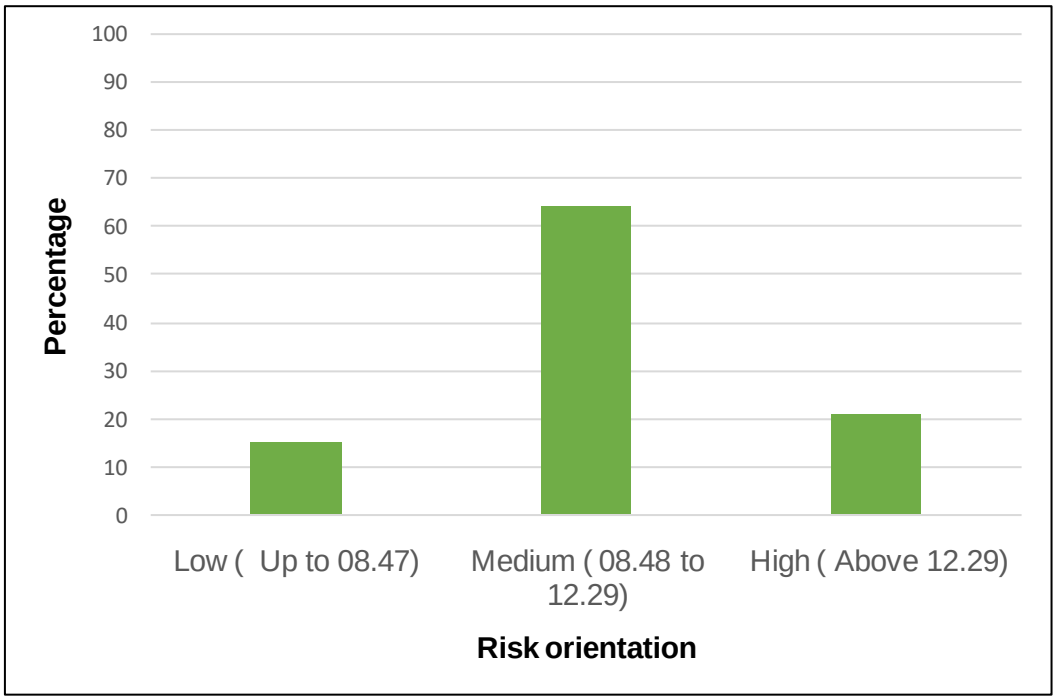


Fig.19. Distribution of respondents according to risk orientation

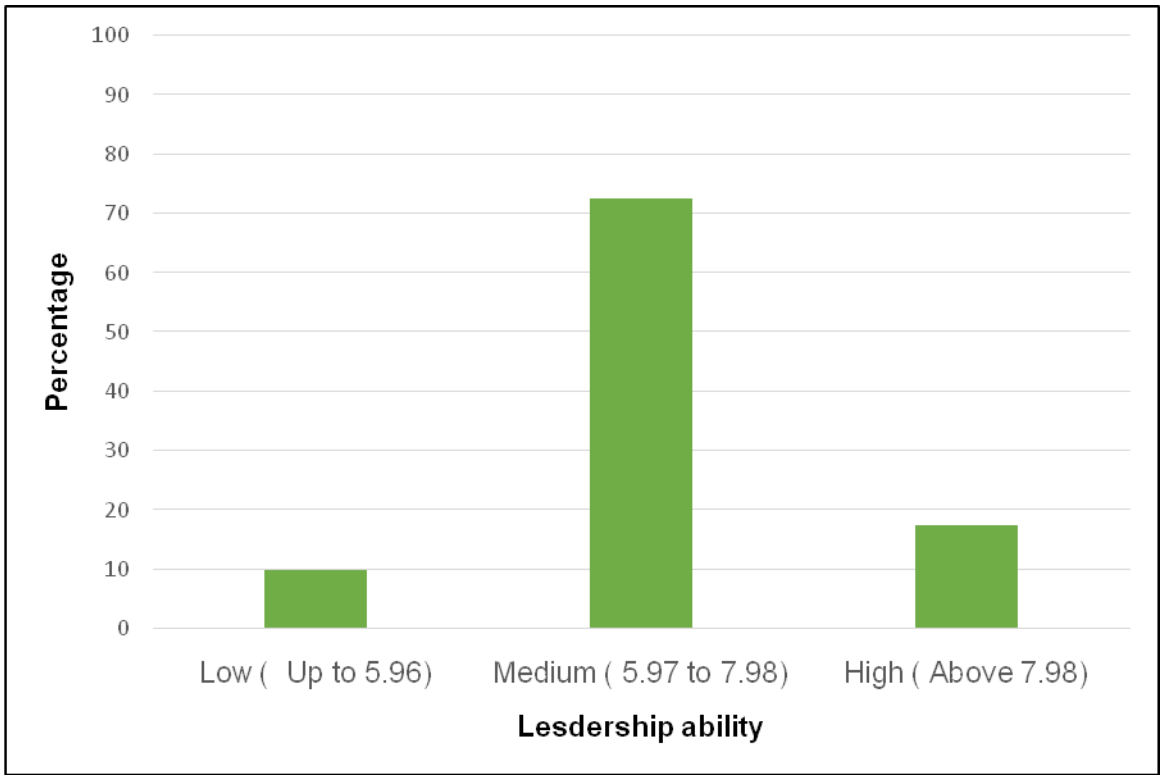


Fig.20. Distribution of respondents according to leadership ability

The data collected regarding leadership ability of the respondents is compiled and depicted in Table 24 and diagrammatically depicted in Fig.20.

Table 24. Distribution of the respondents according to their leadership ability

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 5.96)	12	10.00
2.	Medium (5.97 to 7.98)	87	72.50
3.	High (Above 7.98)	21	17.50
Total		**120**	**100.00**
Mean = 06.97		*SD = 01.01*	

It is observed from Table 24 that, majority (72.50%) of the respondents were belonged to medium category of leadership ability followed by 17.50 per cent and 10.00 per cent of respondents belonged in high and low leadership ability, respectively. Thus, it can be concluded that, majority (72.50%) of respondents were medium level of leadership ability.

The possible reason might be due to their socio-economic status. The other reasons being that they had higher secondary and college level of education. Their extension contact and social participation which help to adopt new agricultural practices prior to others in his social system are also contributing factors. The kind of farmers, who are early adopters were consulted by fellow farmers for information and are readily accepted as leaders.

The results are in consonance with the findings of Wadekar (2016) and Raut (2018).

5.2.7 Management orientation

Management orientation is a degree to which an Onion seed producer is oriented towards scientific farm management comprising planning, production and marketing functions on the farm.

Management orientation was measured using the components like, planning orientation, production orientation and marketing orientation which are given in Table 25 and diagrammatically depicted in Fig. 21.

Table 25. Distribution of the respondents according to their management orientation

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 46.17)	16	13.33
2.	Medium (46.18 to 62.27)	84	70.00
3.	High (Above 62.27)	20	16.67
Total		**120**	**100.00**
Mean = 54.22		*SD = 08.05*	

It is observed from Table 25 that, majority (70.00%) of the respondents were belonged to medium category of management orientation followed by high 16.67 per cent and low 13.33 per cent of management orientation respectively. Thus, it is concluded that, majority (70.00%) of respondents were belonged in medium level of management orientation.

These finding is in line with Thakare (2013) and Wadekar (2016) who reported that, majority of the respondents had medium management orientation.

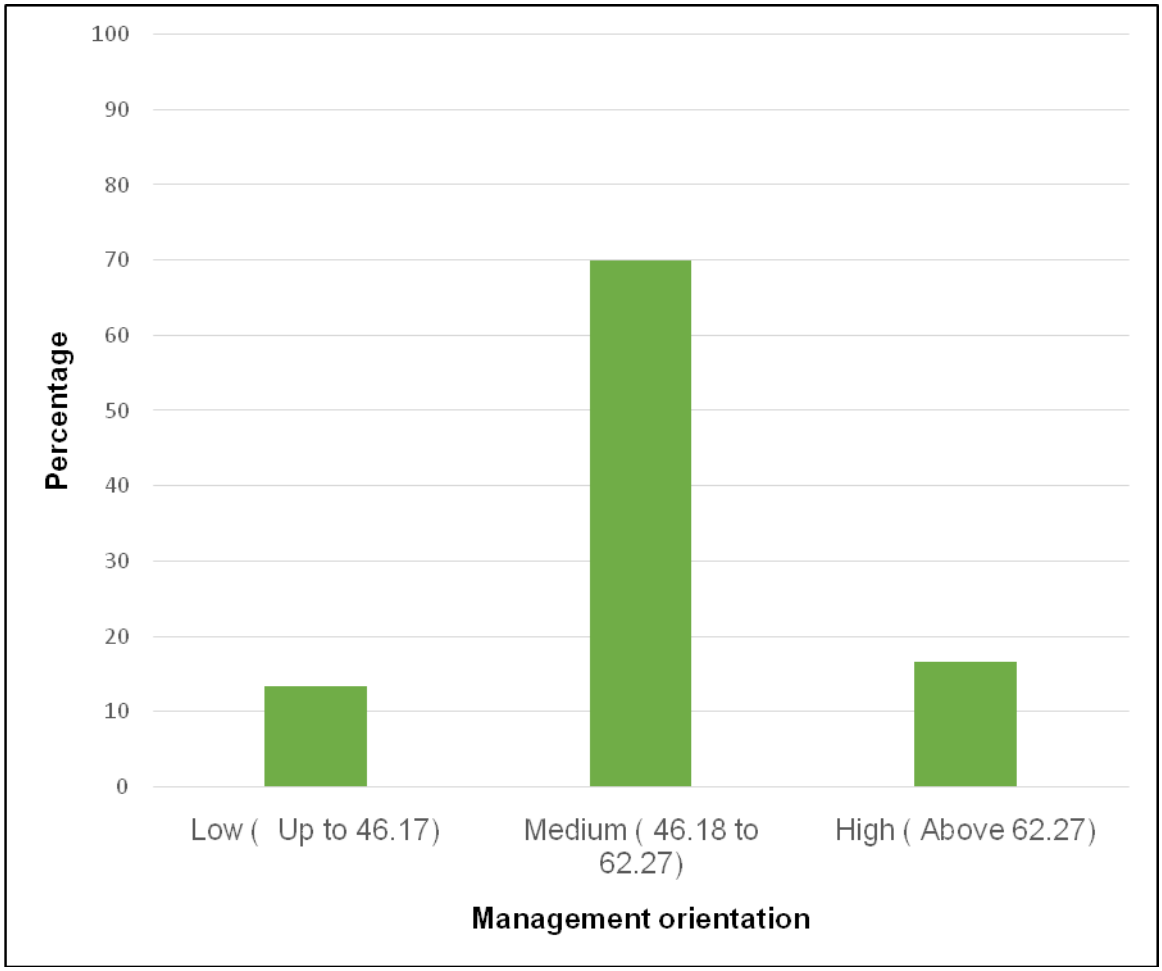


Fig. 21. Distribution of respondents according to management orientation

Table 26. Distribution of Onion seed producer based on components of entrepreneurial behaviour of Onion seed producer

Sl. No.	Components	Categories	Respondents (n=120)	
			Frequency	Per cent
1.	**Innovativeness**	Low	14	11.67
		Medium	84	70.00
		High	22	18.33
2.	**Achievement motivation**	Low	12	10.00
		Medium	86	71.67
		High	22	18.33
3.	**Decision making ability**	Low	15	12.50
		Medium	86	71.67
		High	19	15.83
4.	**Economic motivation**	Low	22	18.33
		Medium	74	61.67
		High	24	20.00
5.	**Risk orientation**	Low	18	15.00
		Medium	77	64.17
		High	25	20.83
6.	**Leadership ability**	Low	21	10.00
		Medium	92	72.50
		High	07	17.50
7.	**Management orientation**	Low	16	13.33
		Medium	84	70.00
		High	20	16.67

As regards innovativeness component of entrepreneurial behavior of Onion seed producer, majority (70.00%) of the respondents belonged to medium innovativeness category, whereas majority (71.67%) of the respondents belonged to medium achievement motivation category. Further, majority (71.67%) of the respondents belonged to medium category of decision making ability, whereas majority (61.67%) of the respondents belonged to medium category of economic motivation.

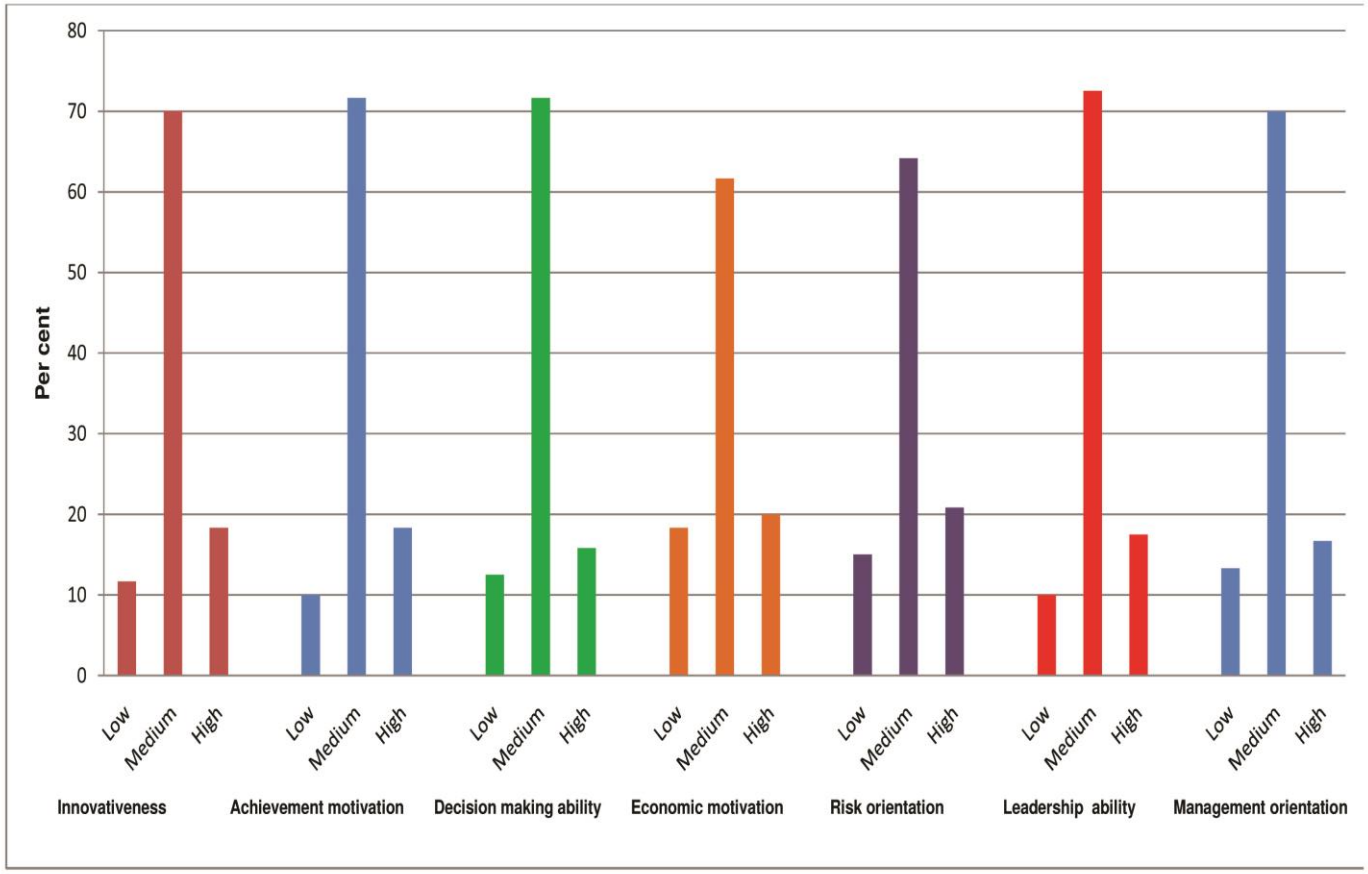


Fig. 22 Distribution of Onion seed producer based on components of entrepreneurial behaviour of Onion seed producer

Majority (64.17%) of the respondents belonged to medium category of risk orientation, while majority (72.50%) of the respondents belonged to medium category of leadership ability. Majority (70.00%) of the respondents belonged to medium category of management orientation.

5.2.8 Overall Entrepreneurial behaviour

Distribution of the respondents according to their overall entrepreneurial behaviour is presented ain Table 27 and diagrammatically depicted in Fig.23.

Table 27. Distribution of the respondents according to their overall entrepreneurial behaviour

Sl. No.	Category	Respondents (n=120)	
		Frequency	Percentage
1.	Low (Up to 117.20)	15	12.50
2.	Medium (117.21 to 137.10)	82	68.33
3.	High (Above 137.10)	23	19.17
Total		**120**	**100.00**
Mean = 127.15		*SD = 09.95*	

It is observed from the Table 27 that, majority (66.67%) of the respondents possess medium entrepreneurial behaviour, followed by 19.17 per cent of respondents had high entrepreneurial behavior, where as 12.50 per cent of respondents possess low entrepreneurial behaviour.

The probable reasons of medium entrepreneurial behaviour might be due to their financial condition and higher secondary and college level of education. However, all the major seven components of entrepreneurial behaviour of Onion seed producer together reflect their medium entrepreneurial behaviour. As the respondents possess medium level of innovativeness, achievement motivation, decision making ability, economic motivation, risk orientation, leadership ability and management orientation etc. which lead for medium entrepreneurial behaviour.

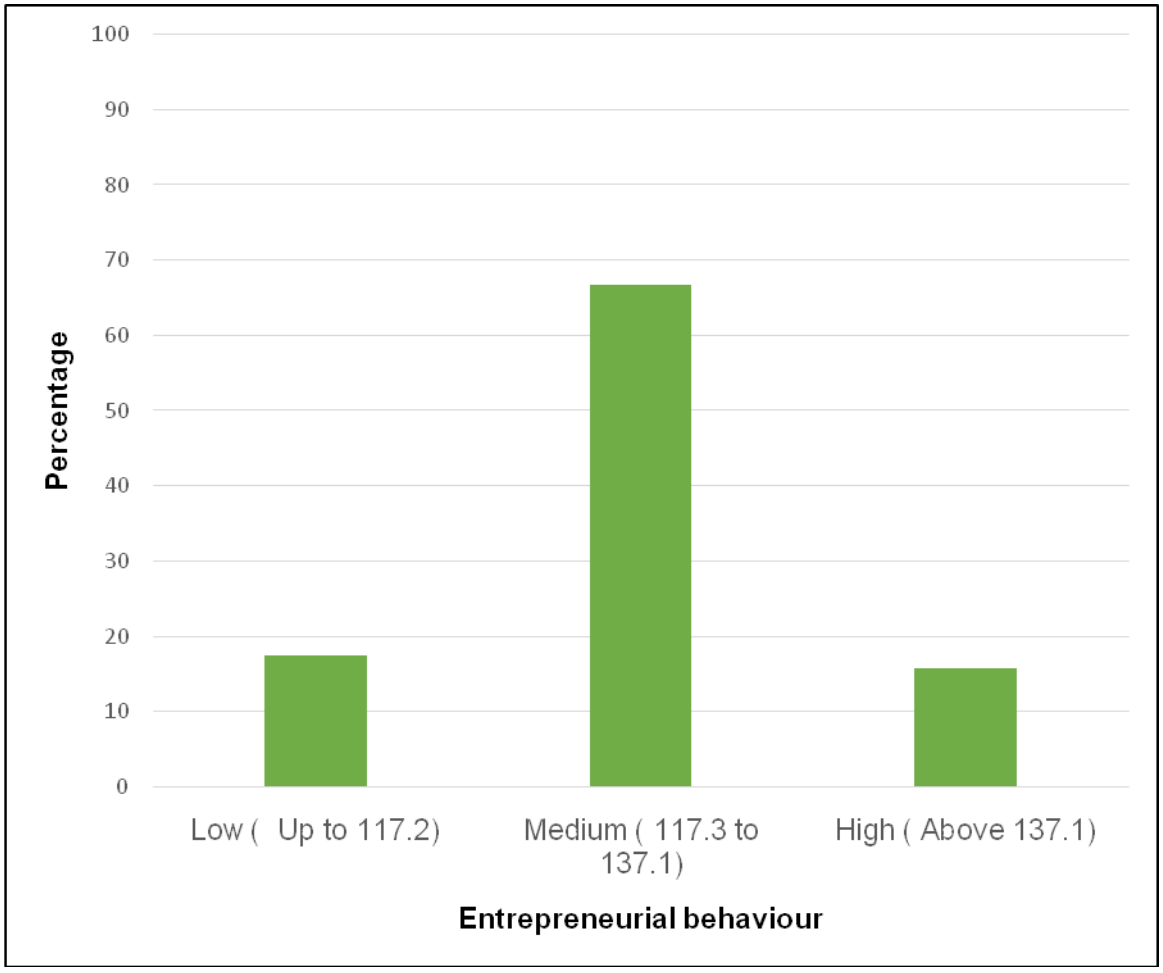


Fig. 23. Distribution of respondents according to entrepreneurial behaviour

The findings of present study are in agreement with the findings of Raut (2018) who stated that two third of respondents (68.34%) had medium entrepreneurial attributes, whereas, remaining respondents had high (17.50%), followed by low (14.16%) entrepreneurial behaviour, respectively.

5.3 Relationship between profile of Onion seed producer with their entrepreneurial behaviour

Correlation analysis was carried out to find out as to whether the selected characteristics had any association with entrepreneurial behaviour of Onion seed producer. The coefficients of correlation of the profile of respondents with their entrepreneurial behaviour have been furnished in Table 28.

Table 28. Relationship between profile of respondents and entrepreneurial behaviour

Sl. No.	Independent variables	Calculated 'r' value
1.	Age	-0.2239*
2.	Education	0.2573**
3.	Occupation	0.1812*
4.	Land holding	0.2342*
5.	Annual income	0.2706**
6.	Cropping pattern	0.1953*
7.	Area under Onion seed production	0.2012*
8.	Experience in Onion seed production	0.2347**
9.	Extension contact	0.2556**
10.	Social participation	0.2665**
11.	Scientific orientation	0.1867*

****** = Significant at 0.01 per cent level of probability

* = Significant at 0.05 per cent level of probability

It can be inferred from Table 28 that, the calculated co-relation co-efficient between entrepreneurial behaviour of respondents and their profile revealed the following results which clearly indicates that selected characteristics of Onion seed producer i.e. education, annual income,

experience in Onion seed production, extension contact, social participation had positive and significant relationship at 0.01 level of probability with entrepreneurial behaviour whereas, occupation, land holding, cropping pattern, area under Onion seed production and scientific orientation had positive and significant relationship at 0.05 level of probability. While only age had negatively significant relationship at 0.05 per cent level of probability with entrepreneurial behaviour of Onion seed producer. Hence, the null hypothesis was rejected for these characteristics and concluded that these characteristics were correlated with entrepreneurial behaviour.

As regards age of Onion seed producer, it was found to have negatively significant relationship with their entrepreneurial behaviour. The age is factor, which determines the zeal, attitude and enthusiasm to work hard required for determining effectiveness in any activity. Younger farmers are more energetic, and adopt new technologies faster than old, more educated and they work for excellence in their life. This could be the reason for negative correlation between age and their entrepreneurial behaviour.

The similar results have reported by Ghube (2014), Raut (2018) and Yewatkar (2018) who stated that age of respondents had negatively significant relationship with their entrepreneurial behaviour.

As regards education of Onion seed producer, it had positive and significant relationship with their entrepreneurial behaviour. Education broadens the vision of an individual. Education helps the farmer to get information from various sources. The educated persons develop more access to extension agencies, developmental organizations, economic motivation, achievement motivation, decision making ability and inclined to use of innovations by taking the high risk. Thus, these factors also help in better management planning and production. Hence, education was the influencing factor of entrepreneurial behaviour of Onion seed producer.

These findings are in accordance with the findings of Ghube (2014) and Raut (2018), who also reported that there was positively significant relationship between education and entrepreneurial behaviour.

As regards occupation of Onion seed producer, it had positive and significant relationship with their entrepreneurial behaviour. These finding is in accordance with the Ghube(2014) and Yewatkar (2018), who also reported that there was positively significant relationship between education and entrepreneurial behavior.

Land holding of Onion seed producer was found positive and significant relationship with their entrepreneurial behaviour. Thus, land holding and annual income are interrelated factors reflecting the socio-economic status of an individual. The probable reason for present findings might be that respondent with large holding, would have more opportunities and potentialities to try and adopt variety of technological innovations had higher purchasing power and urge to invest in seed production. It helps them to bear risk against uncertainty and motivate for adoption of innovations. As a result, it is quite possible that farmers with larger land holding evinced keen interest to know about new forum practices and be more respective to such ideas and thus leading to better innovativeness, achievement motivation and risk orientation, which turn reflect on their entrepreneurial behaviour. Therefore, size of land holding and annual income must have shown positive and significant relationship with entrepreneurial behaviour.

These findings are in accordance with the findings of Ghube (2014), Raut (2018) and Yewatkar (2018), who also reported that there was positively significant relationship between land holding and entrepreneurial attributes.

Annual income of Onion seed producer was positively and significantly correlated with their entrepreneurial behaviour. Onion seed producer with higher annual family income have higher purchasing power and as a result have an urge to invest in specialized farm operations. The higher income itself motivates the farmers to seek new technologies for improving their income and standard of living. Farmers with high annual family income usually have good leadership abilities and they can normally bear risk and uncertainty in adopting new ideas.

These findings are in line with the findings of Raut (2018) and Yewatkar (2018), who reported that there was positively significant relationship between land holding and annual income with their entrepreneurial behaviour.

As regards cropping pattern followed by Onion seed producer, it was found positively and significantly correlated with their entrepreneurial behavior. the finding is in line with Anita Bare (2017).

Area under Onion seed production was positively and significantly correlated with their entrepreneurial behaviour. It provides the economic base for the farmer to practice new Onion seed production technology and regulated impetus to make optimum utilization of resources on farm through efficient decision making to apply new ideas for achieving maximum profits. Further, it helps the farmer to bear risk and uncertainty as they cannot cause much damage to him.

The finding is in line with the findings of Raut (2018) and Yewatkar (2018), who reported that there was significant relationship between area under Gram seed production and area under Garlic with their entrepreneurial behavior, respectively.

As regards experience in Onion seed production, it was positively and significantly correlated with entrepreneurial behaviour. These findings are in line with Archana K. (2013), where in she reported that experience in seed production had significant correlation with entrepreneurial behaviour.

As regards extension contact of Onion seed producer, it was positively and significantly correlated with their entrepreneurial behaviour.

The finding is in line with the findings of Wadekar (2016), Raut (2018) and Yewatkar (2018), who reported that there was significant relationship between extension contact with their entrepreneurial behaviour.

As regards social participation of Onion seed producer, it was positively and significantly correlated with their entrepreneurial behaviour. It helps farmers to get information from various sources. Social activities

conducted in area have direct effect on knowledge gained about improved practices and adopt them.

These findings are in line with Ghube (2014) and Yewatkar (2018) who revealed that social participation of respondents have significant relationship with entrepreneurial behaviour.

As regards scientific orientation of Onion seed producers, it had positive and significant relationship with their entrepreneurial behaviour. The reason might be due to the fact that respondents with higher scientific orientation try to gather more information, which could be applied at field level, thus increasing production.

The finding is in line with the findings of Wadekar (2016) and Yewatkar (2018) revealed that scientific orientation had positive and significant relationship with entrepreneurial behaviour.

5.4 Constraints faced by the Onion Seed producer:

The Onion seed producers were found being confronted with various types of constraints regarding technical, finance, inputs and informative etc. The constraints faced by the majority of the respondents as revealed in Table 28 are as follows.

From Table 29 it can be observed that, majority (63.33%) of the respondents were expressed problem of high incidence of pest and diseases, followed by 57.50 per cent of the the respondents expressed that they have unknown about how to remove off type plants and 53.33 per cent of the respondents facing problem in not getting proper knowledge about seed treatment, which ranked as I, II and III, respectively. Also respondents facing problems of lack of availability of labours in time (49.17 %) and insurance is not availed for Onion seed production (45.00%). Further, 42.50 per cent of the respondents expressed problem of sticky white substance in umbel of Onion which leads inadequate pollination in umbel of Onion plant and 40.83 per cent of respondents facing problem of lack of availability of fertilizers in time.

Table 29. Distribution of respondents according to constraints faced by Onion seed producer

Sl. No.	Particulars	Frequency	Percentage	Rank
1.	High incidence of diseases and pest attack	76	63.33	I
2.	Lack of knowledge about removing of off type plant.	69	57.50	II
3.	Not getting proper information about seed treatment.	64	53.33	III
4.	Lack of availability of labours in time	59	49.17	IV
5.	Insurance is not availed for Onion seed production	54	45.00	V
6.	Sticky white secretion in Umbel of Onion plant which leads to inadequate pollination in umbel of Onion	51	42.50	VI
7.	Lack of availability of fertilizers in time	49	40.83	VII

5.5 Empirical model

Keeping in view, anticipated relation amongst independent and dependent variables actual result obtained after analysis of data an empirical model of relations was prepared and relationship has been depicted in Fig. 24.

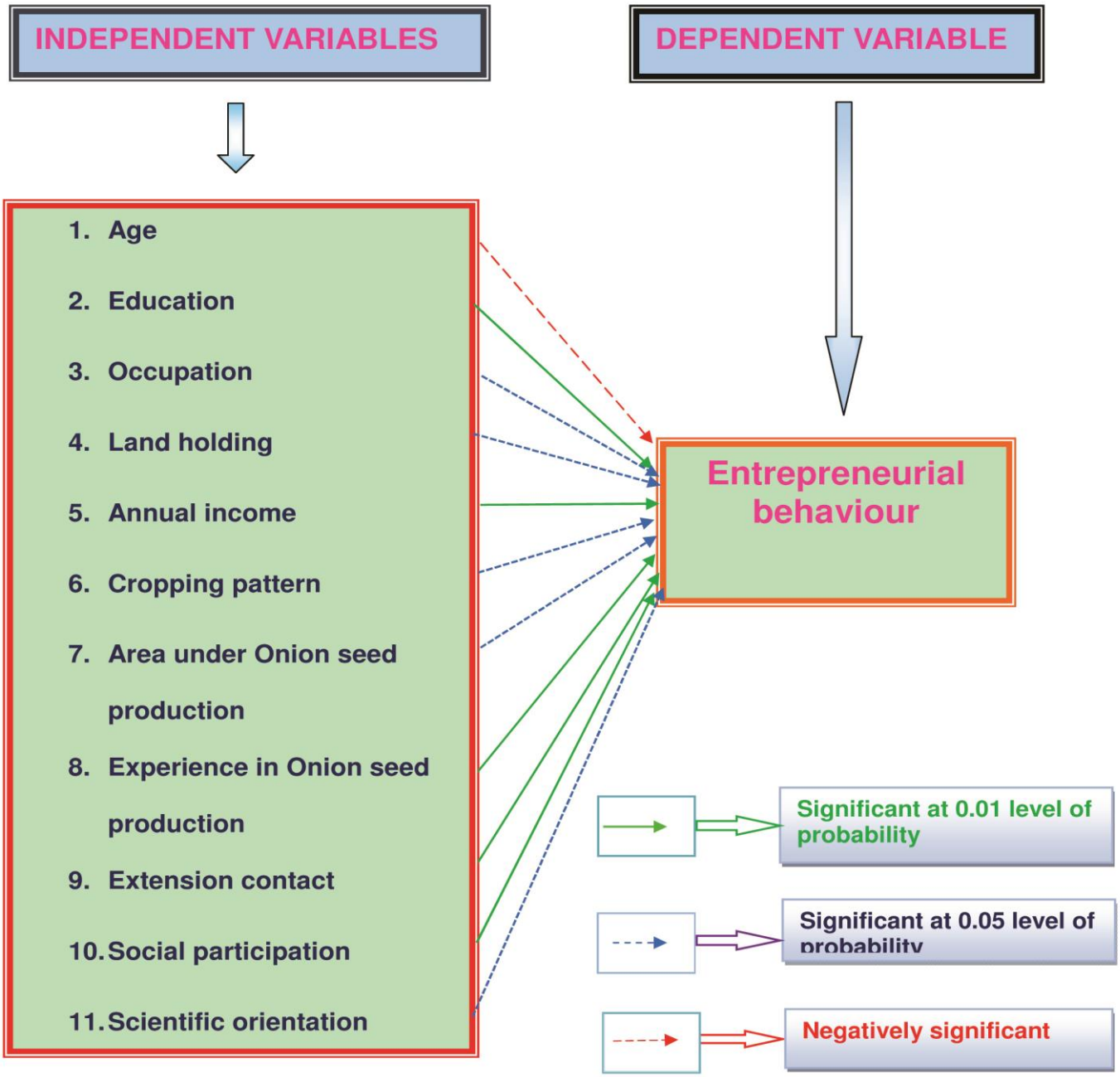


Fig.24. Empirical Model of the study

CHAPTER VI

SUMMARY AND CONCLUSIONS

Onion is one of the major bulb crops of the world and also an important commercial vegetable crop. Among the commercially grown bulbous vegetable crops is India, Onion occupies predominant place.

Onion seed production has emerged in this country as an important sector for diversification of agriculture with view to improve economic condition of farming community. It has established its credibility through increased productivity, generating employment and extra income for rural people and enhancing seed production to a considerable level.

Entrepreneurship plays an important role in generating new employment and setting up new business. The problem of poverty, inequality and regional imbalances can be tackled with development of entrepreneurship. However in all economic development activities more and more focus is being centered on entrepreneurship of the people.

6.1 The present study was conducted with specific objectives:

1. To study the profile of Onion seed producers
2. To assess the entrepreneurial behaviour of Onion seed producers
3. To study the relationship between profile of Onion seed producers with their entrepreneurial behaviour
4. To identify constraints in Onion seed production as perceived by the Onion seed producers

The study was conducted in Akola district (Akola and Patur talukas) in Maharashtra state during 2018-19. From Akola district 120 Onion seed producers randomly selected as respondent. Thus one hundred and twenty Onion seed producers constituted the sample for this study. The data pertaining to selected variables were collected through a specially designed interview schedule in an informal atmosphere collected data were tabulated and results were presented by using statistical tools viz., frequency distribution, per cent distribution, arithmetic mean, standard

deviation and correlation coefficient were employed for interpretation of the findings.

The characteristics of the Onion seed producers namely, age, education, occupation, land holding, annual income, cropping pattern, area under Onion seed production, experience in Onion seed production, extension contact, social participation and scientific orientation was studied as independent variable. However, the entrepreneurial behaviour was studied as the dependent variables.

6.2 Findings

The salient finding of the present study were summarized in succeeding paragraphs.

6.2.1 Distribution analysis

6.2.1.1 Profile of Onion seed producer

1. Majority of the respondents (57.50%) of the respondents belonged to middle age group (36 to 50 years).

2. More than half of the respondents (55.83%) educated up to higher secondary (11^{th} to 12^{th}) and college level (above 12^{th}).

3. Near about half of the respondents (47.50%) were depends only on agriculture.

4. Majority of the respondents (56.67%) possessed semi medium category of land holding up to 02.01 to 04.00 ha.

5. Near about one third (31.67%) of the respondents had annual income between Rs.2,00,001/- to Rs.3,00,000/-.

6. Higher per cent (43.33%) of the Onion seed producers were followed bi-seasonal cropping pattern.

7. Majority of the respondents (56.67%) had medium (0.61 to 1.20 ha) area under Onion seed production.

8. Majority of the respondents (57.50%) had Medium experience (6 to 10 years) in Onion seed production.

9. Majority of the respondents (72.50%) had medium extension contact for seeking information.
10. Majority of the respondents (75.00%) had medium social participation.
11. Majority of the respondents (80.00%) had medium level of scientific orientation.

6.2.1.2 Entrepreneurial behaviour of Onion seed producer

1. Majority (70.00%) of the respondents had medium level of innovativeness.
2. Majority of the respondents (71.67%) had medium achievement motivation.
3. Majority of the respondents (71.67%) belonged to medium decision making ability category.
4. Majority of the respondents (61.67%) fell under medium category of economic motivation.
5. Majority of the respondents (64.17%) had medium level of risk orientation.
6. Majority of the respondents (72.50%) respondents belonged to medium category of leadership ability.
7. Majority of the respondents (70.00%) respondents belongs to medium category of management orientation.
8. Majority of the respondents (68.33%) had medium level of entrepreneurial behaviour.

6.3 Co-relation between profile of Onion seed producer with their entrepreneurial behaviour (Correlation coefficients)

The entrepreneurial behaviour found significant co-relationship with socio-economic characteristics like age, education, occupation, land holding, annual income, cropping pattern, area under Onion seed production, experience in Onion seed production, extension contact, social participation and scientific orientation.

The calculated co-relation co-efficient between entrepreneurial behaviour of respondents with their profile result clearly indicated that selected characteristics of Onion seed producer i.e. education, annual income, experience in Onion seed production, extension contact, social participation had positive and significant relationship at 0.01 level of probability with entrepreneurial behaviour whereas, occupation, land holding, cropping pattern, area under Onion seed production and scientific orientation had positive and significant relationship at 0.05 level of probability. Hence, the null hypothesis was rejected for these characteristics and concluded that these characteristics were correlated with entrepreneurial behaviour.

Further, remaining characteristics of Onion seed producer such as age of the respondent establish negatively significant relationship with their entrepreneurial behaviour. Hence, the null hypothesis was rejected with respect to these characteristics and concluded that this characteristic was negatively correlated with entrepreneurial behaviour.

6.4 Constraints faced by the Onion seed producer

The constraints faced by the majority of the Onion seed producers were high incidence of pest and diseases (63.33%), followed by lack of knowledge about how to remove off type plants (57.50%) and not getting proper knowledge about seed treatment (53.33%), which are ranked as I, II and III, respectively. Also respondents facing problems of lack of availability of labours in time (49.17%), insurance is not availed for Onion seed production (45.00%), respectively. Further, 42.50 per cent of the respondents expressed problem of sticky white substance in umbel of Onion which leads inadequate pollination in umbel of Onion plant and 40.83 per cent of respondents facing problem of lack of availability of fertilizers in time.

CHAPTER VII

IMPLICATIONS

The implications emanated from the findings of the present study, “Entrepreneurial behavior of Onion seed producers” in Akola District, were reported in this section. The present investigation has brought out important findings having valuable action implication from the point of view of increasing the entrepreneurial behavior of Onion seed producer.

One of the major tasks before the developing countries like India is the building of human assets, which is as important a pre-requisite of economic prosperity, as is the growth of physical and financial assets. Several empirical studies have shown that the entrepreneurs as the human capital have made a larger contribution to economic development than non-human capital. An attempt to develop entrepreneurial activity among the persons may create a situation where people become capable of optimal utilization of the limited and scattered resources. There is a great need to make our farmers entrepreneurial.

The State Departments of Agriculture and the State Agricultural Universities have been making efforts towards that end. Because of such efforts, the agricultural scenario in the country is experiencing positive change. It was, therefore, thought appropriate to study the entrepreneurial behavior of the Onion seed producer. The study was undertaken to investigate the entrepreneurial behavior of the Onion seed producer. In the light of findings of the study and from the personal experience of researcher at the time of personally interviewing respondents, following implications are made for the effective improvement of entrepreneurial behavior of the Onion seed producer.

Implications for action

1. The fact that majority of the farmers had medium entrepreneurial behavior is a clear indication of the progressiveness of the Onion seed producer. As seed production business is one of the economically viable enterprise in agriculture sector, therefore more noumber of

agriculture graduates should come forward, organize, create a group and tap this opportunity and address the present problem of unemployment in agriculture.

2. As most of the farmers had medium innovativeness, still there is a need to expose the Onion seed producer to recent developments in agricultural technologies and motivate them to adopt the latest and new technologies by organizing group discussions, meetings, study tours and field trips to government seed production units.
3. As majority of the Onion seed producer were middle and young aged, this group should be imparted training, so that they can act as catalysts in motivating other farmers through communication networks.
4. Incidence of the pests and diseases, lack of availability fertilizers in time, lack of information about seed treatment and problem regarding off type plant, lack of availability of labours in time, insurance is not availed for Onion seed production were the important problems encountered by Onion seed producer. The training needs revealed that the Onion seed producer needed training in plant protection, seed treatment and removing off types of plants. This implies that the concerned agencies should take a greater interest in helping out the Onion seed producer in order to overcome training needs.

Implications for future study

1. The present investigation was conducted in one district. The study needs to be replicated in large sample covering all the major potential areas in Vidarbha. So that the inference drawn can be generalized to a greater extent. A comparative study of entrepreneurial behavior of the Onion seed producer engaged in different enterprises such as commercial crop production, poultry, dairy, fisheries, sericulture, *etc*., may throw new light on farm entrepreneurs.
2. There is a need to standardize Onion seed production in different agro climatic conditions of the country. Further, there is also need to develop Entrepreneurial Development Programme (EDP). Hence, this field of investigations offers a broad scope for future research.

CHAPTER VIII

LITERATURE CITED

Anita Bare, 2017, Production and marketing behaviour of onion growers. *M.Sc. (Agri.) Thesis (Unpub.),* Dr. PDKV Akola.

Anitha, B., 2004, A study on entrepreneurial behaviour and market participation of farm women in Bangalore rural district of Karnataka. *M.Sc. (Agri.) Thesis (Unpub.),* Univ. Agri. Sci., Bangalore.

Archana, K. N., 2013, A study on entrepreneurial behaviour of commercial seed growers in Dharwad district of Karnataka, *M.Sc. (Agri.) Thesis, (Unpub.),* Univercity of Agricultural Science, Dharwad.

Bansod, S. K., 2016, Knowledge and adoption of integrated pest management practices by brinjal growers*. M.Sc. (Agri.) Thesis (Unpub.),* Dr. PDKV Akola.

Barkhade, A. T., 2015, Knowledge and adoption of integrated weed management practices followed by cotton growers in Washim district. *M*.*Sc*. *(Agri.) Thesis, (Unpub.)*, Dr. PDKV, Akola.

Bhagyalaxmi, K., GopalaKrishna Rao, and Sudarshan Reddy, M., 2003, Profile of the rural women micro-entrepreneurs. *Journal of Research*, Acharya N. G. Ranga Agricultural University, Hyderabad, 31(4) : 51-54.

Bhamare, A. J., 2008, A survey on present status of farm mechanization in north Konkan coastal zone. *M.Sc. (Agri.) Thesis, (Unpub.),* Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli.

Bhise, R.N., 2011, Training needs of the onion growers. *M.Sc.(Agri.) Thesis (Unpub.)* Dr. PDKV, Akola.

Chandrapaul, K., 1998, A study on entrepreneurial behaviour of vegetable growers in Krishna district of Andhra Pradesh*. M.Sc.(Agri.) Thesis (Unpub.),* Acharya N. G. Ranga Agricultural University, Hyderabad.

Chandrashekhar, S.K., 2007, Analysis of onion production and marketing behaviour of farmers in Gadag district, Karnataka. *M.Sc. (Agri.) Thesis (Unpub.),* University of Agric. Sci., Dharwad.

Chauhan, N.B. and R.C. Patel., 2003, Entrepreneurial uniqueness of poultry entrepreneurs. Rural India, 66(1 C): 236-239.

Danoff, C. H., 1949, Observations at entrepreneurship in agriculture change and the entrepreneur. Harvard University Press, Cambridge.

Deshmukh, P.R., R.P. Kadam and V. N. Shinde, 2007, Knowledge and adoption of agricultural technologies in Marathwada. Indian Res. J. Extn. Edu. Vol 7(1): 41-43.

Dhande, H. N., 2003, Adoption of university recommended rice production technology by rice growers. *M.Sc. (Agri.) Thesis, (Unpub.),* Dr. PDKV, Akola.

Directorate of Economics and Statistics, Govt. of Maharashtra, Annual Report 2017.

Gaikwad, R.P., 2005, Knowledge and adoption of recommended cultivation by onion growers*. M.Sc. (Agri.) Thesis (Unpub.),* Dr. PDKV, Akola.

Ganeshan, G., 2001, Entrepreneurship Development. Kisan World, 28(6) : 50-51.

Ghosh Souvik and Ashwani Kumar 2010. Performance of Irrigation and Agricultural Sector in Orissa: An Analysis of Missing Links. Indian Res. J. Ext. Edu. Vol 10 (2):48-54

Ghube, G.D., 2014, A study on entrepreneurial behavior of pomegranate growers in Buldhana district of Vidarbha. *M.Sc. (Agri.) Thesis, (Unpub.)*, Dr. PDKV, Akola.

Government of India, Ministry of Agriculture, 2018. Horticultural Statistics at a Glance.

Handbook on Horticulture Statistics, Ministry of Agriculture, Govt. of India, 2018. Department of Agriculture and Cooperation, New Delhi.

Hadole, S. M., 2005, Socioeconomic status of farmers adopting different farming systems in Ratnagiri district. *M.Sc. (Agri.) Thesis, (Unpub.),* Dr. BSKKV, Dapoli.

Jangwad, N.P., 2018, Perception of Green Chilli growers regarding environmental risk in use of pesticides in Vidarbha region. *Ph.D. (Agri.) Thesis, (Unpub.),* Dr. PDKV, Akola.

Kajal Bhaltilak., 2017, Knowledge and adoption of insecticides as per the lable claim by Cotton growers in Akola district. *M.Sc. (Agri.) Thesis, (Unpub.),* Dr. PDKV, Akola

Keisham, B. S., 2016, Entrepreneurial behaviour of women entrepreneurs of IMA market. *M.Sc (Agri.) Thesis (Unpub.)*, MPKV, Rahuri (MH).

Madhu, K. B., 2013, Farmer's perception about environmental risk in pesticidal use. *M.Sc. (Agri.) Thesis, (Unpub.)*, Dr. PDKV, Akola.

Maghade, A. Y., 2007, Technological gap in onion cultivation from Rahata tahsil of Ahmednagar district. *M.Sc.(Agri.) Thesis (Unpub.),* MPKV, Rahuri (MH).

Mane, S.S., 2001, A study on the problems confronted on green gram cultivation in Parbhani district of Maharashtra*. M.Sc. (Agri.) Thesis (Unpub*.), VNMAU, Parbhani.

Mihale M.J., A. L. Deng, H. O. Selemani, Mugisha- Kamatenesi M., A. W. Kidukuli and J. O. Ogendo, 2009, Use of indigenous knowledge in the management of field and storage pests around Lake Victoria basin in Tanzania.African. Journal Of Environmental science and Tech. 3(9):251-259.

Moulik, T. K. and Rao, C. B. S., 1965, Self rating personality scale for farmers, in a Handbook of Psychological and Social Instruments Samithi, Baroda.

Nagesh, 2006, A Study on entrepreneurial behaviour of pomegranate growers in Bangalkot district of Karnataka, *M.Sc. (Agri.) Thesis, (Unpub.)*, Univ. Agril. Sci., Dharwad.

Nagesha, P.N. 2005, Study on entrepreneurial behaviour of vegetable seed producing farmers of Haveri district. *M.Sc. (Agri.) Thesis, (Unpub.)*, Univ. Agril. Sci., Dharwad.

Nandapurkar, C. G., 1980, A study on entrepreneurial behaviour of small farmers. Univ. of Agri. *Ph.D. Thesis, (Unpub.)*, Bangalore.

Nandapurkar, C. G., 1982, Significance of entrepreneurship in agricultural development: An empirical study. Maharashtra J. Ext. Edu., 1(1): 47-51.

Pawar, A. S., 2014, Production and marketing behaviour of organic vegetable growers in Western Vidarbha. *M.Sc. (Agri.) Thesis, (Unpub.),* Dr. PDKV, Akola.

Porchezhian, M. R., 1991, An analysis of entrepreneurial behaviour of farmers. *M.Sc. (Agri.) Thesis, (Unpub.)*, Tamil Nadu Agricultural University, Coimbatore.

Ravi, G. K., 2007, A study on entrepreneurial behavioural characteristics of SC and ST farmers of Gulbarga district. *M.Sc. (Agri.) Thesis, (Unpub.)*, Univ. Agril. Sci., Dharwad (India).

Raut, A. G., 2018, Entrepreneurial behaviour of gram seed producers. *M.Sc., (Agri.) Thesis (Unpub.)*, Dr. PDKV, Akola.

Ravi. D. and B. L. Patil, 2019, Constraints Experienced and Suggestions by Farming Community in Adaptation to Climate Change in Karnataka: An Economic analysis. *Int. J. Curr. Microbiol. App. Sci.* 8(2) :376-383.

Regina Potsangbam, 2017, Entrepreneurial behaviour of brinjal growers. *M.Sc. (Agri) Thesis (Unpub)* Dr. P.D.K.V. Akola.

Roman, P.A., 2015. Study on adoption of onion production technology in Satara district. *M.Sc. (Agri.) Thesis (Unpub.),* MPKV, Rahuri.

SAO Office, Akola (Maharashtra), Annual Report, 2018.

Sabi, S., 2012, Knowledge and technological gap in wheat production. *M.Sc. (Agri.) Thesis, (Unpub.)*, Univ. Agric. Sci., Dharwad, Karnataka (India).

Sadaphal, S.S., 2000, A study of existing cultivation practices of white onion in Raigad District. *M.Sc. (Agri.) Thesis (Unpub.),* Dr. BSKKV, Dapoli.

Samanta, R. K., 1977, A study of some agro economic socio- psychological and communication variables associated with repayment behaviour of agricultural credit users of Nationalised Bank". *Ph.D. Thesis, (Unpub.)*, Bidan Chandra Krishi Viswavidyala, West Bengal (India).

Sanodiya S., K. C. Singh., V. Shrivastava and C. Singh., 2019, Effect of climate change on cropping pattern of vegetables in Madhya Pradesh, India. *Int. J. Curr. Microbiol. App. Sci.* 8(4) :1350-1358.

Shilpashree, B. S., 2011, A profilistic study on awardee farmers in North Karnataka. *M. Sc (Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Dharwad, Karnataka (India).

Sidaram, N. Manjula and Ashok Kumar Bennur, 2010, Entrepreneurial behaviour of scientific orientation of organic pigeon pea growers. Advance research journal of social science, 1(2): 51-55.

Shweta S. Dutonde., 2014, A study on entrepreneurial behaviour of safed musali growers in Buldhana district of Maharashtra, *M.Sc., (Agri.) Thesis, (Unpub.),* Dr. PDKV, Akola.

Singh, P., 2015, Principles of plant breeding, Kalyani Publishers, New Delhi.

Supe and Singh., 1969, Dynamics of rational behaviour of Indian farmers. New Heights publisher and distributors, New Delhi.

Supe, S.V., 1969, Factors related to different degree of variability in decision making among farmers, *Ph.D. Thesis, (Unpub.),* IARI, New Delhi.

Suresh Reddy., 2004, Entrepreneurship: Concept and Development. Third Concept, 17(203): 3942.

Sushma, K. C., 2007, An analysis of entrepreneurship development in women through EDP trainings. *M.Sc. (Agri.) Thesis, (Unpub.)*, Univ. Agric. Sci., Dharwad (India).

Thakare, A.K., 2013, A study on entrepreneurial behavior of Floriculturists in Akola district of Maharashtra *M.Sc. (Agri.) Thesis, (Unpub.)*, Dr. PDKV, Akola.

Vimalraj G., 2010, An analytical study of best practices and competencies of award winning agripreneurs of Tamil Nadu. *M.Sc. (Agri.) Thesis, (Unpub.)*, IARI, New Delhi.

Wadekar, A. R., 2016, Entrepreneurial attributes of nursery growers *M.Sc. (Agri.) Thesis (Unpub.),* Dr. PDKV, Akola (MS).

Wankhade, P. P., D. M. Mankar, M. A. Sagane and V. S. Kale., 2013, “Entrepreneurial behaviour of vegetable growers in Akola District”. *Research Review Committee report, PP.* 70-85.

Yashodhara, B. 2011, A study on marketing behaviour of onion growers in Chitradurga district of Karnataka. *M.Sc. (Agri.) Thesis,* (*Unpub.),* University of Agricultural Sciences, Bangalore.

Yewatkar H. D., 2018, Entrepreneurial behaviour of garlic growers. *M.Sc. (Agri.) Thesis, (Unpub.),* Dr. PDKV, Akola.

VITA

1. Name of student : **Gaware Komal Maruti**

2. Date of Birth : 04th May, 1996

3. Name of the College : Department of Extension Education, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

4. Residential Address : At. Gaware Vasti, Adhavwadi, Po. Jeur, Ta. Nagar, Dist. Ahmednagar, Pin. 414601

   Email:- komalgaware00@gmail.com

   Contact No :- 8275894031

5. Academic Qualification :

Sl. No.	Name of Degrees awarded	Year in which obtained	Division/ Class	Name of awarding University	Subjects
1.	B.Sc. (Agriculture)	2017	First Class	MPKV, Rahuri	Agriculture

6. Research papers : NIL

7. Field of Interest : Research, Rural Development.

Signature of Student

Place: Akola

Date: / /2019 (Gaware Komal Maruti)

INTERVIEW SCHEDULE

Title of Research : ENTREPRENEURIAL BEHAVIOUR OF ONION SEED PRODUCERS

Name of Researcher : Gaware Komal Maruti
M.Sc. (Agri.), 2nd year
Department of Extension Education
Dr. P.D.K.V., Akola

PART – A

I. GENERAL INFORMATION

Name of farmer : _____

Village: _____ **Taluka:** _____ **District :** Akola

II. PROFILE OF ONION SEED PRODUCER :

1. Age : _____ Years

2. Education : _____

3. Occupation :

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

4. Land holding :

Sl. No.	Type	Area in ha
1.	Irrigated land	
2.	Rainfed	
3.	Total	

5. Annual income :

a) Farming : Rs. ……

b) Income from subsidiary occupation : Rs. ……

c) Income from onion seed production : Rs……

Total Income (a+b+c) : Rs. …….

6. Cropping pattern :

Sl. No.	Cropping pattern	
1	Seasonal	
2	Bi- seasonal	
3	Annual	
4	Bi-annual	
5	Perennial	

7. Area under onion seed production : _____ Ha.

8. Experience of onion seed production : _____ Years

9. Extension contact :

Sl. No.	Extension contact	Frequency of contact		
		Always (2)	Sometimes (1)	Never (0)
I.	**Formal sources**			
1.	Gramsevak			
2.	Agriculture Assistant			
3.	Agriculture Supervisor			
5.	Mandal Agricultural Officer			
6.	Agriculture University Scientists			
7.	KVK Scientist			
8.	Sales representative of seed company			
II.	**Informal sources:**			
1.	NGO			
2.	Progressive farmer			
3.	Neighbourhood/ farmer/ relatives/ friends			
4.	Krishi Seva Kendra			

10. Social participation : Are you member of office bearer of any organization _____ Yes/No (if yes give information)

Sl. No	Name of organization	Position		
		Member	Office bearer	Period
A	**Informal Organization**			
1	Bhajani Mandal			
2	Mahila Mandal			
3	Self Help Group			
B	**Formal Organization**			
1	Anganwadi Committee			
2	Educational Committee			
3	Co-operative Society			
4	Grampanchayat			
5	Panchayat Samiti			
6	Zilla Parishad			
7	Co-Operative Market			
8	Bank			
9	Fruit and Vegetable Grower Association			
10	Any other (specify)			

11. Scientific Orientation: (Supe, 1969)

Sl. No.	Statement	SA	AG	UN	DA	SD
1	New method of farming give better result to farmers than the old method					

2	The way of farmers be our forefather is still best way to manage it today					
3	Even farmer with lots of experience should use new methods of onion seed production					
4	Though it takes time for a entrepreneur to learn new method in onion seed production it is worth efforts					
5	A good entrepreneur experiment with new ideas in onion seed production					
6	Traditional methods of farming management have to be change in order to raise level of living of farmer					

SA- Strongly Agree, AG- Agree, UD- Undecided, DS- Disagree, SD- Strongly Disagree

PART – B

ENTREPRENEURIAL BEHAVIOUR OF ONION SEED PRODUCER

1. Innovativeness : (Moulik, 1965)

Please indicate your most like and least likeness about each of the following statements:

Sl. No	Statement	Extent of likeliness	
		ML	LL
1.	Update in the new information on new practices which does not mean that tryout all the new practices on my farm		
2.	Feeling restless till try out a new onion seed production practices told by the researcher by a assuming new practices are better than old ones.		
3.	Interested in new onion seed production practices these days but who knows if they are		

	better than old ones.		
4.	Out of several new practices try out most of them in the last few years.		
5.	After obtaining the result of my neighbour try out the new onion seed production practices on my level.		
6.	Sometimes believe that a traditional ways of farming are the best.		
7.	Cautious about trying a new practice.		
8.	After all our forefathers were wise in their farming practices and don't see any reason for changing these old methods.		
9.	Promising onion seed production practices would surely like to adopt.		

ML – Most likely , LL – Least likely

2. Achievement motivation: (Chandrapaul, 1998)

Everybody has desire to achieve the things in his life. Here are some sentences pertaining to desire of excellence to do something well for its own sake rather to gain power, love or recognition. Please give your response:

Sl. No.	**Decision**	**Yes**	**No**
1.	In accomplishing a task, I like….. a) To do it much better than other onion seed producers b) To finish before time		
2.	My desire is to be….. a) An average onion seed producer b) Successful onion seed producer		
3.	I feel my success depends….. a) Upon my hard work in onion seed enterprise		

	b) Upon my family		
4.	I like….. a) To earn more profit b) To satisfy my minimum needs		
5.	After 10 years I will be….. a) A well known onion seed producer b) My status will be same		

3. Decision Making Ability: (Supe, 1969)

Decision have to be made at several stages, please state how decision are made in your enterprise in term of whether in consideration with you or not consider you regarding different aspects given below.

Sl. No.	Decision	Justification	Indication
1	How did you decide the area for different crops to put under onion cultivation last year	3 - Market conditions - Financial need (Eg.: Loan repayment) 2 - Ease in supervision and cultivation - Need of family 1 - Always cultivated the same acreage -Do not know	
2	How do you decide on the different varieties of crops	3 - Market condition - Recommendation of extension Workers/scientist 2 - Experiencing with new variety - Recommendation of salesman 1 - Use seeds which are locally available - General experience from	

		last yr. - Do not know	
3	How did you decide the quantity of fertilizers use to your varieties	3 - Soil test - Recommendations of extension Workers/scientist - Careful observation 2 - General experience - Recommendations of relatives /neighbours and others 1 - Used what was at hand - Used which was available - always used the same amount or same as last year - Do not know	
4	How did you decide the various measures of plant protection	3 - Recommendation of extension Workers/scientists 2 - careful observation - General experience - Recommendation of relatives /Neighbours/other farmers 1 - Used whatever was at hand - Used whatever was available - Always used same - Do not know	
5	How did you decide the time of marketing of produce	3 - Consideration of keeping quality of produce - Market rates - Financial need 2 - Recommendation of relative/ Neighbours/ other farmers - Recommendation of salesman 1 - Always at same time of	

		year - Immediately after harvest - Do not know	
6	What type of written record you keep	3 - Farm book - Production record - Receipts - Bill and sales - Record of expenditure and Income 2 - Records of labourers 1 - Used memory -Do not know	
7	Have you ever tried to figure out what your profile was obtained from onion crop on your farm	2 - Yes 1 – No	

4. Economic Motivation: (Supe, 1969)

Sl. No.	Statement	SA	AG	UD	DA	SD
1	An onion seed entrepreneur should work towards more seed production as an economic profit.					
2	The most successful entrepreneur is one who makes more profit.					
3	An onion seed producer should try new idea, which may earn him more money.					
4	An onion seed producer should grow the higher yielding varieties to increase monitory profits.					
5	It is difficult to onion seed producers children to make good start unless he provides them with economic assistance.					
6	An onion seed producer must earn his living but important thing in life cannot defined in economic terms.					

SA- Strongly Agree, AG- Agree, UN- Undecided, DA- Disagree, SD- Strongly Disagree

5. Risk orientation : (Supe, 1969)

Sl. No	Risk orientation	AG	UD	DA
1	An onion seed producer should take greater risk than the average farmers			
2	An onion seed producer should try new practices only after successfully used by other onion seed producer			
3	Trying an entirely new practices in onion seed enterprise involve risk but it is worth			
4	Onion seed production management is full of risk			
5	Onion seed enterprise should sustain in risk in development of his enterprise.			

AG – Agree , UD – Undecided , DA – Disagree

6. Leadership Ability: (Nandapurkar, 1980)

Sl. No.	Statement	Always	Sometime	Never
1	Did you participate in group discussion on new onion seed production practices			
2	Whenever you see/hear a new onion seed production practices did you initiate discussion about it with your colleagues			
3	Do village people regard you as good source of information on new onion seed production practices			
4	Do you assign the work regarding onion seed production to your family members			
5	Do you offer new approaches to problems			

7. Management orientation : (Samantha, 1977)

Following are the statements to measure the degree of management orientation please indicate your degree of agreement (SA – Strongly agree, AG- Agree, UD – Undecided, DA – Disagree and SD – Strongly disagree) to each of the following statements in the appropriate columns provided.

Sl.No.	Statements	Response pattern				
		SA	AG	UD	DA	SD
A	**Planning orientation**					
1	Each year one should think about the fresh idea about onion seed production in each type of land.					
2	It is not necessary to make prior decisions about variety of onion for seed production.					
3	The amount of seed, fertilizer and plant protection chemicals needed for raising a onion crop should be assessed before cultivation					
4	It is not necessary to think of total cost involved in production of onion seed					
5	One need to be consult an expert onion seed producer for crop planning					
6	It is possible to increase yield through onion seed production plan					
B	**Production orientation**					
1	Timely sowing of onion for seed production ensures good yield					
2	It is good practice to use recommended quantities/qualities of seed i.e.					

	onion bulbs					
3	One should use plant protection measures at regular intervals irrespective of pests					
4	One should use irrigation water as per the need at critical growth stages					
C	**Market orientation**					
1	Market news is not useful to the farmer					
2	A farmer can get good price by selling onion seed at proper time					
3	One should purchase his inputs from the shop where his other relatives purchase					
4	One should grow those varieties of onion which have more market demand					
5	One should sell his produce to the nearest company irrespective of price					

PART – C

CONSTRAINTS FACED BY ONION GROWERS

Constraints faced:

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____