Marketing Behaviour of Onion Growers in Indore District of Madhya Pradesh

THESIS

Submitted to the

Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur

In partial fulfilment of the requirement for

The degree of

MASTERS OF SCIENCE

In

AGRICULTURE

(AGRICULTURAL EXTENSION)

By

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CERTIFICATE - I

This is to certify that the thesis entitled **"Marketing Behaviour of Onion Growers in Indore District of Madhya Pradesh"** submitted in partial fulfilment of the requirement for the degree of **MASTER OF SCIENCE (Ag.) in Agricultural Extension** of Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur is a record of the bonafide research work carried out by **Ms. Sandhaya Khanna, ID. No. 200110009** under my guidance and supervision. The subject of the thesis has been approved by the Student's Advisory Committee and the Director of Instructions.

All the assistance and help received during the course of the Investigation has been acknowledged by him.

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Date - **Chairman of the Advisory committee**

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Place: Jabalpur

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INTRODUCTION

Agriculture plays a significant role in Indian economy as it constitutes 17-18% to country's GDP in 2018. The agriculture sectors meet up the food requirement in the country by taking much effort on production of almost all agricultural produces. India has occupied the second position with 5.5 lakh hectares of area of cultivable land and 77 lakh tonnes of production of onion next to China in the world (Kalaiselvi, 2020). In vegetables, onion plays a vital role in Indian and foreign cuisine. Without onion there is no dish prepared and completed in Indian food. However, India stands in the second place in production of onion with 20% of share in the world production next to China (Kalaiselvi, 2020).

Since the demand for onion is throughout the year in India there are always problems in supply. A global review of area and production of major vegetables shows that onion ranks second in area and third in production of the total vegetables in the world. Onion is an important commercial crop in India and is widely grown in different parts of the country. The big onion produced in Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu are exported to Dubai, Kuwait, Saudi Arabia, Middle East, Malaysia, Singapore, Bangladesh, Sri Lanka. Small onion produced in Karnataka and Andhra Pradesh are exported to Singapore and Malaysia. At present, India stands second largest producer of onion in the world, next to China (FAO, Production Year 2020 Book). Indian onions are famous for their pungency and are available round the year. It is used either in raw form or dehydrated form to add flavour and taste to Indian cuisine since onion has excellent medicinal value.

Per capita Consumption of Onion in India

Price and religious consideration are the main factors which influence the consumption of onion in India. A particular segment of people avoids

onion in their daily diet during the religious occasions. Usually the price of the onion is lesser during the winter season. The level of its consumption depends upon the price. The per capita consumption of onion raised every year due to some reasons like changes of life and food style. During 2004-05 and 2009-10, the rural consumption of onions increased to 32% and urban consumption of onions increased to 18% in India. It is understood that the production of onions between these period have increased to 90% in the country (Baraker et al. 2021).

The share of onion production among major growing states include Maharashtra (43%), Madhya Pradesh (15.20%), Karnataka (8.47%), Rajasthan (5.80%) and Gujarat (4.63%). It occupies an area of 1.24 million ha. with a production of 26.85 million tonnes in India (Horticulture Statistics Division, 2020).The area under onion crop production is 4082.90 thousand tonnes in Madhya Pradesh. Indore district stand 13150.00 hectare area and production is 420670.00 tonnes in 2018-2019 *(https://miews.nafed-india.com*).

Statement of problem: -

The marketing of agricultural produce is a challenging task for the farmers because of perishability. However, onion has the advantage of being less perishable and enters into the marketing channels for inter-state and foreign trade, to a considerable extent because of added advantage that it can stand rough handling and long-distance shipment (Kumar, 2020). The market information is an important facilitating function in a marketing system (Phukan e*t al.*, 2018). Maximization of the agricultural profit not only bank on the production but also on the proper marketing behaviour of that crop (Jegan*et al*.,2019). The ability of an individual to trace out the market trends to sale their produce for higher returns are considered as the marketing behaviour. Market behavior of a farmer is influenced by several factors. The market behaviour is therefore; considered as important parameter which can be acquired by an individual and the behaviour of the farmers with respect to marketing aspects include time of sale, place of sale, marketing channels

used and market prices. Considering the points, some of the researchable questions are:

(1) To what extent attribute of onion growers affect their marketing behaviour?

(2) Do the farmers possess sufficient knowledge about marketing of onion?

(3) What are the challenges faced by onion growers in production, storage and marketing of onion?

Keeping the above issues in mind, the present study on “Marketing Behaviour of Onion Growers in Indore District of Madhya Pradesh” was undertakenwith following objectives:

1. To study the personal, socio-economic, psychological and communication characteristics of onion growers
2. To ascertain marketing knowledge and marketing behaviour of onion growers
3. To examine the relationship between profile characteristics and marketing behaviour
4. To analyze the problems faced by onion growers in production, storage and marketing of onion and suggestions to overcome them

Limitations of the study

1. In view of the fact that the study was conducted by a student researcher who had limited time and other resources at his disposal, the study was confined to only one block of Indore district. Hence, the findings of the study cannot be generalized.
2. The study did not suffer due to any unusual limitations other than the common ones like time, finance, mobility and physical facilities. In spite of these, every effort was made by the researcher to conduct the study as objectively as possible by following all norms of the scientific research by carrying out the investigation.

3. The study is based on the opinions of the respondents, which may not be free from their individual subjective perception and bases inspite of the researcher's effort to get them as objectively as possible.

Scope of the study

The present study provides vivid information about personal, socio-economic, communication and psychological characteristics of the onion growers. Onion is one of the commercial crops and less perishable compare to other vegetables, so it has different marketing practices. Marketing plays a vital role in onion crop. Hence the present study has been undertaken in order to know the marketing behaviour and problems faced by onion growers in selected block of the district. The results of the study would be useful for policy makes for making appropriate strategies.

Organization of the study

This investigation has been presented in six chapters, Chapter – I introduction, attempts to focus the need of the study with background, objective, importance, scope and limitations of the study. Chapter – II highlights the review of literature related to the study. Chapter – III elaborates the materials and method, sampling, operationalization of variables with their measurement and techniques of data collection, its analysis and measurement. Chapter – IV deals with the findings. The discussion is presented in Chapter - V. Finally Chapter - VI is concerned with the summary, conclusion and suggestions for further study.

REVIEW OF LITERATURE

Review of literature assists in delineation of the problem area and provides a basis for interpretation of the empirical perspective of research with this fact in mind,an effort has been made to review the research, survey reports, books, journals, magazines, popular articles and other sources of information relevant to the study.

The available research findings have been presented under the following headings:

2.1 Personal, socio-economic, psychological and communication characteristics of onion growers

2.2 Marketing knowledge and marketing behaviour of onion growers

2.3 Relationship between profile characteristics and marketing behaviour

2.4 Problems faced by onion growers in production, storage and marketing of onion and suggestions to overcome them

2.1 Personal, socio-economic, psychological and communication characteristics of onion growers.

2.1.1 Age:

Agarwal (2013) reported that most of the onion growers i.e. 41.54 per cent were of middle age group followed by old age group (30.00 %) and young age group (28.46 %).

Patel (2015) reported that on an average the onion growers were 44.97 years of age which was ranged between minimum 26 years and maximum 71 years. As per the size of holding, in small size group the average age of onion growers was 44.80 years while in medium size, the average age of onion growers was 44.55 years and in large size group the average age of onion growers was found to be 45.55 years. It was due to fact that the elder farmers fragmented their holding into small due to distribution of holding among the spouses.

Tagore (2017) showed that most of the onion growers 41.54 per cent were of middle age group followed by old age group 30.00 per cent and young age group 28.46 per cent, respectively.

Bhausaheb (2018) found that, 23.33 per cent farmers belonged to young age group, 25 per cent between 36 –45 years belong to middle age and 51.67 per cent of the farmers were above 45 years of age.

Kalaiselvi (2020) revealed that 58 per cent of onion growers were in the age group of 45 to 65 years and there were only 26 per cent of them in the age group of 25 to 35 years.

Baraker *et al.* (2021) reveals that nearly half (49.17 %) of the respondents belonged to old age group followed by middle (37.50%) and young age (13.33%).

2.1.2 Education:

Agarwal (2013) reported that maximum number of the onion growers (43.08 %) were having medium education followed by higher education group (35.38 %) and illiterate and formal education (21.54 %), respectively.

Patel (2015) reported that majority of the onion growers were literate (68.33%). The literacy position reflected that among the total onion growers, the majority of the onion growers had an education of primary level (30.00%) followed by middle school (21.67%), higher secondary standard (10.00%) and college level (6.67%), respectively. It is also apparent that 31.67 per cent of the onion growers were illiterate and got formal education.

Tagore (2017) showed that most of the onion growers 43.08 per cent were of medium education group followed by higher education group 35.38 per cent and illiterate group 21.54 per cent respectively.

Shukla and Singh (2018) revealed that all the farmers including illiterate to graduation and above level were involved in the onion growing. Maximum 29.77 percent of respondents were studied up to high school,

followed by 19.85 percent of the respondents have studied up PUC level, Middle school was received by 15.27 percent and 13.74 percent of them studied up to primary school and least of 12.21 percent of them have studied up to graduation and above. The finding indicated that considerable percentage of onion farmers had good education i.e., 29.77 percent high school level and only few (9.16%) were illiterates.

Kalaiselvi (2020) revealed that 58 per cent of the sample onion growers educational qualification was up to schooling but only 15 per cent of the graduates involved in production of onion and other agricultural work.

Baraker *et al.* (2021) found that considerable percentage (35.83%) of the respondents had studied up to middle school followed by high school (17.50 %).

2.1.3 Family size

Shukla and Singh (2018) reported that 56.49 percent of the respondents belonged to medium family size category and 36.64 percent of them belonged to small family size category; whereas, 6.87 percent were in the big category of family size and holding.

Bhausaheb (2018) found In case of kharif and rabi onion growers, it was seen that 5 per cent families had 1 to 3 members, 78.34 per cent families had 4 to 6 members, and 16.66 per cent of families had more than 6 family members.

With respect to family size Baraker *et. al.* (2021) reported that 55.00 per cent of respondents had big family size followed by small (25.00 %) and medium family size (20.00 %).

2.1.4 Land holding:

Agarwal (2013) reported that most of the onion growers i.e. 43.85 per cent had large size of land holding followed by medium size of land holding (32.30 %) and small size of land holding (23.85 %), respectively.

Patel (2015) reported that the average size of holding represents 4.60 hectare per farm in the area which is ranged from minimum area 1.10

hectare to maximum 12.80 hectare. The area of holding differentiates with the size group i.e. 1.50 hectare with small size group followed by 3.28 and 9.02 hectare with medium and large size group, respectively.

Tagore (2017) showed that majority of the onion growers 44.62 per cent have medium size of land holding followed by large size of land holding 28.46 per cent and small size of land holding group 26.92 per cent, respectively.

Bhausaheb (2018) was found that total land holding under kharif and rabi onion growers were calculated to be 197.9 hectares while the total Area under kharif and rabi onion was calculated to be 43.8 hectares and 58.6 hectares, respectively.

Shukla and Singh (2018) observed that all the farmers including marginal farmers to large farmers were involved in the onion growing. However, 44.27 percent of the farmers were small farmers and 26.75 percent of onion growers were marginal farmer. Further, 19.85 percent, 7.63 percent, 1.53 percent of onion growers were semi-medium farmer, medium farmer, and large farmer, respectively. Majority of farmers had small holding followed by marginal farm size.

Baraker *et al.* (2021) reported that 32.50 per cent of the respondents belonged to semi-medium farmers (5.01 to 10.00 acre) land holding category whereas 26.66 per cent were medium and 20.83 per cent were small farmers.

Kalaiselvi (2020) revealed that 28 per cent of the farmers hold one to three hectares of land, 22 per cent and 6 per cent of them hold three to five and more than ten hectares of land, respectively.

2.1.5 Area under onion cultivation:

Agarwal (2013) reported that majority of the onion growers (43.08 %) had medium area under onion cultivation followed by large area under onion cultivation (30.00 %) and small area under onion cultivation (26.92 %), respectively.

Patel (2015) reported that on an average 19.71 per cent of total size of holding was found under onion cultivation which represented on an average 0.91 hectare per farm. The data depicted that the large farmers covered higher proportion of area under onion i.e. 1.34 hectare per farm to total size of holding which is followed by 0.80 hectare per farm by medium farmers and 0.58 hectare per farm by small farmers, respectively.

Tagore (2017)showed that majority of the onion growers 43.08 per cent have medium area under onion followed by large area under onion 30.00 per cent and small area under onion group 26.92 per cent, respectively.

Kalaiselvi (2020) depicts that the reason for doing onion farming in the study area. 25% of the farmers were growing this crop because it is a conservative practice, 18% of them said that this crop takes minimum period, 14% of them said that it is a remunerative crop and the remaining farmers felt that other reasons.

Baraker *et al.* (2021) found that majority of respondents (81.67%) belonged to medium area under onion cultivation, followed by 10.00 per cent of the respondents were having high area under onion cultivation and only 8.33 per of the respondents had low area under onion cultivation.

2.1.6 Experience in onion cultivation:

Baraker*et al.* (2021) reported that more than one-third (36.66 %) of the respondents had high farming experience followed by 34.16 per cent of the respondents had medium and 29.16 percent had low farming experience.

2.1.7 Social Participation:

Tagore (2017) reported that majority of the onion growers 43.84 per cent found to medium extension participation group followed by high extension participation group 31.54 per cent and low extension participation group 24.62 per cent, respectively.

Baraker *et al.* (2021) reported that 37.50 per cent of the respondents belonged to medium level of social participation, followed by high (32.50 %) and low level of social participation (30.03 %)

2.1.8 Annual income:

Agarwal (2013) reported that most of the onion growers (41.54 per cent) belonged to medium annual income followed by high annual income (33.85 %) and low annual income group (24.62 %), respectively.

Tagore (2017) reported that most of the onion growers 41.54 per cent found to medium annual income followed by high annual income 33.85 per cent.

Shukla and Singh (2018) reported that considerable percent (79.39%) of the onion farmers were in the range of middle annual income group (Rs. 302593 -1420354/-) followed by 12.21 percent in the high income category (> Rs. 1420354/-) and 8.40 percent in the low income category (< Rs. 302593/-).

Baraker *et al.* (2021) found that more than half (52.50 %) of the respondents belonged to medium annual income category whereas 29.16 per cent and 18.33 per cent belonged to low and high annual income categories, respectively.

2.1.10 Mass media exposure :

Baraker *et al.* (2021) revealed that less than half of the respondents had medium mass media exposure (45.83 %) followed by high (30.00 %) and low mass media exposure (24.16 %).

2.1.11 Extension contact:

Agarwal (2013) reported that most of the onion growers I.e. (41.54 per cent) had medium level of extension participation followed by high extension participation (36.92%) and low extension participation (21.54 %), respectively.

Baraker *et al.* (2021) revealed that 36.00 per cent of the respondents belonged to medium level of extension contact followed by low (32.50 %) and high level of extension contact (30.83 %).

2.1.12 Risk orientation:

Agarwal (2013) reported that maximum number of the onion growers (54.62 per cent had medium risk preference group followed by high (23.08 %) and low risk preference (22.31%) respectively.

Tagore (2017)showed that majority of the onion growers 45.38 per cent found to medium risk preference group followed by high risk preference group 36.16 per cent and low risk preference group 18.46 per cent, respectively.

Baraker *et al.* (2021) revealed that 62.50 per cent of the respondents belonged to medium level of risk orientation, followed by high (25.83 %) and low level of risk orientation (11.66 %).

Jangwad *et al.* (2021) revealed 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.

2.1.13 Innovativeness:

Agarwal (2013) reported that most of the onion growers (43.08 %) were found to have medium innovativeness followed by low innovativeness (29.23 %) and high innovativeness (27.69 %).

Baraker *et al.* (2021) found that Half of the respondents belonged to high innovativeness category (50.00 %) followed by medium innovativeness (28.33 %) and low innovativeness category (21.66 %).

Jangwad *et al.* (2021) observed 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.

2.2 Marketing knowledge and marketing behaviour of onion growers:

2.2.1 Marketing knowledge:

Yashodhara *et. al.* (2012) shows that considerable percentage (41.25%) of the onion growers belonged to medium level of marketing knowledge category. Whereas, 31.25 per cent belonged to low and 27.50 per cent of the respondents belonged to high marketing knowledge categories, respectively.

Tagore (2017) showed that majority of the onion growers 42.31 per cent found to medium attitude towards improved production technology group followed by high attitude towards improved production technology 29.23 per cent and low attitude towards improved production technology group 28.46 per cent respectively.

Kalaiselvi(2020)presents the awareness of knowledge on marketing information regarding onion marketing with its ranking. The results revealed that 82 per cent of the onion grower aware of more quantity of onion arrivals from other areas of the country and import from abroad affect their prices in the market. 80 per cent of the sample farmers had awareness of charges of onion grading take more charges. 75 per cent agrees that right distribution channel selection is the first step in onion marketing, 45 per cent of them experienced that the middlemen enjoyment than the farmers. 53 per cent of the onion growers are aware of pre-harvest sales leads to reduce onion price. 27 per cent of them felt about selling and transaction cost is high to bring onion to the market. 10 per cent of them were aware about the Special Magazines/app usage for market news.

2.2.2 Marketing behaviour :

Tagore (2017) found that method of field preparation" was adopted by 81.54 per cent onion growers (rank I) followed by "irrigation" adopted by 77.69 per cent onion growers (rank II), "seed rate" adopted by 75.38 per cent onion growers (rank III), "plant protection measure" adopted by 74.62 per cent onion growers (rank IV), "method of nursery

management" and "seed treatment" (rank V each) adopted by 73.85 per cent onion growers, "variety/hybrid" and "intercultural operations" (rank VI each) adopted by 73.08 per cent onion growers, "FYM/Bio fertilizer application" (rank VII) adopted by 72.81 per cent onion growers, "fertilizer (NPK)" and "proper method of digging" (rank VIII each) adopted by 71.54 per cent onion growers and "method of transplanting" (rank IX) adopted by 67.69 per cent onion growers respectively.

Baraker *et al.* (2021) observed that 55.00 per cent of the respondents sell their produce in distant markets like Bangalore/Hubli/Hyderabad, because they were getting good price in distant markets for their produce compared to local market, 36.25 percent of the respondents sell their produce in nearby APMC, and 8.75 per cent of them sell in village itself. They further reported that 39.16 per cent of respondents belonged to low marketing behaviour category, followed by 34.16 and 26.68 per cent of them belonged to medium and high marketing behaviour categories, respectively.

2.3 Relationship between profile characteristics and marketing behaviour

Agarwal (2013) reported that education, area under onion, extension participation, information seeking behaviour, occupation, size of land holding was found to be significant risk preference, attitude towards improved onion production, management orientation was found to be significant at 5 percent level with 4 degree of freedom. Hence, it was concluded that education, area under onion, extension participation, information seeking behaviour, occupation, size of land holding, risk preference, attitude towards improved onion production, management orientation had an influence on the adoption behaviour in respect of onion production technology.

2.4 Problems faced by onion growers in production, storage and marketing of onion and suggestions to overcome them

2.4.1 Problems faced by onion growers in production, storage and marketing of onion:

Yashodhara *et al. (2012) revealed that cent per cent of* onion growers expressed problem of fluctuation in market price followed by high cost of transportation (97.50%), absence of storage facilities (70.62%), market are far away (41.25%), hamali charges are more (37.50%), without involvement of middlemen it is difficult to sell the produce (34.37%), no grading facilities (20.62%), inadequate physical facilities in market (16.87%), high commission charges (15.62%), prolonged transactions (13.12%), malpractices adopted in market (10.00%), lack of market information (9.37%), illegal deductions while selling (8.75%), delayed cash payment (8.12%) and faulty system of weighment.

Agarwal (2013) reported that the major constraints as perceived by the onion growers were lack of sufficient inputs and capital (ranked I) followed by costly agricultural inputs (ranked II), lack of storage facilities (ranked III), lack of proper market (ranked IV), lack of credit facilities (ranked V), lack of improved implement (ranked VI), lack of labour in interculture operation (ranked VII), higher risk in adoption of new technology (ranked VIII), lack of irrigation facilities (ranked IX), lack of technical knowledge (ranked X) ,low market price of produce (ranked XIth), late sowing due to uncertainty of rain (ranked XII), lack of high yielding varieties of seed and fertilizer (ranked XIII), high rate of wages (ranked XIV) and low cooperation of development agencies (ranked XV) respectively.

Patel (2015) reported that “socio economic constraints” confronting by 81.67 per cent onion growers was the main constraints and got rank Ist among all five constraints, followed by “physical constraints” (76.67%) ranked II, “credit constraints” (70.00%) ranked III, “marketing constraint”

(63.33%) ranked IV and “infrastructural constraints” (61.67%) ranker V respectively.

Tagore (2017)– found that "disease and pest control" confronted by 53.08 per cent onion growers (rank Ist) followed by "fertilizer and manorial management" confronted by 50.00 per cent onion growers (rank IInd), "field preparation" confronted by 46.15 per cent onion growers (rank IIIrd), "weed control" confronted by 45.38 per cent onion growers (rank IVth) and "water management". Confronted by 43.85 per cent onion growers (rank Vth) respectively. On the other hand, the onion growers confronted less important constraints as perceived by the onion growers were "seed and seed treatment" confronted by 37.69 per cent onion growers (rank VIth) followed by "digging" confronted by 26.92 per cent onion growers (rank VIIth) respectively.

Bhausaheb (2017) reported that in case of marketing, there is no permanent price policy; hence price fluctuation faced by the 100.00 per cent kharif and rabi growers as major constraints. It was observed that, the lack of market information was major bottleneck in efficient marketing of kharif and rabi onion was about 75 per cent. The other constraints faced by 60 per cent of onion growers were involvement of large no of intermediaries, higher transportation charges and less availability transport facilities which was complained by 45 per cent farmers. As of 41.66 per cent farmers were getting poor storage structures constraints

Kalaiselvi (2020) revealed that 26 per cent of the sample farmers felt that their major problem in onion production was high cost of fertilizer and pesticides, 25 per cent of them faced seed onion was the problem at the time of cultivation due to its high cost, 18 per cent of them faced the labour scarcity problem due to many people have migrated to other works, 17 per cent of them felt that they face the production problem on irregular rain fall. Regarding marketing problems faced by the onion growers, 28 per cent of the farmers felt that they face price fluctuation in market at the time of selling

onion. They said that the price of the seed onion was at higher rate whereas at the time of selling the price goes near to the ground 15 percent of the sample farmers felt that they do not have proper guidance to marketing of onion.

Kumar et al (2020) reported that the major problems faced by the onion farmers were high cost of pesticide, lack of knowledge of recommended fertilizer doses, high cost of fertilizer, lack of knowledge about seed/seedling treatment, high cost of transportation, absence of minimum support prices, existence of large number of intermediaries in marketing process, too much fluctuation in prices, problem of technical manpower, higher rate of charges power and fuels, fluctuation in raw material and procurement and lack of good quality packaging material.

2.4.2 Suggestions to overcome the problems faced by onion growers

Yashodhara *et al.* (2012) revealed that cent per cent of farmers suggested that fixing minimum price for the produce, 66.25 per cent of farmers suggested for establishing more procurement centers at nearby places, 65.00 per cent suggested for display of price at each market places, 45.00 per cent suggested for providing support price policy for the produce and 43.75 per cent suggested for providing access to market information. Further 28.75 per cent suggested to providing concessional transportation charges, 27.50 per cent suggested for fixing minimum labour charges, 20.00 per cent suggested for providing lodging and boarding facilities at market places, 7.50 per cent suggested for providing storage facilities and 2.50 per cent suggested for providing direct marketing facilities.

Tagore (2017) reported that the suggestions given by the onion growers to overcome the constraints were "the agricultural inputs should be given at low price to the poor and small onion growers" (53.85%) followed by "improved seed should be available in time"(50.77%), 50.00 per cent of the onion growers suggested that "the recommended inputs package should be available", 46.15 per cent of the onion growers suggested that

"disease and pest resistance, high yielding variety should be available", 40.00 per cent of the onion growers suggested that "the irrigation facilities should be available at time", 38.46 per cent of the onion growers suggested that "the capital unavailability is the main problem hence the loan recovery should be easy" respectively.

Bhausaheb (2017) reported that, 100 per cent kharif and rabi onion growers suggested that price support facility. Similarly provision of regular electricity in timewas reported by 100 per cent of onion growers, 80 per cent farmers also suggested provision of market information by mass media. Whereas, 75 per cent farmers opined for use of machine for doing various cultivation practices because of less availability of labour, 61.67 per cent of onion farmers suggested that government should provide improved storage facilities to store onion until they get proper price for their produce and 58.33 per cent growers suggested development of disease and pest resistance varieties for minimizing losses of onion crop and 45.00 per cent onion growers suggested efficient supply of fertilizers and minimize the cost of fertilizers.

MATERIAL AND METHOD

The chapter covers precise method and procedure followed during the course of research work. The blueprint used in carrying out investigation has been outlined in this chapter. The bifurcation of research methodology adopted is given under following heads:

3.1 Location of the study area

3.2 Research Design

3.3 Sampling procedure

3.3.1Selection of block

3.3.2 Selection of village

3.3.3 Selection of respondents

3.4 Variables and their measurement

3.5 Validity and reliability of instruments

3.6Source of data collection

3.7Method of data collection

3.8Statistical analysis of the data

3.9Hypotheses

3.1 Location of the study area:

The present study was conducted in Indore district of Madhya Pradesh. Indore is one of the highest onion producing districts in the state with production of 420670 tonnes. The Indore District has an area of 3,898 km² and borders the districts of Ujjain to the north, Dewas to the east, Khargone (West Nimar) to the south, and Dhar to the west (https://miews.nafed-india.com).

Brief description of Indore district

Indore is the administrative centre and main city in the State. Located on the southern edge of Malwa Plateau, at an average altitude of 553 meters (1,814 ft) above sea level, it has the highest elevation among major cities of

Central India. The city is 190 km (120 mi) west of the state capital of Bhopal. Dr. Ambedkar Nagar (Mhow) is an important cantonment town in the Indore District that contains three of the Indian Army's premier training institutes, as well as the Border Security Force's Central School of Weapons and Tactics. Other towns in Indore include Depalpur, Sanwer and Hatod (https://miews.nafed-india.com).

According to the 2011 cencus, the Indore District has a population of 3,276,697. The district has a population density of 841 inhabitants per square kilometer (2,180/sq m). Its population growth rate over the decade 2001-2011 was 32.88%, sex ratio of 928 females for every 1,000 males (http://www.census 2011.co.in/district. php) and a literacy rate of 80.87% (male 87.25% and female 74.02%). Scheduled Castes and Scheduled Tribes make up 16.64% and 6.64% of the population respectively.

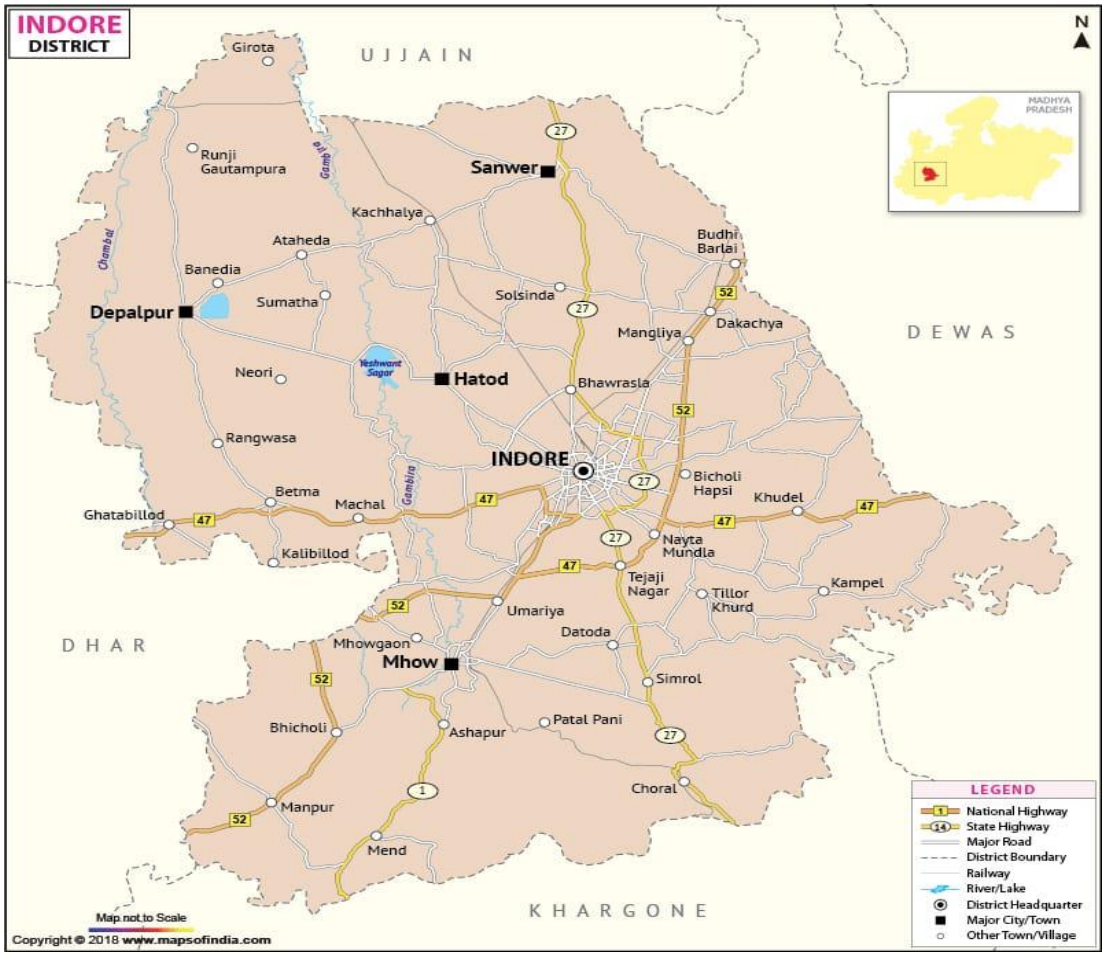

Fig 3.1 Map of the study area

3.2 Research Design:

The design of research is the most important and crucial aspect of the research methodology. To seek the answers for the research question, a descriptive research design was used in the investigation because it is describing phenomena with sufficient interpretation. It clearly states the characteristics of the specific situation of group or individuals. In this design the variables are to be known.

3.3 Sampling procedure:

3.3.1 Selection of block:

Indore district comprises of four blocks i.e. Indore, Mhow, Sanwer and Depalpur. Out of 4 blocks, Mhow block was selected because of having maximum number of onion growers.

3.3.2 Selection of village:

The block comprises of 174 villages; out of which two villages i.e. Datoda and Harsola were selected because of having highest number of onion growers.

3.3.3 Selection of respondents:

From the selected two villages, 5% of respondents were selected as respondents. Thus total 151 onion growers were the respondents.

3.4 Variables and their measurement:

Social scientists hold the view that there exists a gap between theory and experimental research. The hypothesis use conceptual variables that are formulated at high level of abstraction. Most of the social scientists attempt to solve measurement problems by operationally defining the conceived variables and then by either using available measures or by designing one's own measure.

A number of terms and variables have been used in the present study with specific meaning.

Variables and measurements:

S. No.	Variables	Measurements
A.	**Independent variables**	
01.	Age	Chronological age of respondents
02.	Education	Formal education
03.	Land holding	ha
04.	Area under onion cultivation	ha
05.	Family size	Number of family members
06**.**	Income from onion cultivation	In Rupees
07.	Total annual income from agriculture	In Rupees
08.	Experience in onion cultivation	In years
09.	Social participation	Self Scoring
10.	Mass media	Self Scoring
11**.**	Extension contact	Self Scoring
12.	Risk orientation	Scale developed by Supe (1969) was used
13.	Innovativeness	Scale developed by Moulik (1965) was used
14.	Marketing knowledge	Procedure of Yashodhara *et al* (2012) with suitable modifications was adopted
1B.	**Dependent variable**	
01.	Marketing behavior	Procedure of Anita (2017) with suitable modifications was adopted

1. Age:

Age was operationalised as number of years an individual has completed and was measured as per actual chronological age of an individual. The scoring pattern used to measure age is given below.

Sr. No	Categories	Score
1.	Young (upto35 years)	1
2.	Middle (36-55 years)	2
3.	Old (56years and above)	3

2. Education:

The reading and writing capability acquired by the farmers was considered as their educational status. It refers to the number of year of formal education acquired by the respondents. All the respondents were classified into six groups according to the number of years of their formal education.

Sl. No.	Categories	Score
1.	Illiterate	1
2.	Primary education	2
3.	Middle School	3
4.	High school	4
5.	Higher secondary	5
6.	Graduation and above	6

3. Land holding

It refers to the total number of hectares of land under cultivation possessed by the respondent. For quantitative measurement of the land holding, the criteria of M.P. Government was followed. It was categorized as under.

S.No.	Land holding	Characteristics
1.	Marginal land holding	upto 1 ha
2.	Small land holding	1.01-2 ha
3.	Medium land holding	2.01-4 ha
4.	Large land holding	more than 4 ha

4. Area under onion cultivation:

It refers to the land possessed by onion growers in hectares under cultivation of onion crop. The onion growers were categorized into three categories on the basis of mean and S.D.

S.No.	Area	Score
1.	up to 0.33 ha	1
2.	0.34 to 2.06 ha	2
3.	2.07 ha. and above	3
Mean = 1.20		**SD = 0.87**

5. Family size

It refers to the total number of members in a family living together under one roof and having common mode of cooking and eating. Family size was measured as the absolute number of members in the household sharing same economic unit. The variable was classified into three categories based on mean and S.D.

S. No.	Family size	Characteristics
1	Small	Up to 4
2	Medium	5-7
3	Large	8 and above
Mean = 6.55		**SD = 3.02**

6. Income from onion cultivation:

It refers to the income earned in rupees by the onion growers from onion crop. Based on the total annual income, the onion growers were categorized into three groups for measuring the frequency, as follows:

S. no.	**Income from onion cultivation**	**Characteristics**
1.	Low	Up to Rs. 2,60,899
2.	Medium	Rs. 2,60,900 to Rs. 4,00,000
3.	High	Rs.4,00,001 and above
Mean = 3,30,450		**SD = 69,551**

7. Total Annual income from agriculture:

It refers to the income earned in rupees by the onion growers from agriculture and other occupations. The onion growers were categorized into three groups on the basis of mean and S.D.

S. no.	**Annual income**	**Characteristics**	**Score**
1.	Low	Up to Rs. 4,00,000	1
2.	Medium	Rs. 4,00,001 to 9,03,999	2
3.	High	Rs. 9,04,001 and above	3
Mean = 6,52,000		**SD = 2,52,000**	

8. Experience in onion cultivation:

It refers to the number of years of experience that the respondent had in onion cultivation. The farmers were categorized into three categories based on mean and SD.

Sl. No	Experience in onion cultivation	Characteristics
1	Low experience	up to 6 years
2	Medium experience	7 to 18 years
3	High experience	19 and above
Mean = 13.19	**SD = 07.30**	

9.Social participation:

It refers to the degree of involvement of respondents in any formal and/or informal social organization as a member or office bearer. The respondents were assigned a score of '1' for having membership and '2' for office bearer for each of the social organization / institution separately. For extent of participation, a score of '3' for regular, '2' for occasional/frequent and '1' for no participation was assigned. According on the basis of mean and SD, the respondents were categorized into three categories viz, low, medium and high.

Sl. No	Social Participation	Score range
1	Low	up to 12
2	Medium	13 to 15
3	High	16 and above
Mean = 14.40	**SD = 2.13**	

10. Mass media exposure

The variable was operationalised as the exposure of an individual to different mass media channels such as newspaper, radio, television, farm magazine and degree of participation in them. The respondent was asked to indicate whether he/she subscribed to or owned the channel said above. Then the respondent was asked to indicate his/her degree of exposure in terms of reading habits, listening behaviour and viewing habit. On the basis of responses, the respondents were categorised into three categories using mean and S.D. as a measure of check.

Sl. No	Social Participation	Score range
1	Low	up to 15
2	Medium	16 to 20
3	High	21 and above
Mean = 18.47	**SD = 3.0**	

11. Extension contact

Extension contact has been operationalized as the frequency of contact of respondents with extension personnel and extension agencies for seeking information about farming practices. Accordingly, the respondents were categorized into three categories based on mean and SD.

Sl. No	Social Participation	Score range
1	Low	up to 9
2	Medium	10 to 12
3	High	13 and above
Mean = 11.07	**SD = 2.06**	

12. Risk orientation

Risk orientation refers to the degree to which a respondent is oriented towards risk and uncertainty and has the courage to solve/overcome the problem. It was quantified by using the scale developed by Supe (1969). The scale consisted of six statements of which the first and fourth were negative statements and all the other were positive statements with weight of 5,4,3,2 and 1 indicating strongly agree, agree, undecided, disagree and strongly disagree and reversed for negative statements. The score were added up which gave the total score for a respondent on this variable. The score ranged from 6 to 30. Based on the scores, the respondents were grouped into three categories on the basis of class interval.

Sl. No	Social Participation	Score range
1	Low	6 to 14
2	Medium	15 to 23
3	High	24 to 30

13. Innovativeness

Innovativeness is the degree to which an individual adopts new ideas or technology relatively earlier than others in his social system. It is operationally defined as proneness of the respondent towards a new agriculture technology or knowledge in order to increase his/her income. It was measured with the help of scale developed by Moulik (1965). The scale consist of a set of 8 statements with weights of 5,4,3,2 and 1 indicating strongly agree, undecided, disagree and strongly disagree respectively. The categorization on the basis of class interval.

Sl. No	Social Participation	Score range
1	Low	8 to 18
2	Medium	19 to 29
3	High	30 to 40

14. Marketing knowledge

Marketing referes to the knowledge that farmers (onion groknowledgewers) have about market demand, consumer preferences, different marketing channels, prices in different market, selling right quantity at right time or whether to store and sell later or not.

Getting good produce alone is not enough for the farmer. It has to be sold at a good price for that marketing knowledge is essential. The farmer has to aware of every marketing channel, so that he can choose the right one eliminate middle men and sell at good price. Marketing knowledge also

includes the price of onion at different market at different time so that the farmer could choose the right time to sell for profit maximization.

A number of statements pertaining to various aspects of marketing are given and farmers were to give their response for statements whether they were aware of it or not. Scoring given was 1 for yes and 0 for No. The rank assigned to the statements to the statements based on percentage. The overall level of marketing knowledge of respondents was categorised into three category based on mean and S.D.

S. No.	Categories	Score
1.	Low	Upto 4
2.	Medium	5 to 10
3.	High	11 and above
Mean= 8.58		**S.D.= 3.68**

Dependent variables:

Marketing behaviour of onion growers

Marketing behaviour is a set of actions by which the farmer promotes and sells his produce. It refers to the preferences of farmers about how much to sell, where to sell, through which channel, mode of transport, how much to store etc.

To measure this variable, procedure of Anita (2017) was adopted with suitable modifications. To measure the marketing behaviour ten parameter viz., time of selling, selling place, selling form, grading, agencies chosen for selling, selling counseling, transport, selling terms and conditions, market rate per quintal and number of times onion sold were considered. The response of respondents in respect of each parameter were recorded as follows:

SN	Aspects	Categories	Score
1	Time of selling	a) Immediately after harvesting b) After initial storage c) Whenever the prices are favourable	1 2 3
2	Selling place	a) Local market/ in subji mandi b) Nearby APMC c) Distant market/ Terminal market	1 2 3
3	Selling form	a) Raw b) Processed	1 2
4	Grading	a) Always b) Sometimes c) Never	2 1 0
5	Agencies chosen for selling	a) Village level traders b) Wholesalers c) Traders through cooperative society d) Commission agent	1 2 3 4
6	Selling counseling	a) Always b) Sometimes c) Never	2 1 0
7	Transport	a) Bullock cart b) Cycle c) Two wheeler d) Bus lorry tempo etc	1 2 3 4
8	Selling terms and condition	a) Ready cash b) Not ready cash	2 1
9	Market rate per quintal	a) Satisfied b) Not satisfied	1 0
10	Number of times onion sold	a) One times b) Two times c) Three times	1 2 3

Further, the respondents were categorized into three categories by using mean and S.D.

S. No.	Marketing behaviour	Score
1.	Poor	Upto 16
2.	Good	17 to 19
3.	Very good	20 and above
Mean= 18.44		**S.D.=2.18**

3.5 Validity and reliability of instrument:

Validity refers to whether the data collection instruments measures what it is supposed to measure. Validity of the interview schedule for this study was maximized by taking the following steps:

(i) The interview schedule was thoroughly discussed with the members of the advisory committee, experts and scientists of concerned discipline and their suggestions were incorporated.

(ii) Pre-testing of the interview schedule served as an additional check for improving the instrument.

(iii) The relevance of each question in terms of the objectives was used carefully.

The reliability of an interview schedule refers to its consistency. It was observed properly that the interview schedule had reliability before it was used as a data collection instrument.

3.6 Sources of data collection

The following sources were used for the purpose of data collection.

(i) Primary data

The researcher collected the primary data personally by interviewing the selected respondents with the help of structured and pre - tested interview schedule.

(ii) Secondary data

The secondary data were obtained from the various government offices and publications.

3.7 Method of data collection

An interview schedule was designed for collecting the relevant information of selected variables. The data were collected personally with the help of pre tested interview schedule. The respondents assured that the information given by them would be kept confidential and it would only be used for the academic purposes.

3.8 Statistical analysis of data

Data collected were qualitative as well as quantitative. The quantitative data were taken in terms of percentage and qualitative data were tabulated on the basis of authorized categorization method as described earlier. The following statistical techniques were used for the study.

Frequency

Percentage

Mean

Standard deviation

Correlation coefficient

1. Frequency

The frequency (f) of a particular value is the number of times the value occurs in the data

2. Percentage

Percentage is one of the most common ways to represent statistics. Per cent simply means “per hundred” and the symbol used to express percentage is %. One per cent (or 1 %) is one hundredth of the total or whole and is therefore calculated by dividing the total or whole number by 100.

$$P = \frac{X}{N} \times 100$$

Where;

P= Percentage

X= Frequency

N= Total number of respondents

3. Mean

The mean refers to the average of a set of values. Mean was obtained by dividing the sum of the scores by the total number of cases involved according to the formula.

$$\bar{x} = \sum_{i=1}^{n} \frac{xi}{N}$$

Where;

$\bar{x}$ = Mean

Σ xi = sum of all individual observation

N = Total number of respondents

4. Standard deviation

Standard deviation shows fluctuation from mean value. This is a measure of how dispersed the data is in relation to the mean. Low standard deviation means data are clustered around the mean, and high standard deviation allusions data are more spread out.

$$\sigma = \frac{\Sigma(x - \bar{x})}{N-1}$$

Where;

σ = Standard deviation

X = Value of individual

$\bar{x}$ = Assumed mean

N = Total number of items

5. Correlation coefficient

The correlation coefficient is the specific measure that quantifies the strength of the linear relationship between two variables (viz. independent and dependent) in a correlation and the values range between -1.00 to + 1.00. A correlation of -1.00 shows a perfect negative correlation, while +1.00 shows a perfect positive correlation**.**

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\, n\Sigma x^2 - (\Sigma x)^2 \,]\,[\, n\Sigma y^2 - (\Sigma y)^2 \,]}}$$

Where,

r = Co-efficient of correlation

x = independend variable

y = dependent variable

3.6 Derivation of hypothesis

On the basis of research objective and their variables incorporated in the study, the following null hypothesis was formulated for the present study.

1. There is no relationship between age and marketing behaviour of onion growers.
2. There is no relationship between education and marketing behaviour of onion growers.

3. There is no relationship between land holding and mmarketing behaviour of onion growers.
4. There is no relationship between area under onion cultivation and mmarketing behaviour of onion growers.
5. There is no relationship between family size and marketing behaviour of onion growers.
6. There is no relationship between income from onion cultivation and marketing behaviour of onion growers.
7. There is no relationship between annual income from agriculture and marketing behaviour of onion growers.
8. There is no relationship between experience in onion cultivation and marketing behaviour of onion growers.
9. There is no relationship between social participation and marketing behaviour of onion growers.
10. There is no relationship between mass media and marketing behaviour of onion growers.
11. There is no relationship between extension contact and marketing behaviour of onion growers.
12. There is no relationship between risk orientation and marketing behaviour of onion growers.
13. There is no relationship between innovativeness and marketing behaviour of onion growers.
14. There is no relationship between market knowledge and marketing behaviour of onion growers.

RESULTS

This chapter deals with the analysis and interpretation of collected data. The chapter has been divided into the following sub heads:

4.1Personal, socio-economic, psychological and communication characteristics of onion growers

4.2 Marketing knowledge and marketing behaviour of onion growers

4.3 Relationship between profile characteristics and marketing behaviour

4.4 Problems faced by onion growers in production, storage and marketing of onion and suggestions to overcome them

a. Personal, socio-economic, psychological and communication characteristics of onion growers

1. Age:

Table 4.1 Distribution of the respondents according to their age group (n= 151)

S. no.	Age group	F	%
1.	Young (up to 35 years)	44	29.13
2.	Middle (36 to 55 years)	77	51.00
3.	Old (56 years and above)	30	19.87
Total		151	100.00

Table 4.1 showed that out of 151 onion growers most of the growers were in middle age group (51.00 %) followed by young age group (29.13 %) while only 19.87 per cent of the growers were in old age group.

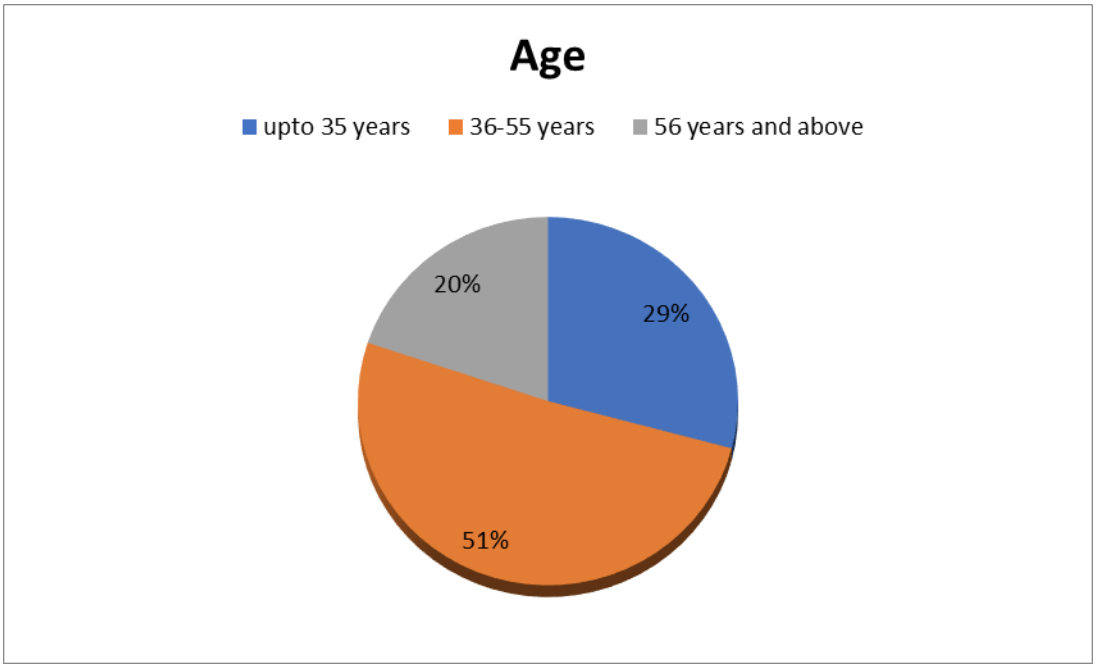

Fig1. Age group of onion growers

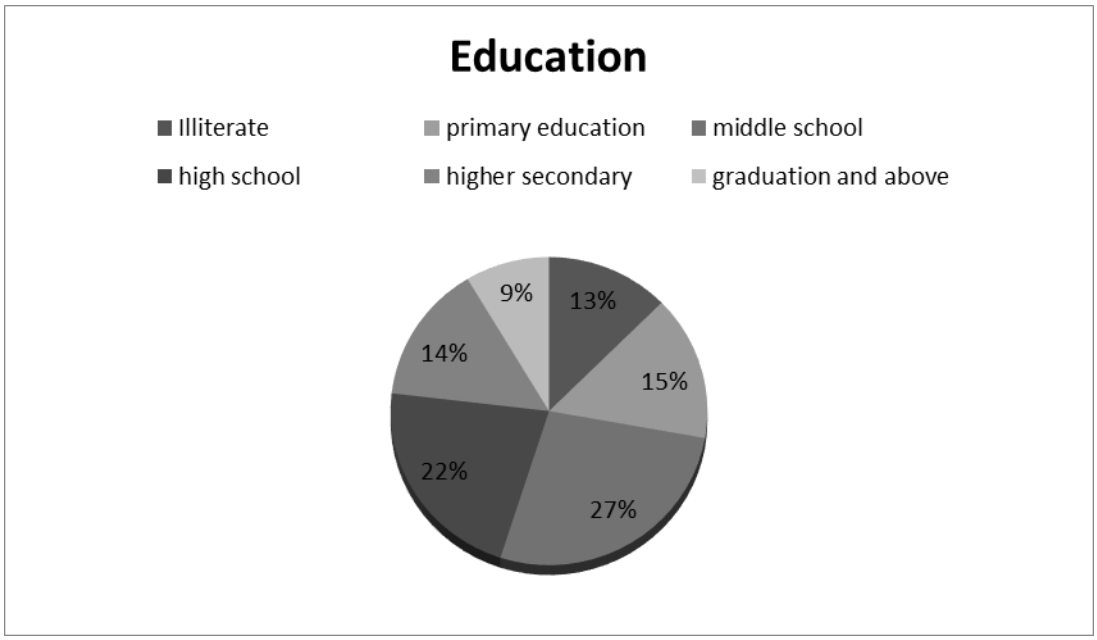

Fig 2. Education level of onion growers

2. Education:

Table 4.2 Distribution of the respondents according to their education level (n= 151)

S. no.	Education	f	%
1.	Illiterate	19	12.58
2.	Primary education	23	15.23
3.	Middle school	41	27.16
4.	High school	33	21.87
5.	High secondary school	22	14.56
6.	Graduation and above	13	08.60
Total		**151**	**100.00**

The education level of onion growers has been presented in table 4.2. The data presented in the table indicates that all the farmers including illiterate to graduation and above level were involved in onion cultivation. However, most of the onion growers had middle school of education (27.16%) followed by high school education (21.87%), Further (15.23%) onion growers had primary school of education,12.58 per cent of the onion growers had illiterate, and 8.60 per cent of the onion growers were having education upto graduation and above.

3. Land holding

Table 4.3 Distribution of the respondents according to land holding

(n= 151)

S. no.	Cultivated area (hac.)	f	%
1.	Marginal land holding (up to 1 ha)	39	25.82
2.	Small land holding(1.01 - 2 ha)	57	37.75
3.	Medium land holding (2.01-4 ha)	43	28.48
4.	Large land holding (above 4 ha)	12	07.95
Total		**151**	**100.00**

It is clearly seen from table 4.3 that 37.74 per cent of the growers had small land holding followed by 28.48 per cent of the growers had medium size of land holding, 25.82 per cent of the growers had marginal size of land holding whereas, only 07.95 per cent of the growers had large size of land holing.

4. Area under onion cultivation

Table 4.4 Distribution of the respondents according to area under onion cultivation

(n= 151)

S. no.	Area under onion cultivation (ha)	f	%
1.	Area up to 0.33 ha	36	23.84
2.	Area 0.34 to 2.06 ha	68	45.03
3.	Area 2.07 ha. and above	47	31.13
4.			
Total		**151**	**100.00**
Mean score = 1.20		**SD= 0.87**	

Table 4.4 shows that 45.03 per cent of the growers had 0.34 to 2.06 ha of area under onion cultivation followed by 31.13 per cent of the growers had 2.07 ha and above and 23.84 per cent of the growers had area up to 0.33 ha under onion cultivation.

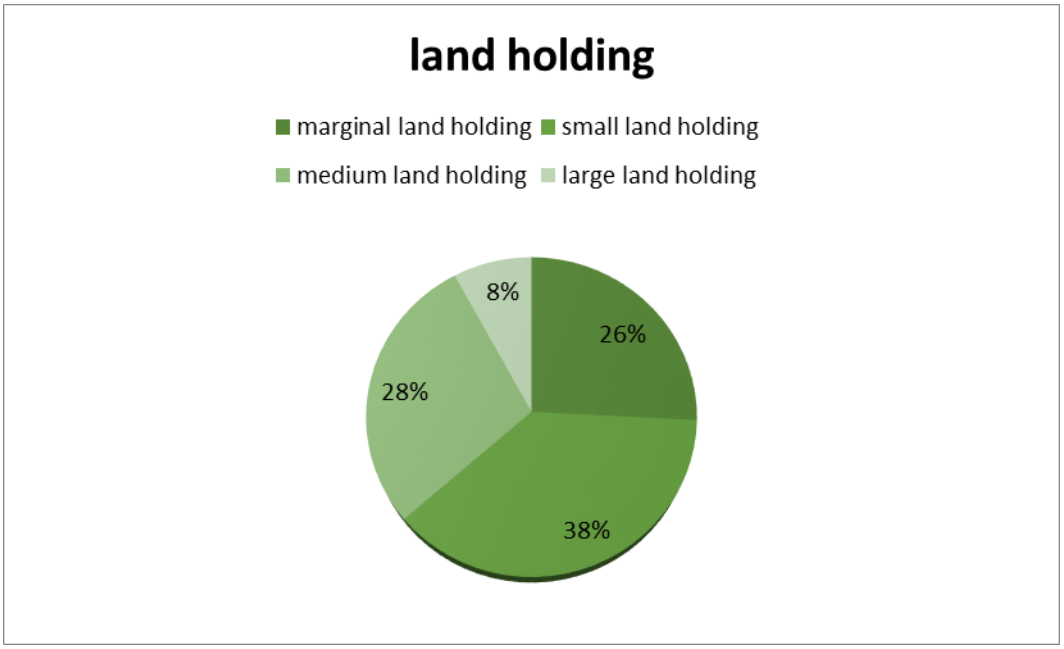

Fig 3 Land and holding of onion growers

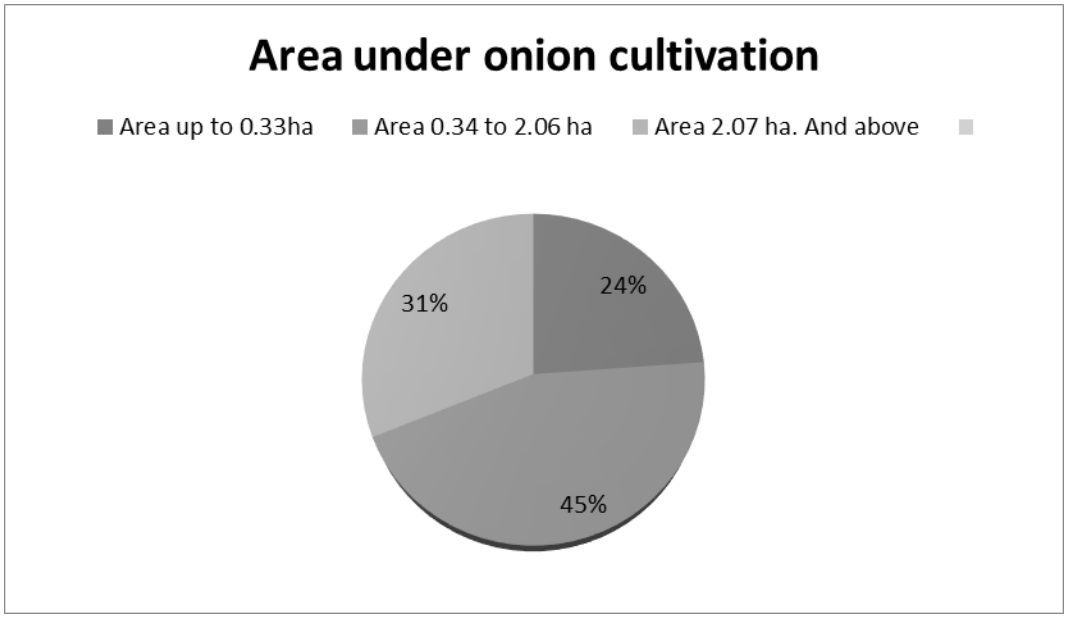

Fig. 4 Area under onion cultivation of onion growers

5. Family size

Table 4.5 Distribution of the respondents according to their size of family (n= 151)

S. no.	Family size	f	%
1.	Small (up to 4 members)	56	37.08
2.	Medium (5-8 members)	68	45.04
3.	Large (9 and above)	27	17.88
Total		**151**	**100.00**
Mean score =6.55 SD=3.02			

Table 4.5 shows that out of 151 onion growers, 45.04 per cent of the growers belonged to medium family size followed by 37.08 per cent of the onion growers had small size of family whereas, and 17.08 per cent of the growers belonged to large size of family group.

6. Income from onion cultivation

Table 4.6 Distribution of the respondents according to their income from onion crop (n= 151)

S. no.	Income (Rs.)	f	%
1.	Iow (up to Rs. 2,60,899)	69	45.69
2.	Medium(Rs.2,60,900 to 4,00,000)	58	38.42
3.	High(Rs.4,00,001and above)	24	15.89
Total		**151**	**100.00**
Mean score = 3,30,450		**SD=69,551**	

Table 4.6 reveals the income of onion growers from onion cultivation and the data shows that 45.69 per cent of the onion growers were having income upto Rs.2,60,899 followed by 38.42 and 15.89 per cent had income Rs. 2,60,900 to Rs. 4,00,000 and more the Rs. 4,00,001 from onion cultivation respectively.

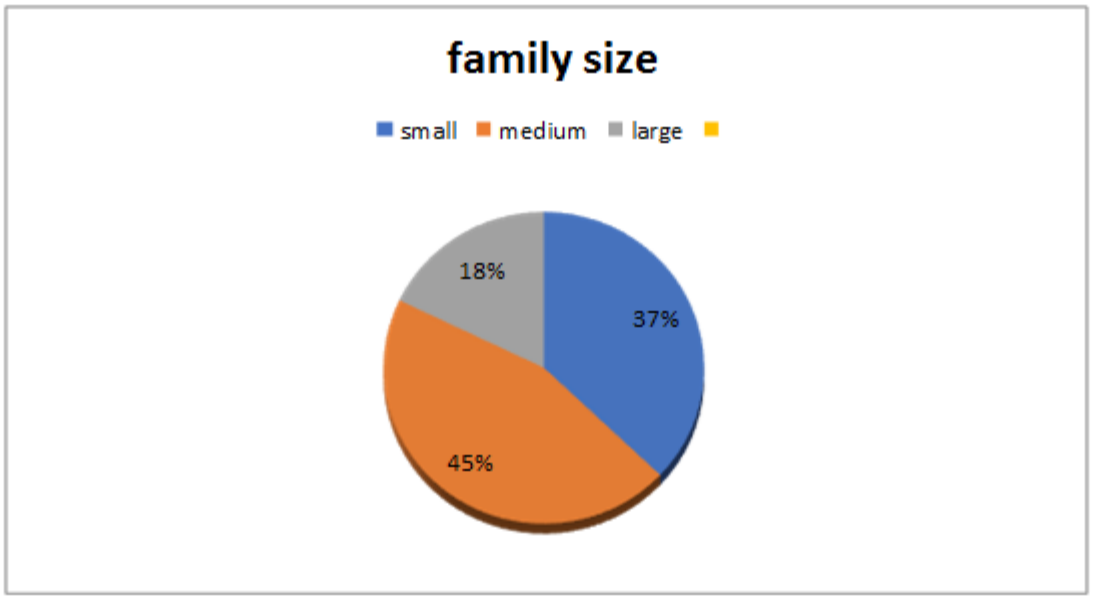

Fig.5 family size of onion growers

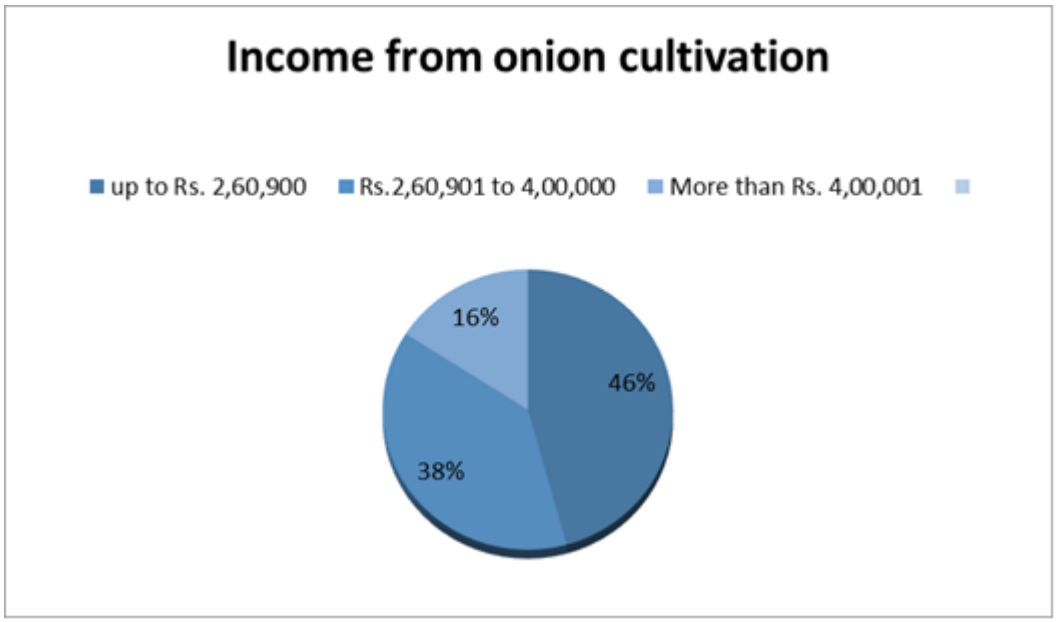

Fig. 6 Income from onion crop

7. Total annual income from agriculture

Table 4.7 Distribution of the respondents according to their total annual income from agriculture

(n= 151)

S. no.	Annual income (Rs.)	f	%
1.	Low (up to Rs. 4, 00,000)	65	43.05
2.	Medium (Rs. 4,00,001 to 9,03,999)	61	40.39
3.	High (More than Rs. 9,04,000)	25	16.56
Total		**151**	**100.00**
Mean score = 6,52,000		**SD= 2,52,000**	

From Table 4.7 it is clearly seen that 43.05 per cent of the onion growers were in the low annual income category followed by 40.39 per cent in medium annual income category whereas, 16.56 per cent in the high annual income category.

8. Experience in onion cultivation

Table 4.8 Distribution of the respondents according to their experience in onion cultivation

(n= 151)

S. no.	Experience categories	f	%
1.	Low (Up to 6 years)	56	37.09
2.	Medium (7 to 19 years)	69	45.69
3.	High (More than 20 years))	26	17.22
Total		**151**	**100.00**
Mean score = 13.19		**SD = 07.30**	

Table 4.8 represented that out of 151 onion growers most of the growers (45.69 %) had medium experience in onion cultivation followed by 37.09 per cent growers had low experience while, 17.22 per cent growers had high experience in onion cultivation.

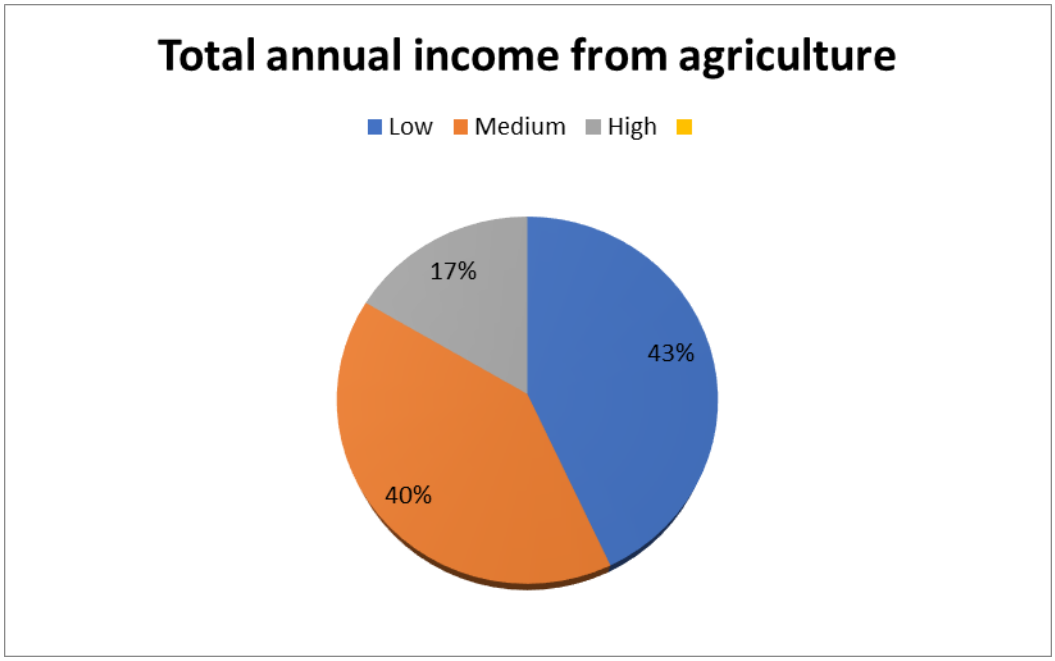

Fig.7 Annual income from agriculture of onion growers

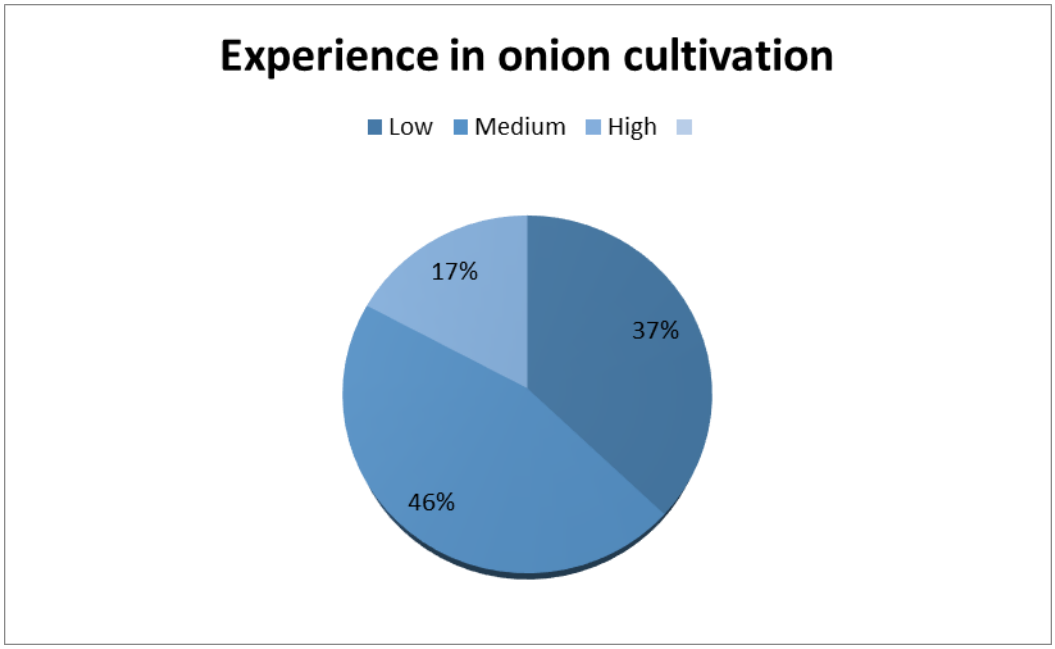

Fig.8 Experience in onion cultivation

9. Social participation

Table 4.9 Distribution of the respondents according to their Social participation (n= 151)

S. no.	Social participation	f	%
1.	Low (up to 12)	63	41.72
2.	Medium (13 to 15)	45	29.80
3.	High (16 and above)	43	28.48
Total		**151**	**100.00**
Mean score = 14.40		**SD=2.13**	

Table 4.9 shows that most of the growers (41.72%) had low social participation followed by 29.08 per cent of the growers had medium social participation and almost same i.e.28.48 per cent of the growers had high social participation.

10. Mass media exposure

Table 4.10 Distribution of the respondents according to their mass media exposure (n= 151)

S. no.	Mass media exposure	F	%
1.	Low (up to 15)	49	32.45
2.	Medium (16 to 20)	73	48.35
3.	High (21 and above)	29	19.20
Total		**151**	**100.00**
Mean score = 18.47		**SD = 3.06**	

Table 4.10 shows that most of the growers (48.35 %) had medium level of mass media participation followed by 32.45 per cent had medium and 19.20 per cent of the growers had high level of mass media exposure.

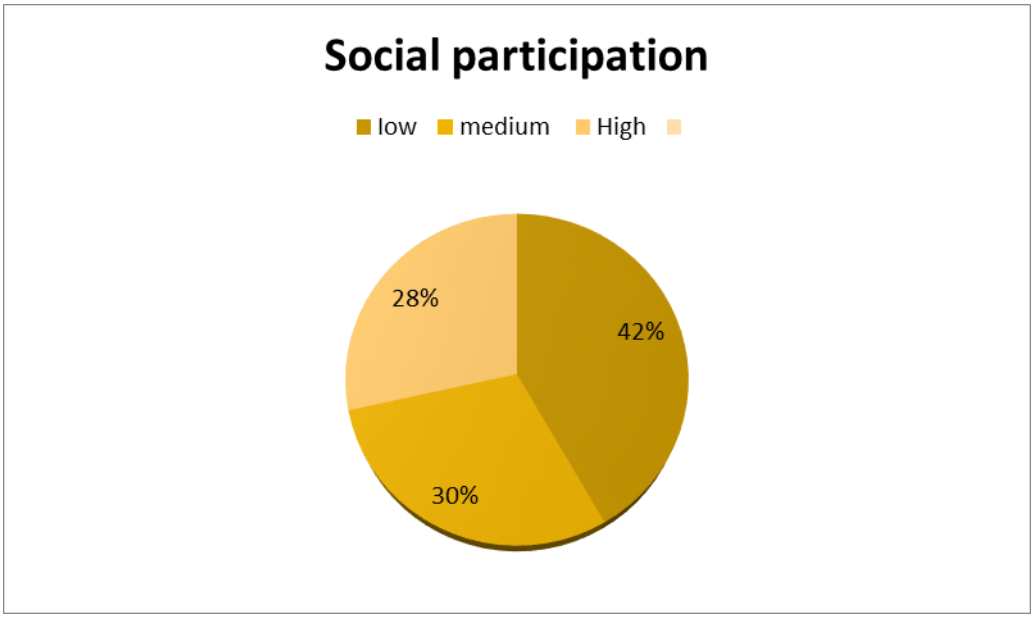

Fig.9 Social participation of onion growers

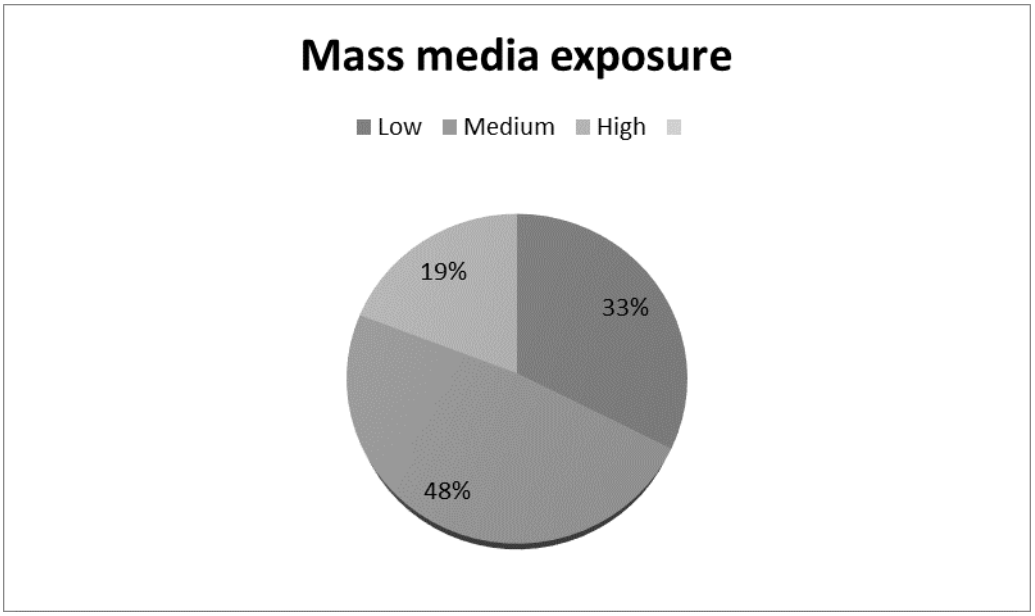

Fig.10 Mass media exposure of onion growers

11. Extension contact

Table 4.11 Distribution of the respondents according to their extension contact

(n= 151)

S. no.	Extension contact	f	%
1.	Low (up to 9)	51	33.77
2.	Medium (10 to 12)	66	43.70
3.	High (13 and above)	34	22.51
Total		**151**	**100.00**
Mean score = 11.07		**SD = 2.06**	

Table 4.11 indicates that most of the growers (43.70%) had medium level of extension contact followed by 33.77 per cent had low and 22.51 per cent of the growers had high level of extension contact.

12. Risk orientation

Table 4.12 Distribution of the respondents according to their risk orientation

(n= 151)

S. no.	Risk orientation	f	%
1.	Low (6 to 14)	63	41.72
2.	Medium (15 to 23)	56	37.08
3.	High (24 to 30)	32	21.20
Total		**151**	**100.00**

Table 4.12 shows that most of the onion growers (41.72 %) had low risk orientation followed by 37.08 per cent had medium risk orientation whereas, 21.20 per cent of the growers had high risk orientation.

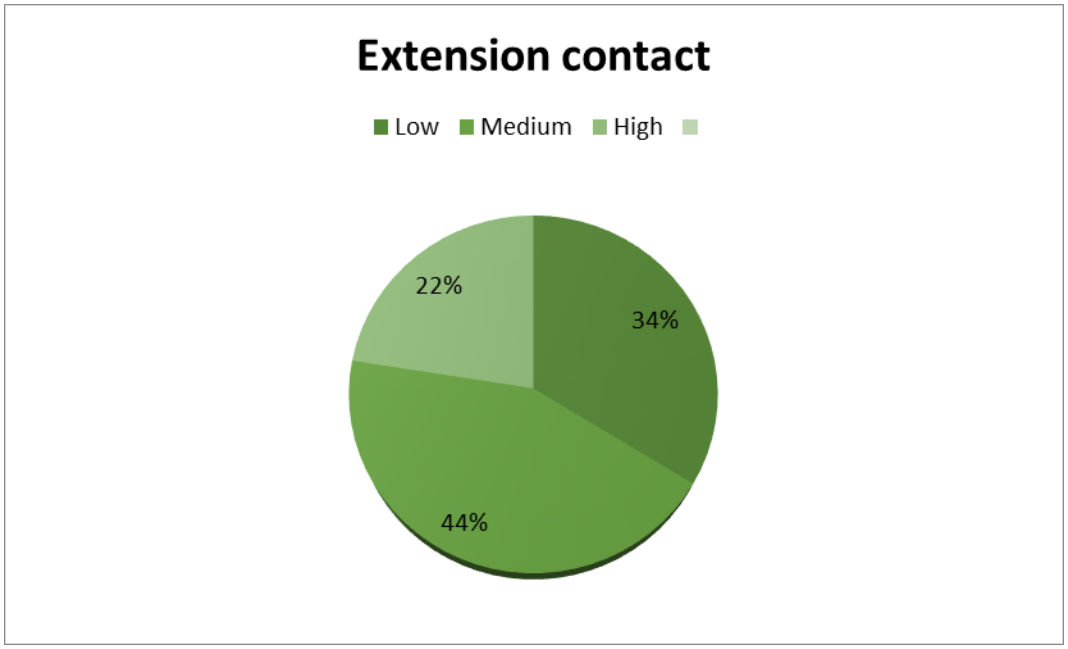

Fig.11 Extension contact of onion growers

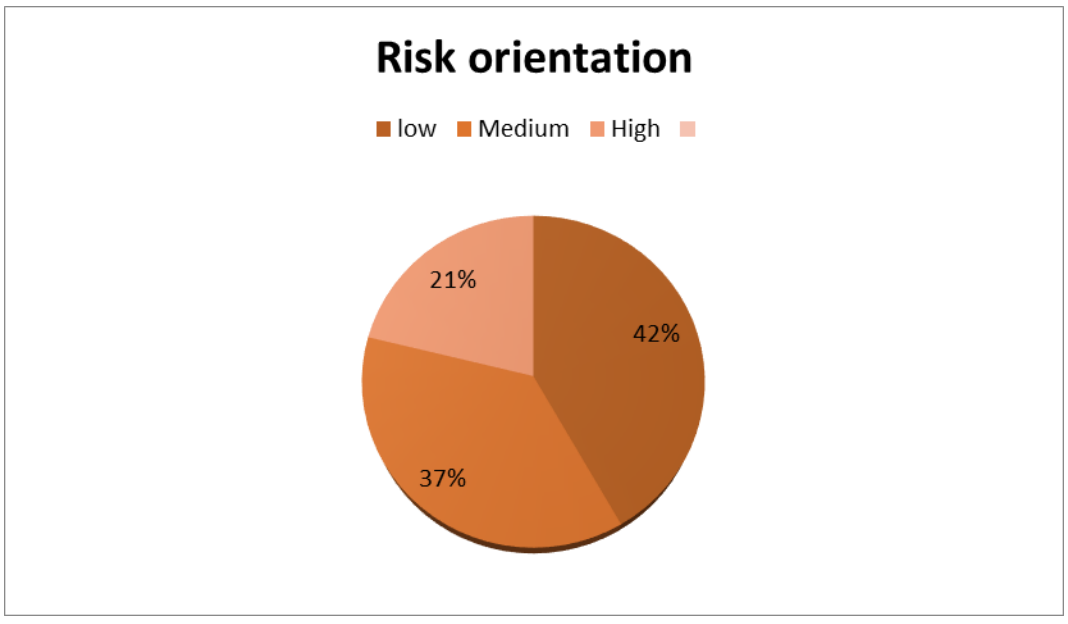

Fig.12 Risk orientation of onion growers

13. Innovativeness

Table 4.13 Distribution of the respondents according to their innovativeness

(n= 151)

S. no.	Innovativeness	f	%
1.	Low (8 to 18)	48	31.78
2.	Medium (19 to 29)	66	43.71
3.	High (30 to 40)	37	24.51
Total		**151**	**100.00**

Table 4.13 represent that out of 151 onion growers 43.71 per cent growers belonged to medium innovativeness category followed by 31.78 per cent of the growers belonged to low innovativeness category and 24.51 per cent growers belonged to high innovativeness category.

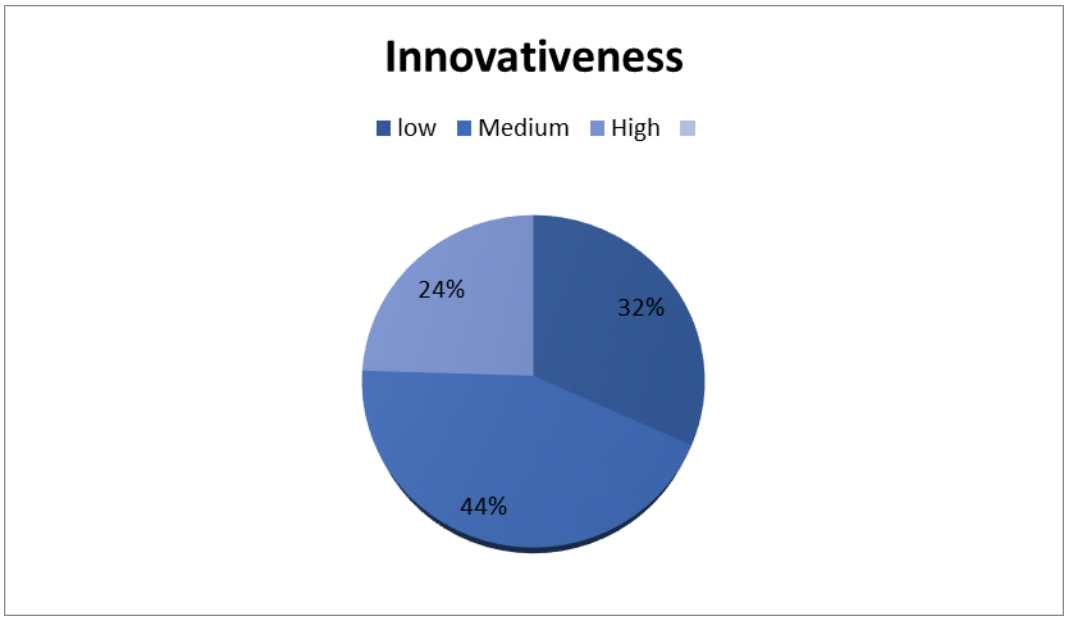

Fig.13 Innovativeness of onion growers

14. Marketing knowledge of onion growers.

Table 4.14 Marketing knowledge of onion growers (n=151)

S. no.	Statements	F*	%	Rank
1.	Aware about APMCs	108	71.52	VI
2.	Aware about price prevailing in the market for onion	100	66.22	VII
3.	Perishable goods will encounter more problems than semi perishables like onion	83	54.96	X
4.	Marketing of onion in APMCs can realize more prices	63	41.72	XIII
5.	Grading of onion fetches high prices	141	93.37	I
6.	Buyer pays the money on the spot	124	82.11	IV
7.	Quantity arrivals of onion in the market affect their prices	59	39.07	XIV
8.	Weighment of commodity in APMCs is correct	89	58.94	IX
9.	Selecting of appropriate marketing channels is first step in marketing of onion	131	86.75	III
10.	Awareness about the representation of farmers in management committee of regulated market	51	33.78	XV
11.	Selling of onion to pre-harvest contractors or village merchant result in realizing lesser price	137	90.72	II

12.	Aware about the share of farmers in the consumer rupee will come down drastically due o many middle men	79	52.31	XI
13.	Aware about the farmers need not to pay the market fee	92	60.92	VIII
14.	Extending the storage period increase the bargaining power	71	47.01	XII
15.	Selling of onion in small quantities will increase the marketing cost / transaction cost	119	78.80	V

**Multiple responses were allowed*

The responses given by onion growers regarding their knowledge on various aspects of marketing of onion are given in Table 4.14. It is clearly seen from the table that 93.37 percent, onion growers agreed that grading of onion fetches high price. About 90 percent (90.72%) of them were of the opinion that selling onion to pre harvest or village merchants resulting in lesser prize, 86.75 percent respondents agreed that selecting of appropriate marketing channel is the first step in marketing of onion, 82.11 percent respondents agreed with the statement that buyer pays the money on the spot, 78.80 percent agreed that selling of onion in small quantities will increase the marketing cost. Further 71.50 percent of the respondents were aware about APMCs, 66.22 percent had knowledge about price prevailing in the market of onion, 60.92 percent were aware that the farmers need not to pay the market fee, 54.96 percent of them agreed that perishable goods will encounter more problems than semi perishable like onion, 52.31 percent were aware that the share of farmers in the consumer rupee will come down drastically due to many middle man, 47.01 percent agreed that extending the storage period increases the bargaining power, 41.72 percent agreed that marketing of onion

in APMC can realize more prices, 39.07 percent agreed that quantify arrivals of onion in the market affect their prices and 33.78 percent of the respondents were aware about the representation of farmers in management committee.

Table 4.15 Distribution of the respondents according to market behaviour knowledge of onion growers (n=151)

S. no.	Categories	f	%
1.	Low (upto 4)	53	35.10
2.	Medium (5 to10)	62	41.06
3.	High (11 and above)	36	23.84
Mean = 8.58		**SD= 3.68**	

Table 4.15 shows the overall marketing knowledge of onion growers. The findings revealed that 41.06 per cent of the growers had medium marketing knowledge followed by 35.10 per cent growers had low marketing knowledge whereas, 23.84 per cent of the respondents had high marketing knowledge.

b. Marketing behaviour of onion growers

Table 4.16 Distribution of the onion growers according to marketing behavioiur

SN	Aspects	Categories	f	%
1	Time of selling	a)Immediately after harvest	85	56.29
		b)After initial storage	36	23.84
		c) Whenever the prices are favourable	30	19.86
2	Selling place	a) Local market / in subji mandi	88	58.27
		b) Nearby APMC	44	29.13
		c) Distant market / Terminal market	19	12.58

3	Selling form	a) Raw b) Processed	95 56	62.91 37.09
4	Grading	a) Always b) Sometimes c) Never	72 54 25	47.68 35.76 16.56
5	Agencies chosen for selling	a) Village level traders b) Wholesalers c) Traders through cooperative society d) Commission agent	60 52 25 15	39.5 34.3 16.4 9.8
6	a) Selling counseling	a) Always b) Sometimes c) Never	84 52 15	55.62 34.44 9.94
7	Transport	a) Bullock cart b) Cycle c) Two wheeler d) Bus lorry ,tempo etc	24 28 57 42	15.89 18.54 37.75 27.82
8	Selling terms and condition	a) Ready cash b) Not ready cash	69 82	45.69 54.30
9	Market rate per quintal	a) Satisfied b) Not satisfied	67 84	44.38 55.62
10	Number of times onion sold	a) One time b) Two times c) Three times	62 52 37	41.05 34.43 24.52

It is clearly evident from the Table 4.16 that the 56.29 per cent of the onion growers sell their produce immediately after harvest followed by 23.84 per cent of them sell their produce of onion after initial storage and 19.86 per cent of onion growers sell onion whenever price is high.

Regarding selling place, it is found that 58.27 per cent of onion growers sold the onion in local market / in subji mandi, followed by 29.13 per cent of onion growers sold the onion in nearby APMC and 12.58 per cent of onion growers sold the onion in distant market/ terminal market.

It is clearly seen from the table 4.16 that 62.91 per cent of onion growers sold onion produce in raw form, followed by 37.09 per cent of onion growers sold the onion in processed form.

The data shows that 47.68 per cent onion growers always grade the onion followed by 35.76 per cent of them grade sometimes and 16.56 per cent onion growers never grade their onions.

Further, 39.5 per cent of onion growers sold the produce through village level traders, followed by 34.3 per cent of through Wholesalers, 16.4 per cent of them sold to Traders through cooperative society and 9.8 per cent of them sold the produce through commission agents.

As far as selling counselling is concerned, 55.62 per cent of the onion growers were in the practice of selling counseling always, followed by 34.44 per cent sometimes and 9.94 per cent onion growers never were in the practice of adopting selling counseling.

The data reveals that 37.75per cent of onion growers transport the onion through two wheelers followed by 27.82 per cent of them transport by bus lorry and tempo, 18.54 per cent of them transported through cycle and 15.89 per cent of them market the produce through bullock cart.

Further, data shows that most of the onion growers (54.30%) not received ready cash, followed by 45.69 per cent of onion growers received ready cash after selling their produce.

It is evident from the table that most (55.62%) of the onion growers not satisfied with the rates set by the market for onion whereas 44.38 per cent of onion growers were satisfied with market rate of onion.

it is clearly seen that 41.05 per cent onion growers sold one crop of time followed by 34.43 per cent of them two times and 24.52 per cent onion growers sold their onion crops three times in a year.

Table 4.17 Distribution of onion growers according to overall marketing behaviour (n=151)

S. no.	Categories	f	%
1.	Low (up to 16)	52	34.44
2.	Medium (17 to19)	62	41.06
3.	High (20 and above)	37	24.50
Mean= 18.44		**SD= 2.18**	

Table 4.17 shows the overall marketing behaviour of onion growers. The table revealed that majority of the growers (41.06 %) had medium marketing behaviour followed by 34.44 per cent of the growers had low marketing behaviour and 24.50 per cent of the growers had high marketing behaviour.

4.3 Relationship between profile characteristics and marketing behaviour

Table 4.18 Correlation between profile characteristics and marketing behaviour

S. no.	Independent variables	Correlation coefficient
1.	Age	-0.194^{NS}
2.	Education	0.391**
3.	Land holding	0.098^{NS}
4.	Area under onion cultivation	0.246*
5.	Family size	0.249*

6.	Income from onion cultivation	0.223*
7.	Total annual income from agriculture	0.325*
8.	Experience in onion cultivation	0.122**
9.	Social participation	0.359**
10.	Mass media exposure	0.384**
11.	Extension contact	0.129**
12.	Risk orientation	0.384*
13.	Innovativeness	0.221**
14.	Marketing knowledge	0.324*

NS: Non –significant

* Significant at 0.05 level

** Significant at 0.01 level

The results in table 4.18 exhibit the relationship between independent and dependent variables.

Marketing behaviour vs age

The correlation coefficient ('r' = 0.194) between age and marketing behaviour of onion growers was less than the table value at 0.05 % level of significance. Hence, the null hypothesis was accepted and it could be concluded that there was a non significant relationship between age and marketing behaviour of onion growers.

Marketing behaviour vs education

The correlation coefficient ('r' = 0.391) between education and marketing behaviour of onion growers was more than the table value at 0.01 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between education and marketing behaviour of onion growers.

Marketing behaviour vs land holding

The correlation coefficient ('r' = 0.098) between cultivation area and marketing behaviour of onion growers was less than the table value at 0.05 %

level of significance. SHence, the null hypothesis was accepted and it could be concluded that there was a non-significant relationship between land holding and marketing behaviour of onion growers.

Marketing behaviour vs total area under onion cultivation

The correlation coefficient ('r' = 0.246) between cultivation area under onion cultivation and marketing behaviour of onion growers was more than the table value at 0.05% level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between cultivation areas under onion cultivation and marketing behaviour of onion growers.

Marketing behaviour vs family size

The correlation coefficient ('r' = 0.249) between family size and marketing behaviour of onion growers was more than the table value at 0.05 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between family size and marketing behaviour of onion growers.

Marketing behaviour vs income from onion cultivation

The correlation coefficient ('r' = 0.223) between income from onion cultivation and marketing behaviour of onion growers was more than the table value at 0.05 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between income from onion and marketing behaviour of onion growers.

Marketing behaviour vs total annual income

The correlation coefficient ('r' = 0.325) between annual income and marketing behaviour of onion growers was more than the table value at 0.05% level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between annual income and marketing behaviour of onion growers.

Marketing behaviour vs experience in onion cultivation

The correlation coefficient ('r' = 0.122) between experience and marketing behaviour of onion growers was more than the table value at 0.01 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between experience and marketing behaviour of onion growers.

Marketing behaviour vs social participation

The correlation coefficient ('r' = 0.359) between social participation and marketing behaviour of onion growers was more than the table value at 0.01 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between social participation and marketing behaviour of onion growers.

Marketing behaviour vs mass media

The correlation coefficient ('r' = 0.384) between family size and marketing behaviour of onion growers was more than the table value at 0.01 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between mass media and marketing behaviour of onion growers.

Marketing behaviour vs extension contact

The correlation coefficient ('r' = 0.129) between extension contact and marketing behaviour of onion growers was more than the table value at 0.01 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between extension contact and marketing behaviour of onion growers.

Marketing behaviour vs risk orientation

The correlation coefficient ('r' = 0.384) between risk orientation and marketing behaviour of onion growers was less than the table value at 0.05 % level of significance. Hence, the null hypothesis was accepted and it could be concluded that there was a significant relationship between risk orientation and marketing behaviour of onion growers.

Marketing behaviour vs innovativeness

The correlation coefficient ('r' = 0.221) between innovativeness and marketing behaviour of onion growers was more than the table value at 0.01 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between innovativeness and marketing behaviour of onion growers.

Marketing behaviour vs marketing knowledge

The correlation coefficient ('r' = 0.324) between marketing knowledge and marketing behaviour of onion growers was more than the table value at 0.05 % level of significance. Hence, the null hypothesis was rejected and it could be concluded that there was a significant relationship between marketing knowledge and marketing behaviour of onion growers.

4.4 Problems faced by onion growers in production, storage and marketing of onion and suggestions to overcome them:

4.4.1 Problems faced by onion growers in production, storage and marketing of onion

Table 4.19 Problem faced by onion growers

S. no.	Problems	f*	%	Rank
	Production related problems			
1.	Unavailability of inputs	143	94.70	I
2.	No knowledge about improved onion production technology	118	78.15	II
3.	Unavailability of irrigation facilities	106	70.20	III
4.	Limited and irregular power supply	93	61.59	IV
5.	Unavailability of labour	84	55.62	V
	Marketing problem			

1.	High cost of transportation	146	96.68	I
2.	Delayed cash payment	139	92.05	II
3.	Fluctuation in prices of commodities	121	80.13	III
4.	Exploitation of the middle men	115	76.15	IV
5.	High commission charges	104	68.88	V
6.	Inaccurate weighing instruments	96	63.57	VI
7.	Prolonged transaction	80	52.98	VII
8.	Lack of marketing information	76	50.33	VIII
9.	Malpractices adopted in market	63	41.72	IX
	Storage problems			
1.	Absence of storage facilities	138	91.39	I
2.	Lack of knowledge about handling	116	76.82	II
3.	Costly storage facilities	89	58.94	III

**Multiple responses were allowed.*

Table 4.19 presents the data regarding constraints faced by the onion growers in production, storage and marketing of onion.

Regarding production related problem, majority of the onion growers faced unavailability of inputs (94.70 %) followed by no knowledge about improved onion production technology (78.15 %), unavailability of irrigation facilities (70.20 %), limited and irregular power supply (61.59 %), unavailability of labour (55.62 %).

As far as marketing problems are concerned majority of the onion growers faced high cost of transportation (96.98 %) followed by delayed cash payment (92.05 %), fluctuation in prices of commodities (80.13 %), exploitation of the middle men (76.15 %), high commission charges (68.88 %), inaccurate weighing instruments (63.57 %), prolonged transaction (52.98 %), lack of marketing information (50.33 %) and malpractices adopted in market (41.72 %).

Among storage problems, 91.39 percent reported absence of storage facilities as major constraint facilities followed by lack of knowledge about handling (76.82 %), and costly storage facilities (58.94 %).

4.4.2 Suggestion given by onion growers to overcome problem

Table 4.20 Suggestion given by the onion growers to overcome problem

S. no.	Suggestions	Frequency	Per cent	Rank
1.	More procurement centers at nearby place	139	92.05	I
2.	Providing support price policy for the produce	106	70.20	III
3.	Providing concessional transportation charges	93	61.58	IV
4.	Providing loading and boarding facilities at market place	64	42.38	VI
5.	Timely availability of input	121	80.13	II
6.	Capacity building programme on improved onion production technologies	79	52.31	V

Table 4.20 presents the suggestions given by the farmers to overcome constraints. The results shows that most of the onion growers suggested “more procurement centers at nearby place (92.05 %)”, “timely availability of input (80.13%)”, “providing support price policy for the produce (70.20%)”, “providing concessional transportation charges (61.58%)”, “Capacity building programmes on improved onion production technologies (52.31%)”, and “providing loading and boarding facilities at market place (42.38 %)”.

DISCUSSION

The main findings of the study have been discussed in this chapter to draw generalization. The discussion has been presented under the following headings.

5.1 Personal, socio-economic, psychological and communication characteristics of onion growers.

5.2 Marketing knowledge and marketing behaviour of onion growers.

5.3 Relationship between profile characteristics and marketing behaviour.

5.4 Problems faced by onion growers in production, storage and marketing of onion and suggestions to overcome them.

5.1 Personal, socio-economic, psychological and communication characteristics of onion growers

Age:

The results revealed that maximum percentage i.e. 51.00 per cent of the respondents were in middle age group followed by young age group (29.13%) while 19.87 per cent of the growers were in old age group. The probable reason for majority of the respondents being under middle age category might be due to the fact that most of the young people are not interested in farming and are looking for better livelihood options in urban area. This finding is supported by Agrawal (2013) and Patel (2015).

Education

In study area, most of the growers i.e. 27.16 per cent were passed from middle school of education followed by high school (21.87%), whereas14.56 per cent growers had education upto high secondary, 15.23 per cent growers were passed upto primary school, 12.58 per cent of the growers were illiterate, 8.60 per cent of the growers were having education upto graduation and above. The reason behind it was that farmers believed that getting good education will help prosper in future. This might be due to

the fact that farmers have easy access to schools and realization of importance of formal education in the present situation is also very high. This findings is supported by Kalaiselvi (2020).

Land holding

most (37.75%) of the growers had small land holding followed by 28.48 per cent of the growers had medium size of land holding, 25.82 per cent of the growers had marginal size of land holding whereas, only 7.95 per cent of the growers had large size of land holding. This could be accredited to legacy of land from their ancestors who might have transferred from generation to generation. These findings are more or less similar to findings of Patel (2015).

Area under onion cultivation

The result revealed that, 45.03 per cent of the growers had area 0.34 to 2.06 ha under onion cultivation followed by 31.13 per cent of the growers had area 2.07 ha and above, 23.84 per cent of the growers had area up to 0.33 ha under onion cultivation. These findings are more or less similar to findings of Agarwal (2013), Tagore (2017) and Baraker *et al.* (2021).

Family size

It can be concluded that in study area, most of the respondents (45.04%) belonged to medium family size group followed by 37.08 per cent of the onion growers belonged to small size of family group whereas, only 17.88 per cent of the growers were found who belonged to big size of family group. The possible cause behind this finding could be that middle aged and old aged people prefer to live in joint family and young family prefers nuclear type family, further comprehension of advantages of joint family in terms of running the family farm duties and crop production activities might have been practicing at large and medium family size. These findings of the present study are in conformity with the findings of Shukla and singh (2018).

Income from onion cultivation

The results of the study shows that considerable i.e. 45.69 per cent of the onion growers were in the range of low annual income (upto Rs. 260900)

categories followed by 38.42 per cent in medium annual income (Rs 260901-400000) categories whereas, only 15.89 per cent in the high annual income (Rs. 400001) categories. The credible reasons might be that average productivity and necessity for selling to get money, less prices for their produce, and small size of land holding.

Total annual income from onion cultivation

Regarding annual income from onion cultivation, it was found that 43.05 per cent of the onion growers were in the range of low annual income categories followed by 40.39 per cent in medium annual income categories whereas, only 16.56 per cent in the high annual income categories. The probable reason might be the small size of land holding and only 0.34 to 2.06 ha of area under onion cultivation.

Experience in onion cultivation

In study area, out of 151 onion growers most of the growers (45.69%) had medium experience in onion cultivation followed by 37.09 per cent growers had low experience while, 17.22 per cent growers had high experience.

Social participation

Majority of the respondents i.e. 41.72 per cent had low social participation followed by 29.80 per cent of the growers had medium social participation and almost same 28.48 per cent of the growers had high social participation. The participation in the social activities provides opportunities for contrived experiences and sources of improved agricultural practices prevailing in the region or locality. The possible reason for above trend might be due to enthusiasm of respondents in solving their problems with social workers and also less attention due to lack of time to participate social activities to gather recent information and to learn about practical utility of the new technology from extension workers. However, the results of medium category are in consonance with Baraker *et al.* (2021).

Mass media exposure

As per the results, most of the respondents 48.35 per cent had medium level of mass media participation followed by 32.45 per cent had low and 19.20 per cent of the growers had high level of mass media participation. Mass media helps to update the newest developments in different fields including agriculture and possess the massive potential to be associates for change and improvement agriculture. The findings of this study is on par with the findings of Baraker *et al.* (2021).

Extension contact

Data showed that 43.70 per cent of the respondents had medium level of extension contact followed by 33.77 per cent had low level and 22.51 per cent of the growers had high level of extension contact. Different sources of information, influence the knowledge and perception of the individuals towards any farming system and farming experience thus influencing extension contact. Extension contact results in determined action which is largely conditional upon an individual's belief in his capability to carry out that action correctly and/or effectively and thus, he/she contacts various departmental officials to seek more information, to clarify the doubts pertaining to improving farming practices. The findings of this study is on par with the findings of Agrawal (2013) and Baraker et al. (2021).

Risk orientation

In study area, most of the respondents i.e. 41.72 cent had low risk orientation followed by 37.08 per cent had medium whereas, 21.20 per cent of the onion growers had high risk orientation. The risk bearing capacity of individuals depend upon the personal, psychological and socio-economic characteristics.

Innovativeness

It can be concluded that 43.51 per cent of onion growers were found who had belonged to medium innovativeness followed by 31.78 per cent of the growers belonged to low innovativeness categories whereas, 24.51 per

cent growers belonged to high innovativeness category**.** This also may be attributed to the fact that majority of the respondents had majority of the respondents (87.42%) had formal education and also most of the respondents were having medium level of extension contact. Generally, higher the formal education level, more favorable will be the attitude towards innovations. In such conditions, respondents try to seek more information and try out new ideas and technologies within their budget and limits and also farmers who are prone to innovations will try to gather information regarding the new technology from various aspects, they wanted to learn new ways of farming, improved cultivation practices and adopt those technologies at faster rate. Similar findings were reported by Agarwal,(2013) and Jangwad et al. (2021).

Marketing knowledge

Results indicate that 93.37 per cent of the respondents had higher knowledge in case of Grading of onion fetches high prices followed by Selling of onion to pre-harvest contractors or village merchant result in realizing (90.72%), Selecting of appropriate marketing channels is first step in marketing of onion (86.75%), Buyer pays the money on the spot (82.11%), Selling of onion in small quantities will increase the marketing cost / transaction cost (78.80%), Awareness about APMCs (71.52%), Awareness about price prevailing in the market for onion (66.22%), Aware about no need to pay the market fee (60.92%), Weighment of commodity in APMCs is correct (58.94%), Perishable goods will encounter more problems than semi perishable (54.96%), Aware about the share of farmers in the consumer rupee will come down drastically due to many middle men (52.31%), Extending the storage period increase the bargaining power (47.01%), Marketing of onion in APMCs can realize more prices (41.72%), Quantity arrivals of onion in the market affect their prices (39.07%) and lowest was Awareness about the representation of farmers in management committee of regulated market (33.78%).

Overall marketing knowledge of onion growers

Most of the respondents i.e. 41.06 percent had medium marketing knowledge followed by 35.10 per cent had low marketing knowledge and 23.84 per cent of the growers had high level of marketing knowledge.

Majority of the respondents educated up to high school and when analysis of communication characteristics was made, majority of respondents had medium level of mass media exposure and extension contact. These factors might have contributed more for possession of medium level of knowledge of onion cultivation practices.

The present findings were in accordance with the results reported by Yashodhara *et al.* (2012) and Kalaiselvi (2020).

5.2 Marketing behaviour of onion growers

The results presented in Table 4.17, shows that considerable percentage (41.06%) of the onion growers belongs to medium level of marketing behaviour category. Whereas,34.44 per cent and 24.50 per cent of the respondents belonged to low and high marketing behaviour categories, respectively. The probable reason for these results may be having formal schooling, medium level of mass media participation, medium level of extension contact of the onion growers. These results are supported by the study of Yashodhara et al. (2012).

5.3 Relationship between profile characteristics and marketing behaviour

Study shows that independent variables like i.e. area under onion cultivation, family size, income from onion cultivation, total annual income from agriculture, marketing knowledge, and risk orientation were significantly correlated with marketing behaviour of onion growers at 5 per cent level of significance. Whereas education, experience in onion cultivation, social participation, mass media, extension contact, and innovativeness were positively and significantly related with marketing behaviour of onion

growers at 1 per cent level of significance. Further, Age and Land holding exhibits non-significant relationship with marketing behaviour of onion growers.

Education of onion growers has significant relation with marketing behaviour of onion growers. This might be due to fact that formal education would help in widening their mental horizon and facilitate learning by developing a favourable attitude towards onion cultivation. It is also true that rationality in decision-making is a function of one's educational level and for adoption of any innovation, decision making is a key component.

Extension contact of onion growers had a significant relation with marketing behaviour of onion growers. The participation in extension activities provide the opportunities for contrived experiences and serve as reinforcement in gaining knowledge among farmers to explore possibilities of marketing of their produce to get better price.

There was significant relationship between mass media exposure and marketing behaviour of onion growers. It is natural that mass media provide variety of information to farmers on various aspects of agriculture sector. Farmers who exposed adequately to mass media might have influenced by it.

The annual income and marketing behaviour of onion growers exhibited positive and significant relationship. Since most of the respondents were in medium annual income category, this could be the possible reason for significant relationship between annual income and adoption level of onion growers.

There was a significant relationship between social participation and marketing behaviour of onion growers. The probable reason could be that the participation in social organizations ensures timely and adequate inputs, advices, etc. needed for effective marketing of produce.

Other independent variables such as age and land holding exhibited non-significant relationship with marketing behaviour of onion growers. The possible reason could be that possession of these characteristics need not have any relation with the marketing behaviour of onion growers.

5.4 Problems faced by onion growers in production, storage and marketing of onion and suggestions to overcome them:

5.4.1 Problems faced by onion growers in production, storage and marketing of onion:

Majority of the onion growers faced Unavailability of inputs (94.70%) followed by no knowledge about improved onion production technology (78.15%), unavailability of irrigation facilities (70.20%), limited and irregular power supply (61.59%) and unavailability of labour (55.62 per cent).

Marketing problem:

Majority of the onion growers faced high cost of transportation (96.98%) followed by delayed cash payment (92.05%), fluctuation in prices of commodities (80.13%), exploitation of the middle men (76.15%), high commission charges (68.88%), inaccurate weighing instruments (63.57 per%), prolonged transaction (52.98%), lack of marketing information (50.33%) and last one was malpractices adopted in market (41.72%).

Storage problems:

Majority of the onion growers faced absence of storage facilities (91.39%) followed by lack of knowledge about handling (76.82%) and costly storage facilities (58.94%).

5.4.2 Suggestions to overcome problems:

The results revealed that most of the onion growers suggest more procurement centers at nearby place (92.05%) followed by timely availability of input (80.13%), providing support price policy for the produce (70.20%), providing concessional transportation charges (61.58%), capacity building programme on improved onion productions technology (52.31%) and providing loading and boarding facilities at market place (42.38%).

SUMMARY, CONCLUSION AND SUGGESTIONS FOR FUTURE WORKS

6.1 SUMMARY

Agriculture plays a significant role in Indian economy as it constitutes 17-18% to country's GDP in 2018. The agriculture sectors meet up the food requirement in the country by taking much effort on production of almost all agricultural produces. In vegetables, onion plays a vital role in Indian and foreign cuisine. Without onion there is no dish prepared and completed in Indian food. However, India stands in the second place in production of onion with 20% of share in the world production next to China. The share of onion production among major growing states includes Maharashtra (43%), Madhya Pradesh (15.20%), Karnataka (8.47%), Rajasthan (5.80 %) and Gujarat (4.63%). It occupies an area of 1.24 million ha. with a production of 26.85 million tones in India. (Horticulture Statistics Division, 2020). The area under onion crop production is 4082.90 thousand tonnes in Madhya Pradesh. Indore district stand 13150.00 hectare area and production is 420670.00 tonnes in 2018-2019.

The present study entitled “Marketing behaviour of onion growers in Indore District of Madhya Pradesh” was taken up with the following objectives

1. To study the personal, socio-economic, psychological and communication characteristics of onion growers
2. To ascertain the marketing knowledge and marketing behaviour of onion growers
3. To examine the relationship between profile characteristics and marketing behaviour
4. To analyze the problems faced by onion growers in production, storage and marketing of onion and suggestions to overcome them

The study was conducted in Indore district of Madhya Pradesh because it is one of the largest onion producing districts in the state. Indore district comprises of four blocks namely Indore, Mhow, Sanwer and Depalpur, out of only one block i.e. Mhow was selected because of having maximum number of onion growers. The block comprises of 174 villages, of which only two villages i.e. Datoda and Harsola were selected based on based on maximum number onion growers. From the selected two villages, 5 per cent of the respondents were selected randomly for the present investigation. Thus, the total numbers of selected respondents were 151.

Primary data was collected through a well- structured interview schedule; the data were presented in the form of table, figures and graphs. The data was analyzed by the use of appropriate statistical tools like percentage, frequency, mean, standard deviation and correlation coefficient.

6.2 Conclusion

The conclusion of the present study is presented below considering the objectives of the study.

6.2.1. The profile characteristics onion growers

1. More than half of the onion growers i.e., 51.00 per cent belonged to middle age group (36 to 55 year).
2. With regard to education, 27.87 per cent of the onion growers were formally educated up to high school.
3. Regarding land holding, most (37.75%) of the onion growers had small land holding (1.01- 2 ha).
4. The higher percentage of onion growers i.e., 45.03 per cent had sown onion in area in between area 0.34 to 2.06 ha.
5. The higher percentage of onion growers (45.04%) had medium (5-9 members) family size.
6. The higher percentage of onion growers i.e., 45.69 per cent had low income from onion cultivation.

7. In case of annual income, most of the onion growers (43.05%) were having low annual income (Rs.4,00,000).
8. In case of experience in onion cultivation, 45.69 per cent the onion growers come under medium experience categories (6 to 20 year).
9. The higher percentage of onion growers i.e., 41.72 per cent had low level of social participation.
10. Maximum percentage of onion growers (48.35%) had medium level of mass media.
11. The higher percentage of onion growers i.e., 43.70 per cent had medium level of extension contact.
12. Further, 41.72 per cent of the onion growers were having low level of risk orientation.
13. In case of innovativeness, most of the onion growers i.e., 43.71 percent had medium innovativeness.
14. The higher percentage of onion growers (41.06%) possessed medium level of marketing knowledge.

6.2.2. Marketing behaviour of onion growers:

Marketing behavior of the onion growers was measured on ten parameters i.e. time of selling, selling place, selling form, grading, agencies chosen for selling, selling counseling, transport, selling terms and condition, marketing rate per quintal and number of times onion sold.

1) Most of the onion growers i.e., 56.29 per cent sold onion immediately after harvest.
2) About 60 per cent (58.27%) of onion growers prefer to sold the onion in local marke/in subji mandi.
3) Maximum percentage i.e. 62.91 cent per cent of onion growers sold the onion produce in raw form.
4) Regarding grading of onion, 47.68 per cent onion growers always grade the onion before marketing followed by 35.76 per cent of onion

growers sometimes and 16.56 per cent of onion growers never grade the onion before marketing.

5) About 40 per cent (39.5%) of the onion growers marketed their onion through village level traders, followed by 34.3 per cent of them marketed through wholesalers.
6) More than half i.e., 55.62 per cent of the onion growers adopted selling counseling always, followed by 34.44 per cent of the onion growers adopted selling counseling sometimes.
7) Further, 37.75 per cent of onion growers transport the onion produce through two wheeler.
8) Maximum percentage of the onion growers (54.30 %) not received ready cash, followed by 45.69 per cent of onion growers received ready cash after selling their onion produce.
9) Most (55.62 %) of the onion growers were not satisfied with marketing rate and only 44.38 per cent onion growers were satisfied with the marketing rate of onion.
10) AS far as number of times onion sold is concerned, 41.05 per cent of onion growers sell their produce of onion one time, followed by 34.43 per cent of onion growers sell their produce two times and 24.52 per cent of onion growers sell their produce of onion three times.
11) The overall marketing behaviour of onion growers was found to be medium level.

6.2.3. Relationship between socio- economic, communication and psychological characteristics of beneficiaries

The results revealed that 06 variables viz., area under onion cultivation, family size, income from onion cultivation, total annual income from agriculture, marketing knowledge, and risk orientation were significantly correlated with marketing behaviour of onion growers at 5 per cent level of significance. Further 06 variables viz., education, experience in onion cultivation, social participation, mass media, extension contact, and innovativeness were

positively and significantly related with marketing behaviour of onion growers at 1 per cent level of significance. Whereas 02 variables i.e., age and land holding exhibits non-significant relationship with marketing behaviour of onion growers.

6.3 Suggestions for future research

1. The present study was carried out in only one district of the state. So it needs to be replicated on larger samples covering all the onion growing of Indore. So that the inferences drawn can be generalized to a greater extent.
2. The focus of this investigation was only marketing behavior, knowledge and problems faced by onion growers, hence study may be taken up on other, important aspects like possibilities of export market and communication behaviour of onion growers.
3. The present study has been restricted to onion growers and few villages with selected objectives due to limitation of time of research. Hence, there is need to study on major vegetable crop growers in Indore.

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शोध समस्या का शीर्षकः–मध्य प्रदेश के इंदौर जिले में प्याज उत्पादकों का विपणन व्यवहार।

परामर्शकर्ता

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शोध अवधि 2021–22

प्रारंभिक जानकारी

खण्ड (अ)

कृषक का नाम..... पिता का नाम.....

अ. ग्राम ..... ब. पोस्ट..... स. विकास खण्ड..... जिला.....

1. कृपया आप अपनी उम्र बताएं (Age):–.....

2. कृपया आप अपना शैक्षणिक स्तर बताएं (Education):–

1.	पढ़ व लिख सकते है		4.	हाई स्कूल	
2.	प्राथमिक स्तर		5.	उच्चतर माध्यमिक	
3.	माध्यमिक स्तर		6.	स्नातक/स्नाकोत्तर	

3. भूमि जोत (Land holding):

आप आपकी भूमि के बारे में जानकारी दीजियेः–

(अ) कुल भूमि..... (हेक्टेयर में)

(ब) सिंचित भूमि..... (हेक्टेयर में)

(स) असिंचित भूमि ..... (हेक्टेयर में)

4. प्याज फसल के अंतर्गत भूमि (Area under Onion crop): ..... (एकड़ / हेक्टेयर)

5. परिवार का आकार (Family Size):–

क्र.	परिवार में सदस्यों की संख्या	
1.	पुरुष	
2.	महिलायें	
3.	बच्चे	
4.	कुल सदस्य	

6. प्याज से वार्षिक आय (Income from onion cultivation):–

क्र.	स्त्रोत	आय रुपये में
1.	प्याज से कुल आय	
	➢ सफेद प्याज से ➢ हरा प्याज से ➢ लाल प्याज से	

7. कृषि से वार्षिक कुल आय (Total annual income from Agriculture):–

क्र.	स्त्रोत	आय रुपये में
1.	कृषि से कुल आय ➢ सफेद प्याज से ➢ हरे प्याज से ➢ लाल प्याज से	
2.	डेयरी	
3.	मजदूरी	
4.	व्यापार	
5.	पशुपालन	
6.	नौकरी	
7.	अन्य	

8. आपको प्याज उत्पादन के क्षेत्र में कितने वर्ष का अनुभव है (Experinece in onion cultivation)

.....वर्ष में

9. सामाजिक सहभागिता (Social participation):–

क्या आप किसी सामाजिक संगठन के सदस्य या पदाधिकारी है यदि हॉ तो बताइये:–

क्र.	संस्था का नाम	पद	सदस्य	बैठकों में भागीदारी		
				हमेशा	कभी–कभी	कभी नहीं
1.	ग्राम पंचायत					
2.	जनपद पंचायत					
3.	सहकारी समिति					
4.	कृषक संगठन					
5.	शैक्षिक संस्था					
6.	कृषि बाजार उपज समिति					
7.	वन समिति					
8.	स्कूल समिति					
9.	अन्य					

10. जन संचार (Mass media exposur):– कृपया बताइए कि आप प्याज की खेती से संबंधित जानकारी किन–किन जन संचार माध्यमों से तथा कितने हद तक लेते है ?

क्र.	साधन	उपयोग की दर		
		हमेशा	कभी–कभी	कभी नहीं
1.	रेडियो			
2.	टेलीविजन			
3.	विस्तार प्रकाशन			
4.	कृषि फिल्म			
5.	किसान कॉल सेंटर			
6.	समाचार पत्र			
7.	कृषि पत्रिका			
8.	इंटरनेट			
9.	अन्य			

11. विस्तार संपर्क (Exrtension contact):–

क्र.	विस्तार कर्मी	हमेशा	कभी–कभी	कभी नहीं
1.	ग्राम सेवक			
2.	ग्राम विस्तार कार्यकर्ता			

3.	कृषि अधिकारी			
4.	बागवानी अधिकारी			
5.	बैंक अधिकारी			
6.	जिला ग्रामीण विकास ऐजन्सी			
7.	वैज्ञानिक			
8.	सहायक कृषि अधिकारी			
9.	अन्य			

12. जोखिम अभिविन्यास (Risk orientation):–

नीचे लिखे कथनों से आप किस हद तक आप सहमत या असहमत है बताइयेः–

क्र.	कथन	सहमत	अनिश्चित	असहमत
1.	एक किसान को एक छोटे लेकिन कम जोखिम वाले लाभ से संतुष्ट होने के बजाय अच्छा लाभ कमाने का अधिक मौका लेना चाहिए।			
2.	एक किसान जो औसत किसानों की तुलना में जोखिम लेने को तैयार है आमतौर पर आर्थिक रुप से बेहतर होता है।			
3.	एक किसान के लिये जोखिम उठाना अच्छा होता है जब वह जानता है कि उसकी सफलता की संभावना काफी अधिक है।			
4.	किसान द्वारा खेती में पूरी तरह से नई विधि के रुप में प्रयास करने में जोखिम शामिल है लेकिन यह इसके लाभदायक है			
5.	एक या दो फसलों को उगाने में शामिल अधिक जोखिम से बचने के लिये एक किसान को बड़ी संख्या में फसले उगानी चाहिए।			
6.	एक किसान के लिये यह बेहतर है कि वह खेती के नये तरीको को तब तक न अपनाये जब तक कि दूसरे उनका सफलतापूर्वक उपयोग न कर ले।			

13. नवचारिता (Innovativeness):–

नीचे लिखे कथनों से आप किस हद तक आप सहमत या असहमत है बताइयेः–

क्र.	कथन	सहमत	अनिश्चित	असहमत
1.	मैं नई प्याज उत्पादन पद्धतियों की जानकारी रखने की कोशिश			

	करता हूॅ लेकिन इसका मतलब यह नहीं कि मैं सभी नई पद्धतियों को अपने खेत में उपयोग में लाता हूॅ।			
2.	जब भी मुझे किसी नई प्याज उत्पादन तकनीकी के बारे में जानकारी मिलती है तो मैं तब तक चैन नहीं लेता जब तक कि उसे अपने खेत पर अपना नहीं लेता हूॅ।			
3.	वे इन दिनों नई प्याज उत्पादन पद्धतियों की बातें करते है लेकिन कौन जानता है कि वे पुराने से बेहतर है।			
4.	समय समय पर मुझे बहुत सी नई प्याज उत्पादन तकनीकी के बारे में जानकारी मिलती है और मैनें पिछले कुछ वर्षो में उनमें से अधिकांश को अपनाया है।			
5.	मै स्चयं नई प्याज उत्पादन तकनीकी के अपनाने से पहले यह देखता हूॅ कि मेरे पड़ोसी को उसे अपनाने से क्या परिणाम प्राप्त हुये।			
6.	मै यह सोचता हूॅ कि प्याज उत्पादन की पुरानी पद्धतियां आज की नई पद्धतियों से अच्छी है			
7.	मैं नई पद्धतियों को अपनाने में सावधान रहता हूॅ।			
8.	पुराने लोग प्याज उत्पादन में चतुर थे इसलिये मैं नहीं चाहता कि पुरानी प्याज उत्पादन पद्धतियों को बदला जाये।			

14. बाजार का ज्ञान (Market knowledge):–

क्र.	**बाजार का ज्ञान**	हाँ	नहीं
1.	क्या आप प्याज के बाजार में प्रचलित कीमतों के बारे में जानते है।		
2.	क्या आपने ए.पी.एम.सी. के बारे में जागरुक है।		
3.	क्या आप इस बात से सहमत है कि ए.पी.एम.सी में प्याज के मार्केटिग से ज्यादा कीमत मिल सकती है।		
4.	क्या खरीददार मौके पर पैसे का भुगतान करता है।		
5.	क्या ए.पी.एम.सी में वस्तु का भारांश सही है।		
6.	क्या आप जानते है कि आपको बाजार शुल्क का भुगतान करने की आवश्यकता नहीं है।		
7.	क्या आपको लगता है कि बहुत अधिक बिचौलियों के कारण उपभोक्ता रुपये में आपका		

	हिस्सा बहुत कम हो जायेगा।		
8.	भंडारण अवधि बढ़ाने से सौदेबाजी की शक्ति बढ़ जाती है।		
9.	क्या आप सहमत है कि उचित विपणन चैनल का चयन प्याज के विपणन में पहला कदम है।		
10.	क्या आप इस बात से सहमत है कि प्याज की कटाई पूर्व ठेकेदारों या गॉव के व्यापारियों को से कम कीमत का एहसास होता है।		
11.	क्या जानते है कि बाजार में प्याज की गुणवत्ता आवक उनकी कीमतों को प्रभावित करती है।		
12.	क्या आप इस बात से सहमत है कि प्याज की ग्रेडिंग से उचित दाम मिलते है।		
13.	आप जानते है बाजार में चल रहे प्याज के भाव से वाकिफ है।		
14.	क्या आप जानते है जल्द खराब होने वाले सामान प्याज, जैसे अर्धनाशपाती अधिक समस्याओं का सामना करेगे		
15.	क्या आप जानते है कि कम मात्रा में प्याज बेचने से बढेगी मार्केटिंग लागत/लेनदेन		

खण्ड (ब)

विपणन व्यवहार (Markiting behaviour)

क्र.	कथन	अंक
1.	**बेचने का समय** अ. फसल के तुरंत बाद ब. प्रारंभिक भंडारण के बाद स. जब भी कीमतें अनुकूल हो	
2.	**बेचने की जगह** अ. स्थानीय बाजार/सब्जी मंडियों में ब. आस–पास ए.पी.एम.सी स. दूर का बाजार/ टर्मिनल बाजार	
3.	**बिक्री प्रपत्र** अ. कच्चा ब. प्रसंस्कृत	
4.	**ग्रेडिंग** अ. हमेशा ब. कभी–कभी स. कभी नहीं	

5.	**बेचने के लिये चुनी गई एजेन्सियाँ** अ. ग्राम स्तर के व्यापारी ब. थोक स. सहकारी समिति के माध्यम से व्यापारी द. दलाल	
6.	**परामर्श बेचना** अ. हमेशा ब. कभी–कभी स. कभी नहीं	
7.	**यातायात** अ. बैलगाड़ी ब. साईकिल स. टू व्हीलर द. बस, लॉरी, टेम्पो आदि	
8.	**बिक्री नियम और शर्त** अ. तैयार नगद ब. केश तैयार नहीं है	
9.	**बाजार भाव प्रति क्विंटल** अ. संतुष्ट ब. संतुष्ट नहीं	
10.	**जितनी बार प्याज बिका** अ. एक बार ब. दो बार स. तीन बार	

खण्ड (स)

1. प्याज की उन्नत तकनीक को अपनाने में आने वाली समस्याऐं:–

क्र.	**कथन**	**हाँ**	**नहीं**
(अ)	**उत्पादन से संबंधित समस्या**		
	1. इनपुट अनुपलब्धता		
	2. बेहतर प्याज उत्पादन तकनीक के बारे में जानकारी		
	3. सिंचाई सुविधाओं की अनुपलब्धता		
	4. सीमित और अनियमित बिजली आपूर्ती		
	5. श्रम की अनुपलब्धता		
(ब)	**विपणन समस्याऐं**		
	1. परिवहन को उच्च लागत		

	2. विलंवित नगद भुगतान		
	3. वस्तु की कीमतों में उतार चढ़ाव		
	4. बिचौलियों का शोषण		
	5. उच्चायोग शुल्क		
	6. गलत तोल उपकरण		
	7. लंबे समय तक लेन–देन		
	8. विपणन जानकारी का अभाव		
	9. बाजार में अपनायी गई कदाचार		
(स)	**भंडारण की समस्या**		
	1. भंडारण सुविधाओं का अभाव		
	2. हेन्डलिग के बारे में ज्ञान की कमी		
	3. महॅगें भंडारण सुविधायें		

2. कृपया बतायें कि प्याज की अधिक उत्पादन हेतु आपकी क्या सलाह है?

क्र.	**सलाह**
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Data Collection from Onion Growers

Interaction with Farmers

CURRICULUM VITAE

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PLACE: -

DATE: -

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