A STUDY ON KNOWLEDGE AND TRAINING NEEDS OF ONION CULTIVATORS IN AFGHANISTAN COUNTRY

By

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B.Sc. (Agril. Extension)

THESIS SUBMITTED TO THE
ACHARYA N.G.RANGA AGRICULTURAL UNIVERSITY
IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF

MASTER OF SCIENCE

IN THE FACULTY OF AGRICULTURE

DEPARTMENT OF AGRICULTURAL EXTENSION
ACHARYA N. G. RANGA AGRICULTURAL UNIVERSITY
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OCTOBER, 2008

CERTIFICATE

Mr. MOHAMMAD AGHA ZIA has satisfactorily prosecuted the course of research and that the thesis entitled **"A STUDY ON KNOWLEDGE AND TRAINING NEEDS OF ONION CULTIVATORS IN AFGHANISTAN COUNTRY"** submitted, is the result of original research work and is of sufficiently high standard to warrant its presentation to the examination. I also certify that the thesis or part there of has not been previously submitted by him for a degree of any University.

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CERTIFICATE

This is to certify that the thesis entitled **"A STUDY ON KNOWLEDGE AND TRAINING NEEDS OF ONION CULTIVATORS IN AFGHANISTAN COUNTRY"** submitted in partial fulfillment of the requirements for the degree of "**MASTER OF SCIENCE IN AGRICULTURE"** for **Acharya N. G. Ranga Agricultural University**, Hyderabad, is a record of the bonafide research work carried out by **Mr. MOHAMMAD AGHA ZIA** under my guidance and supervision. The subject of the thesis has been approved by the Student's Advisory Committee.

No part of the thesis has been submitted for any other degree or diploma. The published part has been fully acknowledged. All the assistance and help received during the course of the investigation have been duly acknowledged by the author of the thesis.

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ACKNOWLEDGEMENTS

*I begin in the name of Almighty **ALLAH**, the most gracious and most merciful for creating me and allowing me to be a part of this world, where continued quest for knowledge has become synonymous with the identity, purpose and fulfillment of existence. And peace be upon the soul of prophet, **MOHAMMAD**, his family and followers, who accepted me as his ummathi.*

*I express my deep sense of gratitude, sincere thanks and indebtedness to **Dr. B. Vijayabhinandana**, professor, Department of Agricultural Extension, S.V. Agricultural College, Tirupati and Chairman of my Advisory Committee for his inspiring and meticulous guidance all through the course of this study. Words fail to express the extent of appreciation and thankfulness for his unending benevolence and constant encouragement throughout my post graduate programme.*

*I extend my deep sense of reverence and rectitude to **Dr. M.S. Reddi,** Director (P&M Cell), Acharya N.G. Ranga Agricultural UniversityRajendranagar, Hyderabad and member of my Advisory Committee for his constant encouragement, transcendent suggestions and heartful cooperation in accomplishing this stupendous task.*

*I acknowledge a sense of gratitude to **Dr.K. Subramanyam Reddy,** professor, Department of Statistics and Mathematics, College of Agriculture, Rajendranagar and member of my Advisory Committee for his valuable advice in suggesting the statistical analysis of data.*

*I am thankful to **Dr. K. Prabhakar,** Professor (Retired), **Dr. M. Jagan Mohan Reddy,** Associate Professor, **Dr. K. Anand Singh,** Professor, **Dr.V.Ananda Rao,** Professor and Head, **Dr.R.Vasantha,** Associate Professor, **Dr.A.Sailaja,** Associate professor, Department of Agricultural Extension, College of Agriculture, Rajendranagar, Hyderabad for their valuable advices during the research work.*

*I express my special thanks to **Dr. Aziz-u-Din Mehmood,** Associate professor, Department of English, College of Agriculture, Rajendranagar, Hyderabad for his valuable guidance which facilitated me to complete this thesis. I am also extremely thankful to all the technical and non-technical staff members of the Department of Agricultural Extension of the Acharya N. G. Ranga Agricultural University for their help and cooperation during the course of my study.*

I wish to extend my sincere thanks to ***Shah Mohammood Bary,*** *Associate professor,* ***Syed Mohammad Kabir Agha,*** *Assistant Professor,* ***Fazal Rahman Ibrahimi,*** *Assistant Professor,* ***Zamerialy Tani,*** *Assistant Professor, Kandahar University, Faculty of Agricultur for their valuable guidance and encouragement throughout my post graduate programme.*

My warmest thanks to ***Nazir Hakimi,*** *Assistant Professor, Kandahar University, Faculty of Education, whose love, inspiration and persistent support helped me in the successful completion of my post graduate studies.*

I express my sincere thanks to ***Mohammad Bashir Dodiyal****, professor and* ***Najmudin Najam,*** *Assistant professor, Nangarhar University, Faculty of Agriculture.*

Diction is not ample to express my deep sense of honor, love, unbounded gratitude and heartfelt regards to my dearest father, who sparked my life with spirit of enthusiasm and whose constitutive criticism, needy inspiration, endearing encouragement, is the biggest assets in my life. I am in dearth of words to express my sense of gratitude to my beloved mother for their unconditional love, unbounded affection, inspiration, moral support, advice and blessings that kept me enthusiastic throughout my educational career.

All languages fall short to express my love and affection to my beloved brothers ***Eng. Syed Agha*** *and* ***Eng. Habib -ur -Rahman*** *who inspired me to study the course and for having shouldered the whole responsibility of home and all nears and dears who shouldered me whenever I bent, who celebrated my achievements and shared my sorrows, who always inspired me to do things with a spirit of passion, sincerity and integrity. This work would have been impossible without the sacrifice, help and moral support extended to me by my wife. My children* ***Ahmadzia, Mohammadzia*** *and* ***Kolsoom*** *always were before my eyes while writing this dissertation.*

I am extremely thankful to my colleague ***Mr. Chidananda Magalada*** *and my Seniors* ***Gangadhar, Latha and Swarooparani*** *for their kind encouragement and enthusiastic support throughout my post graduation.*

It always gives me great pleasure and excitement in acknowledging my friends, ***Mohammad Ismail Sadat, Ahmad Eed, Dr.Alisururi, Irfan Safi,***

NaJeebullah, Zamark, Hashmatullah, Tidrus, Jajbir, Raj, Shimray and Thiruselvan *for their help they offered to me in thesis work.*

I am thankful Indian Council for Cultural Relations (ICCR) for providing me financial assistance during my post graduation studies and the facilities provided by the central Library.

Finally my heartfelt thanks to all the respondents for their kind cooperation and sincere support during my research work.

Date : *30 -10 -2008* ***MOHAMMAD AGHA "ZIA"***
Place : *Hyderabad*

DECLARATION

I, **Mr. MOHAMMAD AGHA ZIA** here by declare that the thesis entitled **"A STUDY ON KNOWLEDGE AND TRAINING NEEDS OF ONION CULTIVATORS IN AFGHANISTAN COUNTRY "** submitted to **Acharya N. G. Ranga Agricultural University** for the Degree of **MASTER OF SCIENCE IN AGRICULTURE** is a result of original research work done by me. It is further declared that the thesis or any part there of has not been published earlier in any manner.

Date : 30-10-2008
Place : Hyderabad

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Year of submission	:	**2008**

ABSTRACT

The study was conducted to assess knowledge and training needs of onion cultivators in Afghanistan counry.

Ex-post-facto research design was followed for the study. The investigation was carried out in Pul-e-Alam district of Logar province where onion is predominantly grown. A sample of 135 farmers randomly selected for nine villages. The data were collected by personal interview method through structured interview schedule and analyzed employing suitable statistical methods.

Majority of the onion cultivators were illiterate, low sociability, medium and small family size, medium farming experience, small farmers, high annual income, low extension contact, medium mass media exposure, high economic motivation, high risk orientation, medium scientific orientation and high marketing orientation.

Half of the respondents found in medium knowledge category and little less than half of the respondents fell under high training need group.

Correlation analysis revealed that there was a positive and significant relationship between training needs and independent variables viz., education, family size, economic motivation, scientific orientation and marketing orientation. There was negative and significant relationship between farming experience, mass media exposure and risk orientation with training needs of the respondents. Whereas, sociability, farm size, annual income and extension contact were not significantly related with the training needs of the respondents.

Correlation analysis also revealed that there was a positive and significant relationship between knowledge and independent variables viz., farming experience, annual income, mass media exposure, economic motivation, risk orientation, scientific orientation and marketing orientation. Whereas education, sociability, family size, farm size and extension contact were not significantly related with the knowledge of the respondents about recommended practices of onion.

High cost of fertilizers, pesticides, electricity supply, shortage of labour, lack of knowledge on identification of pests and diseases and their control measures, non-availability of improved seed material, low price for onions and lack of access to credit were the major problems encountered by the onion farmers.

Provision subsidy on fertilizers, pesticides and electricity, increase extension workers at field level, provision of more labour in peak seasons, Government support to construction of storage structures for onion produce, provision of more institutional finance and fixing minimum support price for onion were the suggestions given by the onion farmers to overcome the problems faced by them.

CHAPTER – I

INTRODUCTION

Afghanistan is a landlocked, mountainous country whose importance lies in its strategic position at the crossroads of Central Asia. It borders Iran, 936 km; Turkmenistan, 744 km; Uzbekistan, 137 km; Tajikistan, 1,206 km; China, 76 km; and Pakistan, 2,430 km; And its complex networks of trade and cultural links has made it an irrestible prize for centuries. Only about 12.00 per cent of the country's total land is arable, three per cent is under forest cover, 46.00 per cent is under permanent pastures, with the remaining39.00 per cent being mountainous. Desertification, particularly in the South-West, and deforestation are rising at an alarming rate, while some of the pastures are cultivated when rainfall is plenty and left fallow the following year, causing some erosion and loss of grazing land. Given highly variable rainfall and concomitant variations in production from the rainfed sector, the irrigated sector traditionally provided a higher proportion of all crops. The climate is a continental climate classified as temperate and is characterized by arid hot summers and cool winters.

Agriculture is the mainstay of Afghanistan's economy; it is the main source of National out put and employment. About 85.00 per cent of the country's estimated 318,89,870 peoples depend on agriculture, the largest sector of the economy (Afghanistan – Survey of the Horticulture Sector 2003, FAO).

Farming is an important occupation in Afghanistan. It not only takes the responsibility of feeding ever increasing population, but also provides raw material to the agro – based industries. Therefore, the economy of the Nation rests with well being of the farmers. Unless the farmer gets new information, understand and learn new skills and put them into practice, in a right way, progress can not be achieved in increasing agricultural production.

The Agriculture production can substantially be increased provided the available technologies are brought in line with the production process. Programmes envisaged on transferring new technologies are confined to laboratories and research institutes. As a result, farmers are not up–to–date with knowledge and skill required for crop production. In this context, training plays a key role.

Training is an intensive learning activity for a group of selected farmers, assisted by competent trainers to understand and practice the skills required in adoption of new technology. Training is an overt process wherein, a trainee learns a sequence of experiences and a series of opportunities in a systematic way.

Training of farmers is a critical input for rapid transfer of agricultural technology. Continuous and accelerated adoption of technology is possible only when the farming community is educated, enlighted and trained in the latest aspects of science and technology in agriculture. Thus, training becomes instrumental for making agriculture a better and more remunerative enterprise.

Farmer's training is a part of the agricultural extension education which helps farm families to apply the latest agricultural science and technology in the day to day activity of farming. The success of agriculture is directly related to the speed with which farmers are trained in better methods of farming and can inculcate in them an urge for scientific cultivation.

Afghan farmers are increasingly interested in vegetable crop production, which gives a more immediate and greater source of cash than do traditional subsistence crops. The main summer vegetables grown include onions, tomatoes, eggplants, pumpkins, garlic and okra, while the main winter vegetables are cauliflower, spinach, carrots, potatoes and lettuce. Other vegetables are also grown but are relatively rare and area specific.

Each year, Afghanistan produces more than 3.2 million metric tons of fresh fruits and vegetables, accounting for 42.00 per cent of the country's annual agricultural output. These are high-value products, but easily perishable if not stored correctly. Largely due to the lack of refrigerated storage facilities, an estimated 20 to 30 per cent of fresh produce loses its value through spoilage before it reaches to the market. Without refrigeration, Afghan farmers and traders are only able to store fresh produce for a limited time and must sell their goods during harvest time when prices are reasonably low.

Onion is one of the most an important underground bulbous vegetable crop and is well known for its utilization as food and medicine. It is cultivated in Afghanistan over an area 10,556 ha with a total production of 1,38,448 tonnes. (Ministry of Agriculture, Irrigation and livestock, Department of Statistics 2006).

Onion is largely grown in Logar, Kabul, Nangarhar, Kandahar, Kapisa, Kunar, Laghman and Badakhshan provinces.

1.1 THE NEED AND IMPORTANCE OF THE STUDY

Agricultural development plays an important role in the national development. In order to increase the crop yields the level of adoption and improved farm practices ought to be increased. Knowledge of the recommended technologies is a pre- requisite for adoption of practices. A greater knowledge of technical nature leads to higher adoption level because knowledge is not inert. Thus, knowledge influences the human behaviour producing both favourable and unfavourable responses. The basic input for achieving higher yields are assimilation of technical knowledge for which the first step is getting the knowledge. Knowledge is one of the important components of behaviour and as such it plays a major role in covert and overt behaviour of human being. Knowledge of the innovations is the basic requirement as it gives impetus to adopt technology.

Development and acceptance of modern agricultural technology is to be given prime attention for increasing crop production. It is generally observed that farmers do not adopt recommended package of practices in cultivation of onion in view of lack of knowledge. Hence, it is imperative to examine farmer's knowledge towards modern agricultural technology for increasing onion production.

It is observed that the process of acquisition of knowledge by farmers practicing different technologies depend on their profile constituted by various personal, socio-economic, and psychological characteristics. Likewise, it is supposed that there exist a certain set of personal, socio-economic and psychological characters operating with onion growers.

In order to acquire knowledge and skills, training is vital and essential input which induce motivation and create confidence and inculcate efficiency in an individual. To increase the production, of onion training is of immense help and is a necessary activity. It is the function of helping others to acquire and apply knowledge, skill, abilities and to have favourable attitude which are needed. It brings continuous improvement in the quality of work performed by the onion cultivators. Training only can bridge the enormous gap between the remarkable yield achieved by the scientists and that obtained by the farmers. It is therefore necessary to investigate the areas of training needs of onion farmers. If the training programmes are need based, a definite improvement in the knowledge level of the onion growers would occur. So far no attempts were made to investigate the knowledge levels of farmers in general and onion cultivators in particular and also identification of training needs of onion farmers. Keeping this in view, the present investigation entitled "A study on knowledge and training needs of onion cultivators in Afghanistan country" was taken up with the following objectives.

1.2 OBJECTIVES OF THE STUDY

The overall objective of the investigation was to study the knowledge and training needs of onion cultivators in Afghanistan country. More specifically stated the objectives were:

1. To study the profile characteristics of onion cultivators.
2. To identify the training needs of onion cultivators.
3. To study the knowledge level of onion cultivators on the recommended package of practices of onion crop.
4. To study the relationship between selected independent variables and Knowledge and training needs of onion cultivators.
5. To find out the problems encountered by the onion cultivators and to elicit the suggestions to overcome the problems.

1.3 SCOPE OF THE STUDY

The study of this nature was not attempted so far by any one on onion cultivation in Pul-e-Alam district of Logar province and hence, an attempt was made to study the knowledge level of onion farmers on recommended package of practices and training needs of onion cultivators. Several aspects of this study is of special significance with vast scope in recommending strategic planning for onion growers.

Further, efforts on development schedules on knowledge and training needs of onion farmers are the methodological contributions to the future researchers. Besides, the study as a whole would serve as a foundation in building up body of knowledge with regard to the onion cultivation. The findings of the study would be useful to Afghanistan administration to plan need based training programmes.

1.4 LIMITATION OF THE STUDY

As it is true of any scientific investigation carried out by a student researcher, this study also had the following limitations.

1. The findings of the study were based on verbal expressions of the respondents therefore, the findings were conditioned by the extent of reliable and valid information provided by those selected for the purpose of investigation.
2. Due to limitations of time and other resource this study could not be taken up in a larger area. It was confined to only one district of Logar Province. So it can be generalized to only to locations of such nature.
3. In spite of the limitations, the findings of the study would provide a better insight in preparing the course content for the trainings on onion cultivation.

1.5 PRESENTATION OF THESIS

The thesis is presented in six chapters. It opens with the introductory chapter, which deals with the need and importance, objectives, scope and limitations of the study. The second chapter consists of review of literature; the methodology adopted for the research is explained in the third chapter. The results of the work are presented in the fourth chapter. The fifth chapter deals with the discussion based on the results of the study. Finally, the sixth chapter contains the summary of the investigation, implications of the research and suggestions for future research. The literature cited and interview schedule used for data collection are at the end.

CHAPTER – II

REVIEW OF LITERATURE

A comprehensive review of literature is an integral part of any investigation as it not only gives an idea on the work done in the past, but also provides the basis for interpretation and discussion of the findings. This investigation is designed to study the important aspects of training needs and knowledge of onion cultivators.

An earnest effort was made to review the available literature having direct or indirect bearing on present study. In addition to this, the conceptual model formulated for the study was also furnished. For the sake of convenience, the available related reviews are presented under the following heads.

2.1 Profile characteristics of onion farmers

2.2 Training needs of farmers

2.3 Knowledge of farmers about recommended package of practices of onion crop

2.4 Relationship between selected independent variables and training needs of onion cultivators

2.5 Relationship between selected independent variables and knowledge of onion cultivators

2.6 Problems encountered by the farmers and their suggestions to overcome the Problems

2.7 Hypothesis of the study

2.8 Conceptual model of the study

2.1 PROFILE CHARACTERISTICS OF ONION FARMERS

2.1.1 Education

Jabeen (1991) found that 45.6 per cent of the chilli farmers were illiterates followed by high school 14.4 per cent and middle school 12.2 per cent, while graduate and can read only 10.0 per cent each. However, can read and write were 4.5 per cent and primary schools were 3.3 per cent.

Rao (1991) revealed that half of the groundnut growers (50.80%) in oilseed thrust programme were illiterate.

Samuel (1993) concluded that majority (60.00%) of the trained farmers were found to be illiterate followed by Primary school (22.50%) and high school (8.33%) level of education.

Anothram (1996) concluded that 28.00 per cent of the respondents had no schooling followed by functionally literate (28.00%), 19.00 per cent had primary school education, 16.00 per cent with middle school education, 6.00 per cent had high school education and only 3.00 per cent had degree education.

Chanda Srivastava (1997) observed that highest percentage (30.00%) of the respondents had no schooling followed by those with high school education (23.38%), middle school (20.00%), primary school (13.34%), functionally literate (10.00%) and collegiate education (3.33%).

Vijay Kumar (2001) observed that majority of the floriculture farmers (31.66%) had education up to primary school level, whereas illiteracy level among the farmers was 11.66 per cent.

Rajkumar (2001) reported from his study that 26.67 per cent of the Ginger farmers were of middle school education followed by 23.33 per cent primary school, 19.17 per cent high school, 16.67 per cent can read and write, 7.50 per cent in the category of college education and remaining 6.66 per cent were illiterate.

Senthilkumar (2001) revealed that nearly one third of the banana growers were studied up to secondary school level (32.50%) followed by middle school level (26.67 %), primary school education (17.50%) and collegiate education (3.35%).

Reddy (2003) revealed that majority of the tomato farmers 51.33 per cent had medium level of education followed by 30.00 per cent with low educational status and 18. 67 per cent with higher educational status.

Sajith Kumar (2004) found that majority (55.33%) of the coconut farmers were having high school level of education followed by those having higher secondary school (16.67%), collegiate (12.67%), middle school (12.00%), primary school (2.67%) and those who can read and write only (0.66%). No illiterates were found among the respondents.

Ramu (2005) reported from his study that 26.67 per cent of turmeric farmers were having middle school level of education followed by those having primary school (23.33%), high school (17.33%), functionally literate (13.33%), illiterate (10.67%) and college level and above (8.67% education.

Naik (2006) revealed that 27.33 per cent of the groundnut farmers were educated up to primary school level followed by functionally literate (21.33%), illiterate (19.33%), middle school (14.67%), high school (12.67%) and higher secondary/PUC (4.67%). None of the respondents was found to have college level of education.

2.1.2 Social participation

Reddy (1993) found that the below half of the pigeon pea farmers (43.33%) had membership in one organization, while 41.67 per cent of the respondents had no social participation, 7.59 per cent were public leaders, 5.0 per cent had membership of more than one organization and remaining 2.50 per cent were found to be office bearers in an organization.

Venugopal Rao (1996) reported that majority of the coconut farmers (65.83%) had no membership in any organization, while 25.00 per cent had membership in any one organization, 7.50 per cent of the respondents were office bearers and 1.67 per cent had membership in more than one organization.

Paul (1998) revealed that little over half of vegetable growers (51.77 %) fell under the category of medium social participation followed by 35.00 and 13.30 per cent low and high social participation categories respectively.

Chandra (2000) found from his study related to Annadata-velugabata; A Distance education that 63.34 per cent of the farmers had no membership in any organization, followed by member of one organization (23.33%), member of more than one organization (10.00%) and remaining were office bearers (3.33%).

Sivasubramanian (2003) reported that majority of the coconut farmers (52.50%) had medium level of social participation followed by low (34.17%) and high (13.33%) level of social participation.

Sajith Kumar (2004) inferred from his study that nearly half of the coconut farmers (48.67%) had low social participation followed by farmers with high (41.33%) and medium (10.00%) levels of social participation in order.

Chandra Mouli (2005) revealed that more than half of farmers (55.83%) had low social participation.

Ramu (2005) revealed that little more than half of turmeric farmers (50.67%) had medium social participation followed by high (30.00%) and low (19.33%) low level of social participation.

Naik (2006) reported that 42.00 per cent of the respondents had medium social participation followed by low (32.00%) and high (26.00%) social participation.

2.1.3 Family size

Sreedevi (1996) observed that majority of the farm men (68.33%) had medium family size, whereas 25.00 per cent of them had large family size and an equal per cent (3.33%) had small and very large family sizes.

Reddy (1997) indicated that majority of the fish farmers (61.30%) had small sized families and the remaining 38.70 per cent had large families.

Samuel (2000) reported that 45.67 per cent of the beneficiaries had medium family size, followed by large (23.33%), small (17.33%) and very large (13.67%) family size.

Milkah (2001) revealed that 67.00 per cent of the respondents had medium family size followed by large (23.00%), very large (06.00%) and small (04.00%) family size.

Raju (2004) found that more than half (58.34%) of the respondents had small family size followed by medium (34.16%) and large (07.50%) family size.

2.1.4 Farming experience

Reddy (1996) observed that majority (70.83%) of the vegetable growers were having medium farming experience, followed by low (15.83%) and high (13.31%) farming experience.

Rajaratnam (2000) stated that more than half of the sunflower (59.21%) farmers were grouped under the medium farming experience category followed by high (22.37%) and low (18.42%) categories.

Sivanarayana *et al.* (2002) observed that 80 per cent of the trainees had 10 to 40 years of experience followed by 20 per cent with less than 10 years of experience in farming.

Reddy (2003) stated that most of the farmers (85.33%) were having medium experience in tomato cultivation.

Ramu (2005) found from his study that that more than half of turmeric cultivators (58.67%) were having medium experience in farming followed by high (22.00%) and low (19.33%) farming experience.

Naik (2006) revealed from his study that 39.33 per cent of groundnut farmers had medium experience followed by high (34.67%) and low experience (26.00%).

2.1.5 Farm size

Paul (1998) observed that one-third (33.33%) of the vegetable growers were equally distributed under small, medium and big farmer categories.

Marimuthu (1998) found that one third of the banana growers (35.83%) were small farmers followed by almost an equal percentage of big farmers and marginal farmers, (31.67%).

Kishanakumar *et al.* (1999) indicated that 36 per cent of the rice growers were big farmers followed by marginal (33.00%) and small farmers (31.00%).

Noorjehan (1999) concluded that the majority (72.00%) of farmers was found to be operating lands up to five acres followed by 23.00 percent holding above five acres and up to 10 acres and only a few (5.00%) were holding above 10 acres.

Sridhar (2001) revealed that more than one third (40.00%) of rose cultivators belonged to were medium category followed by big (31.67%) and small farmers (28.33%).

Sivanandan (2002) observed that majority (56.00%) of the listening behaviour farmers were small farmers followed by marginal (26.00%) and big farmers (18.00%).

Suresh (2004) observed that majority of the milk producing farmers (68.75%) were having medium size of land holding followed by high (19.17%) and low (12.03%) size of land holding.

Ramu (2005) inferred that a little more than half of turmeric farmers (52.00%) were having medium farm size followed by small (32.00%) and large (16.00%) farmers.

2.1.6 Annual income

Jabeen (1991) asserted that 43.40 per cent and 46.70 per cent of chilli growers belonged to low and medium economic status respectively, whereas remaining 18.90 per cent had high economic status.

Paul (1998) observed that 54.18 per cent of the vegetable growers were under medium income group followed by 29.16 per cent low and 16.66 per cent high income groups.

Gattu (2001) showed that majority of turmeric cultivators (66.67%) had medium level income followed by low (18.33%) and high (15.00%) income groups.

Rajkumar (2001) concluded that little more than half of the Ginger growers (51.66%) had their annual income ranging from Rs. 40,000 to 60,000 followed by 17.50 per cent with Rs. 20,000 to 40,000, 15.84 per cent Rs. 60,000 to Rs 80,000 and remaining 15.00 per cent of the respondents had annual income ranging from Rs. 80,000 to 1,00,000.

Vijay Kumar (2001) observed that 45.58 per cent of floriculture farmers were under medium income group followed by 27.50 per cent low and 26.66 per cent high income groups.

Suresh (2004) reported that most of respondents were in medium income group with 80.33 per cent followed by 15.00 per cent and 4.17per cent of high and low income groups respectively.

2.1.7 Mass media exposure

Velusamy (1996) reported that 50.83 per cent of farmers had low level of mass media exposure followed by those having medium (26.67%) and high (22.57%) level of mass media exposure.

Alagirisamy (1997) stated that below two thirds of the vegetable growers (62.50%) had medium level of exposure to mass media sources followed by 20.84 per cent high mass media exposure and remaining 16.66 per cent had low level of mass media exposure.

Latha (2002) reported that 40.00 per cent of trained farmers had high level of mass media exposure followed by equal percentage (30.00%) of medium and low levels.

Sivasubramanian (2003) reported that majority of the coconut farmers (74.16%) had medium level of mass media exposure followed by high (16.68%) and low (9.16%) levels.

Sajith Kumar (2004) indicated that more than half of the coconut farmers had medium mass media exposure (52.67%) followed by high (26.00%) and low (21.33%) categories.

Ramu (2005) revealed from his study that more than half of turmeric cultivators (55.30%) were having medium mass media exposure followed by low (26.00%) and high (18.70%) levels.

Naik (2006) found from his study that more than one third of groundnut farmers (39.33%) had low level of mass media exposure followed by medium (34.67%) and high (26.00%) level of mass media exposure.

2.1.8 Extension contact

Ramulu (1992) revealed that 40.00 per cent of the hybrid cotton farmers had high extension contact, followed by low (33.00%) and medium (27.00%) extension contact.

Venkatesan (1997) observed that three fourths of rainfed cotton growers (75.00%) had medium level of extension agency contact followed by 15.00 and 10.00 per cent with low and high levels of contact respectively.

Thirumal (1998) indicated that majority of the mango growers (61.00%) had Low level of contact with extension agency followed by those having medium (28.00%) and high (11.00%) level of extension contact.

Sakthivel (2000) reported that the majority of the tapioca farmers (55.00%) had low level of extension agency contact, followed by high (25.00%) and moderate (20.00%) levels.

Senthilkumar (2001) observed that two-third of the banana growers (66.67%) had low level of extension agency contact followed by 29.17 per cent and 4.16 per cent with medium and high levels of contact respectively.

Sivasubramanian (2003) observed that little less than two thirds of the coconut farmers (60.84%) had medium level of extension contact followed by those with low (30.83%) and high (8.33%) level of extension contact.

Sajith Kumar (2004) revealed that half of the coconut farmers (50.00%) had medium extension contact followed by those with low (28.67%) and high (21.33%) extension contact.

Ramu (2005) reported that about two thirds of turmeric farmers (64.00%) fell under medium extension contact category followed by 18.67 per cent with high and 17.33 per cent with low extension contact.

Naik (2006) indicated that 40.66 per cent of the groundnut farmers had low level of extension contact followed by medium (36.67%) and high (22.67%) level of extension contact.

2.1.9 Economic motivation

Venugopal Rao (1996) revealed that more than half of the respondents (56.66%) had high economic motivation while 14.17 per cent had low and 9.17 per cent had average economic motivation respectively.

Sakthivel (2000) concluded that from his study less than half of the tapioca farmers (46.66%) had high level of economic motivation, while equal proportion of the respondents (26.67%) had low and medium level of economic motivation.

Senthilkumar (2001) revealed that majority of the banana growers (76.66%) had high level of economic motivation followed by medium (16.67%) and low (6.67%) level of economic motivation.

Latha (2002) revealed that majority (43.33%) of the trained farmers had medium economic motivation followed by low (30.00%) and high (26.67%) level of economic motivation.

Reddy (2003) revealed that 52.67 per cent of the tomato farmers had medium economic orientation followed by low (26.67%) and high (20.66%) economic motivation.

Sajith Kumar (2004) inferred that 62.00 per cent of the coconut farmers had medium economic motivation followed by low (23.33%) and high (14.67%) categories.

Ramu (2005) reported that 60.66 per cent of the turmeric farmers had medium economic orientation followed by 24.67 per cent with high and 14.67 per cent with low economic orientation.

Naik (2006) found that 38.66 per cent of the groundnut farmers had medium economic motivation followed by low (32.67%) and high (28.67%) economic motivation.

2.1.10 Risk orientation

Meeran and Jayaseelan (1999) stated that about three-fouth of shrimp farmers (72.00%) were found to have high level of risk orientation followed by medium (26.00%) and low (2.00%) categories.

Gattu (2001) indicated that majority of the turmeric farmers (62.50%) had medium risk orientation followed by low (19.17%) and high (18.33%) risk orientation

Rajkumar (2001) showed that about half of the Ginger cultivators (51,67%) had medium risk orientation, while 45.00 per cent had high risk orientation with a negligible percentage of the respondents with low risk orientation.

Subrahmanyam (2002) revealed that three – fourths (75.00%) of trained farmers had medium risk preference followed by high (13.34%) and low (11.66%) levels.

Reddy (2003) reported that more than half of the tomato farmers (59.33%) had medium risk orientation followed by low (30.00%) and high (10.67%) levels of risk orientation.

Sajith Kumar (2004) inferred that 53.33 per cent of the coconut farmers had medium risk orientation followed by high (30.67%) and low (16.00%) risk orientation.

Ramu (2005) found from his study that more than half of turmeric cultivators (58.67%) fell under medium category followed by high (28.00%) and low (13.33%) levels of risk orientation.

Naik (2006) revealed that 44.67 per cent of the groundnut farmers had medium risk orientation followed by low (31.33%) and high (24.00 %) risk orientation.

2.1.11 Scientific orientation

Atchutaraju (1998) indicated that majority of the betelvine farmers (65.83%) had medium scientific orientation followed by low (18.34%) and high (15.38%) scientific orientation.

Venkattakumar and Nanjaiyan (1999) informed that majority of the commercial coconut growers (52.22%) had high level of scientific orientation followed by low (27.43%) and medium (20.35%) levels.

Chandra (2000) reported that 65.84 per cent of the respondents had medium level of scientific orientation followed by low (23.33%) and high (10.83%) level of scientific orientation.

Latha (2002) reported that about one-third of trained farmers (36.67%) had medium level of scientific orientation followed by low (33.33%) and high (30.00%) levels of scientific orientation.

Reddy (2003) found that majority of the tomato farmers (70.00%) had medium scientific orientation followed by low (17.33%) and high (12.67%) scientific orientation.

Sajith Kumar (2004) concluded that 68.67 per cent of the coconut farmers had medium scientific orientation followed by those with low (17.33%) and high (14.00%) scientific orientation.

Ramu (2005) found that little more than two thirds (68.67%) had medium scientific orientation followed by low (16.67%) and high (14.66%) categories.

Naik (2006) reported that 42.67 per cent of the groundnut farmers had medium scientific orientation followed by low (34.00%) and high (23.33%) scientific orientation.

2.1.12 Marketing orientation

Rao (1989) reported that little more than half (53.30%) of the vegetable growers had medium market orientation followed by low (27.50%) and high (19.20%) market orientation categories.

Suresh Kumar (1997) concluded that majority of the respondents (60.00%) had high marketing orientation followed by medium (33.30%) and low (26.70%) categories.

Paul (1998) observed from his study that about half of vegetable growers (53.30%) had medium marketing orientation followed by low (27.50%) and high (19.20%) market orientation.

Vijay Kumar (2001) revealed that half of floriculture farmers (50.84%) were in medium marketing orientation followed by 28.33 per cent low and 20.83 per cent high market orientation categories.

Rajendra Kumar (2002) reported that 46.67 per cent of hybrid jowar seed farmers had medium level of market orientation followed by low (30.83%) and high (22.50%) market orientation.

Anitha (2003) found that more than half of women entrepreneurs (58.75%) had high marketing behaviour and remaining 41.25 per cent of the respondents had medium marketing behaviour.

Naik (2006) revealed that 46.00 per cent of the groundnut farmers had medium market orientation followed by 32.00 per cent low and 22.00 per cent high groups.

2.2 TRAINING NEEDS OF FARMERS

Ramulu (1992) observed that most of hybrid cotton seed growers (90.00%) had medium training needs followed by high (6.00%) and low (4.00%) training needs.

Sreenivasulu (1995) stated that majority of sunflower growers (68.33%) belonged to medium training needs followed by low (19.50%) and high (12.17%) groups.

Raghuram (1996) observed that majority of the vegetable growing farmers (62.50%) belonged to medium training needs followed by 20.00 per cent high and 17.50 per cent low training need groups.

Sangeetna (2004) revealed that 41.67 per cent of the cotton growers fell in medium category of training needs followed by 32.50 per cent low and 25.83 per cent high categories of training needs.

Naik (2006) reported from his study that 43.34 per cent of the groundnut farmers fell in medium training needs category followed by high (29.33%) and low (27.33%) categories.

2.3 KNOWLEDGE OF FARMERS ABOUT RECOMMENDED PACKAGE OF PRACTICES

Sakthivel (2000) found that the majority of the respondents (94.34%) possessed a moderate level of knowledge about the recommended package of practices of tapioca.

Senthilkumar (2001) indicated that almost equal percentage of banana growers were found to possess low (44.17%) and medium (42.50%) level of knowledge. Remaining 13.33 per cent had high knowledge

Latha (2002) inferred from her study that 35.00 per cent of trained farmers had high level of knowledge followed by low (33.33%) and medium (30.00%) level of knowledge about the latest recommended IPM technologies.

Reddy (2003) revealed that majority of the farmers (66.00%) had medium knowledge of recommended practices of tomato cultivation followed by 8.67 per cent with high knowledge and 15.33 per cent with low knowledge level.

Ramu (2005) revealed from his study that more than half of turmeric farmers (60.67%) had medium knowledge about recommended turmeric practices followed by low (20.00%) knowledge and high (19.33%) knowledge levels.

2.4 RELATIONSHIP BETWEEN INDEPENDENT VARIABLES AND TRAINING NEEDS OF ONION CULTIVATORS

2.4.1 Education Vs Training needs

Prasad (1990) found that training need had negative significant association with education of the HYV paddy growers.

Ramulu (1992) found that education was found to be positive and significant at 5 per cent level of probability with training needs of hybrid cotton growers.

Raghuram (1996) found that there was negative and significant relationship between education and training needs of vegetable growers.

Nirmala and Annamalia (1997) observed that there was a positive and significant relationship between education and training needs of TNAU labourers in rice farming.

Sangeetha (2004) found a positive and significant association between education and training needs of cotton growers.

Nikhade and Patki (2005) concluded that education was found to be negatively and significantly related to training needs of rural women in respect of animal husbandry practices.

Naik (2006) revealed from his study that there was a positive and significant relationship between education and training needs of groundnut farmers.

2.4.2 Family size Vs Training needs

Nikhade and Patki (2005) reported that family size was found to be positively related but non-significant with training needs of rural women in respect of animal husbandry practices.

2.4.3 Economic motivation Vs Training needs

Ramulu (1992) found that economic motivation was found to be negatively non-significant with training needs of hybrid cotton growers.

Raghuram (1996) found that there was positive and significant relationship between economic orientation and training needs of vegetable growers.

Sangeetha (2004) revealed a positive and significant association between economic motivation and training needs of respondents.

Naik (2006) inferred from his study that economic motivation was found to be positive and significant at 0.05 per cent level of probability with the training needs of groundnut farmers.

2.4.4 Scientific orientation Vs Training needs

Sundar (1989) found that there was non-significant relationship between scientific orientation and training needs of poultry farmers.

Prasad (1990) found that training need in knowledge was negatively significant with scientific orientation of the HYVs paddy growers.

Ramulu (1992) found that scientific orientation was found to be negatively non-significant with training needs of hybrid cotton growers.

Sangeetha (2004) found a positive and significant relationship between scientific orientation and training needs of respondents.

Naik (2006) reported that scientific orientation had positive and significant relationship with training needs of groundnut farmers.

2.4.5 Market orientation Vs Training needs

Raut *et al.* (1995) reported that there was a non-significant relationship between market orientation and training needs of young farmers.

Naik (2006) inferred from his study that market orientation was found to be positive and significant at 0.01 level of probability with the training needs of groundnut growers.

2.5 RELATIONSHIP BETWEEN INDEPENDENT VARIABLE AND KNOWLEDGE OF ONION CULTIVATORS

2.5.1 Farming experience Vs Knowledge

Jeyaraj (1997) revealed that farming experience was found to have positive and significant association with the knowledge level of the cotton growers.

Maheshwari (2000) reported that farming experience had a positive and significant association with knowledge of vegetable growers in organic farming.

Subrahmanyam (2002) found that there was non-significant relationship between farming experience and knowledge of respondents.

Sajith Kumar (2004) revealed that there existed a positive and significant relationship between farming experience and knowledge of turmeric farmers.

Ramu (2005) revealed that there was a non-significant relationship between farming experience and knowledge level of farmers.

2.5.2 Annual income Vs Knowledge

Manivannan (1990) and Sakharkar *et al.* (1992) found that annual income of farmers had a non-significant association with the knowledge

Ananthachary (1990) reported a positive and significant relationship between income and knowledge of trained farmers, whereas, the relationship was non – significant in case of untrained farmers.

Patil *et al.* (1999) indicated that there was significant and positive correlation between annual income and knowledge of lime growers

Prakash (2000) indicated that annual income was found non – significant with the knowledge of pine apple growers.

2.5.3 Mass media exposure Vs Knowledge

Parthasarathi (1997) observed that mass media exposure had positive and significant relationship with knowledge of the respondents.

Sakthivel (2000) found that mass media exposure had shown a positive and significant association with knowledge of the subjects.

Latha (2002) found that there was a positive and significant relationship between mass media exposure and knowledge of trained farmers.

Subrahmanyam (2002) found that there was a positive and significant relationship between mass media exposure and knowledge of trained farmers.

Sajith Kumar (2004) found that there existed a positive and significant relationship between mass media exposure and knowledge of the respondents.

Ramu (2005) revealed that there was a positive and significant relationship between mass media exposure and knowledge of subjects.

2.5.4 Economic motivation Vs Knowledge

Ramakrishnan (1999) stated that economic motivation and knowledge gain of trainees was positively and significantly related.

Sakthivel (2000) found that economic motivation had shown a positive and significant association with knowledge.

Chatterjee (2000) inferred that there was positive and significant relationship between economic motivation and knowledge of beneficiaries.

Latha (2002) noticed that there was a positive and significant relationship between economic motivation and the knowledge of trained farmers.

Sajith Kumar (2004) found that economic orientation and knowledge had positive and significant relationship with respect to coconut farmers.

Ramu (2005) found from his study that there was a positive and significant association between economic orientation and knowledge of the respondents.

2.5.5 Risk orientation Vs Knowledge

Raju (1999) stated that risk orientation and knowledge had positive and significant relationship.

Sakthivel (2000) found that risk orientation had shown a positive and significant association with knowledge.

Subrahmanyam (2002) inferred that there was a positive and significant relationship between risk orientation and knowledge of AMC trained farmers.

Reddy (2003) reported that there was a positive and significant relationship between risk preference and knowledge of tomato farmers about recommended practices.

Sajith Kumar (2004) reported a positive and significant relationship between knowledge and risk orientation of the coconut farmers.

Ramu (2005) found from his study that there was a positive and significant relationship between risk orientation and knowledge level of the subjects.

2.5.6 Scientific orientation Vs Knowledge

Raju (1999) inferred that scientific orientation and knowledge level of respondents were positively and significantly correlated.

Ramakrishnan (1999) inferred that there was a positive and significant relationship between scientific orientation and knowledge gain of trained farmers.

Ravishankar (2000) inferred that there was a positive and significant relationship between scientific orientation and the knowledge of trained farmers.

Latha (2002) inferred that there was a positive and significant relationship between scientific orientation and the knowledge of trained farmers.

Subramanyam (2002) inferred that there was a positive and significant relationship between scientific orientation and the knowledge of AMC trained farmers.

Reddy (2003) reported that there was a positive and significant relationship between scientific orientation and knowledge of tomato farmers about recommended practices.

Sajith Kumar (2004) revealed a positive and significant association between scientific orientation and knowledge of the farmers.

Ramu (2005) revealed that there was a positive and significant relationship between scientific orientation and knowledge of turmeric farmers.

2.5.7 Market orientation Vs Knowledge

Chander (1991) reported that in case of medium and small farmers, market orientation had positive and significant relationship with knowledge on the recommended technologies of watershed development project.

Reddy (1998) revealed that there was a positive and significant relationship between market orientation and knowledge of farmers of KVV.

Rajendra Kumar (2002) inferred that market orientation was positively and significantly correlated with knowledge of farmers.

2.6 PROBLEMS ENCOUNTERED BY THE FARMERS AND THEIR SUGGESTIONS TO OVERCOME THE PROBLEMS

2.6.1 Problems encountered by the farmers

Satyanarayana (1997) reported that frequent power cut, lack of drought tolerant varieties, high cost of fertilizers, lack of extension workers, low price of farm produce were the major constraints faced by the oil palm growers.

Kumar (2001) revealed that non-availability of quality plant material, lack of market regulation, lack of hired labour for farm operations, unable to get loans from banks / co-operatives, non-availability of HO / AEO during cropping season to provide technical advisers, inadequate storage and transportation facilities were identified as the problems being faced by floriculture farmers.

Prasad (2002) pointed out that incidence of pest and diseases, failure of crop due to adverse weather conditions, non-availability of sufficient labour in time coupled with high wages, non availability of credit facilities in time were the major problems stated by the beneficiaries.

Reddy (2003) revealed that high cost of critical inputs followed by lack of subsidies, lack of support price, syndicate of buyers and lack of credit facilities were the major problems expressed by the tomato farmers.

Ramu (2005) reported from his study that the problems encountered by turmeric farmers in its cultivation include high cost of fertilizers and manures, lack of knowledge about application of recommended doses of manures and fertilizers, lack of

technical guidance, frequent fluctuation in market prices, non-availability of credit facilities etc.

Naik (2006) reported that non-availability of improved seed, pests and diseases, non-availability of inputs in time, erratic rainfall, high cost of seed, lack of remunerative prices, non-availability of gypsum, less access to credit facilities, insufficient extension activities, lack of training, lack of crop insurance, non-availability of manures and organic fertilizers, more cost of labour at harvest and no value addition and processing units as the problems encountered by the groundnut cultivators.

2.6.2 Suggestions given by the farmers to overcome the problems

Satyanarayana (1997) indicated that continuous power supply followed by increase cultivation subsidy, timely technical guidance, provision of fertilizers on subsidy rates, release of drought tolerant varieties and conducting training programmes were the suggestions elicited by the oil palm growers.

Kumar (2001) reported that the suggestions elicited by flower growers were supply of quality plant material, regulation of market, providing credit facilities, providing technical guidance to the farmer and educating the farmer in labour saving techniques.

Prasad (2002) revealed that evolving pest and diseases resistant varieties, evolving drought resistant and water log tolerant varieties, mechanization of farming, arrangement of timely credit facilities from RRBs/PACSs, provision of crop loans at lower rates of interest were the major suggestions given by the beneficiaries.

Reddy (2003) indicated that regulations to lower the cost of inputs, timely and adequate supply of inputs, providing subsidies for critical inputs, price support,

creation of market facilities and provision of storage facilities were the major suggestions expressed by the tomato farmers to overcome the problems faced by them.

Ramu (2005) reported from his study that the suggestions given by turmeric farmers to overcome the problems include supply of manures and fertilizers at standard rates, remunerative price to the produce, timely technical guidance, conduct of training programmes, frequent visits by extension personnel, removal of commission charges, provision of crop insurance, provision of credit facilities at lowest interest rates, and provision of market information.

Naik (2006) reported that provision of improved seed in time, training on identification of pests and diseases and their control, pest forecasting measures, regulation of costs of inputs at the time peak requirement, provision of seed on subsidy, remunerative prices to the produce, proper institutional finance and crop insurance, improved extension activities and training etc. were the suggestions given by the groundnut farmers to overcome the problems in groundnut cultivation.

2.7 HYPOTHESIS OF THE STUDY

Based on the objectives of the study and theoretical framework, the following research hypotheses were formulated.

General Hypothesis 1

There will be a significant relationship between training needs of onion farmers and their profile characteristics.

General Hypothesis 2

There will be a significant relationship between knowledge of onion farmers and their profile characteristics.

The null and empirical hypotheses deduced from the general hypotheses with respect to independent and dependent variables under study were reported, tested and presented in the 'RESULTS' chapter.

2.8 CONCEPTUAL MODEL OF THE STUDY

Based on the review of literature and consultation with experts, conceptual model was developed for the present study on knowledge and training needs of onion cultivators in Afghanistan country.

Conceptual model is a diagrammatic representation outlining the dominant elements of a system and their interrelationships with respect to a criterion variable. It represents the researcher's understanding of a particular set of circumstances and of the simplifications, which he feels may be made to inherently complex relationships. In the present study, in addition to experience and intuition, review of related studies was also formed as the basis for the conceptual model.

The variables included in the study were grouped into independent and dependent variables. The independent variables are conceived as those variables which precede the others in the order of time and which are theoretically expected to lead or to be followed by certain other variables. In the present study profile characteristics of onion farmers were conceived as independent variables.

The dependent variables are those being predicted from the independent variables. Training needs and knowledge of onion cultivators were the two dependent variables in this study.

It is clear from the conceptual model that the training needs and knowledge of onion cultivators are the functions of the number of independent variables such as

education, sociability, farming experience, family size, farm size, annual income, mass media exposure, extension contact, economic motivation, risk orientation, scientific orientation and marketing orientation.

The model was hopefully conceived to give an objective assessment of the respondents in terms of their training needs and knowledge of recommended package of practices of onion and the twelve independent variables affecting them.

The problems encountered by the onion farmers were also important factors that indirectly reflect the knowledge and training needs of onion. However, they were not included in the model for studying their relationship for obvious reasons. The relationship was diagrammatically represented in Figure 1, which helps to derive the following hypotheses for empirical testing.

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MATERIAL AND METHODS

The methodology followed in conducting the present study has been divided and presented in following sections.

3.1 Research design

3.2 Sampling procedure

3.3 Variables and their empirical measurement

3.4 Tools of data collection

3.5 Method of data collection

3.6 Preparation of report

3.7 Statistical procedures followed

3.1 RESEARCH DESIGN

Ex-post – facto research design was used for conducting the study since the variables selected for the study had already occurred.

3.2 SAMPLING PROCEDURE

3.2.1 Locale of the study

Afghanistan country was purposively selected because the investigator hails from this country and he is familiar with the local language. Further, the research results will be useful to the farmers of Afghanistan and also to the administrators and extension workers working in the field.

3.2.2 Selection of province

Out of 34 onion growing provinces, Logar province was selected randomly by using lottery method for the research study (Fig.2).

3.2.3 Selection of district

Out of 7 districts in Logar province Pul-e-Alam district was selected randomly by using lottery method (Fig.3).

3.2.4 Selection of villages

A list of onion growing villages in Pul-e-Alam district was obtained from the revenue official. Out of 149 villages, nine onion growing villages were selected randomly and villages selected are shown below (Table 1).

Table 1: List of villages selected for the study and the respondents

Name of the district	Name of the villages	Selected farmers
Pul-e-Alam	1. Mohajer konjak	15
	2. Shaghasi kala	15
	3. Dadokhel	15
	4. Kamal khel	15
	5. Kolangar	15
	6. Sarisang	15
	7. Qala-e-Saber	15
	8. Hesorak	15
	9. Padkhub shana	15
	Total	135

3.2.5 Selection of respondents

The list of onion growing farmers was obtained from revenue officials for each village and 15 farmers from each village were selected randomly by using simple random sampling procedure. Thus makes 135 farmers for the research study and shown in Table1.

3.3 VARIABLES AND THEIR EMPIRICAL MEASUERMENT

Based on the available literature and after consulting the experts in the field of agricultural extension, the dependent and independent variables were selected for the present study. The selected variables and their empirical measurements are presented in Table 2.

Table 2: VARIABLES AND THEIR EMPIRICAL MEASUERMENT

S.NO	Variables	Empirical Measurement
	Dependent Variables	
1.	Training Needs	Schedule developed for the study
2.	Knowledge	Schedule developed for the study
	Independent Variables	
1.	Education	Schedule developed for the study
2.	Sociability	Schedule developed for the study
3.	Family size	Schedule developed for the study
4.	Farming experience in onion cultivation	Number of years of experience in onion cultivation of the respondents at the time of investigation
5.	Farm Size	Number of standard acres possessed by the respondents at the time of enquiry

6.	Annual income	Schedule developed for the study
7.	Mass media exposure	Schedule developed for the study
8.	Extension contact	Schedule developed for the study
9.	Economic motivation	Schedule developed for the study
10.	Risk orientation	Schedule developed for the study
11.	Scientific orientation	Schedule developed for the study
12.	Marketing orientation	Schedule developed for the study

3.3.1 DEPENDENT VARIABLES

3.3.1.1 Training Needs

It is operationalised as the nature of training required by the onion growers to update their knowledge and skills in onion cultivation. The degree of training need was measured by using the schedule developed for the study.

(a) Collection of need items

The subject matter areas or need items relevant to onion production technology were identified in consultation with extension officers, scientists from Horticulture department of College of Agriculture of ANGR Agricultural University and the scientists of Horticultural University working in Agricultural Research Institute, Rajendranagar, Hyderabad, Andhra Pradesh and from the review of literature. As many as

21 subject matter areas were identified as training needs after thorough scrutiny in consultation with the literature and Horticulture scientists of the University.

(b) Ranking system

To measure the training need in the subject matter areas ranking system was used. The respondents were asked to check each subject matter area/need item on three point continuum as Very essential, Essential and Not essential and weightages assigned were 3, 2, and 1 respectively. The frequencies of each response category were found and the respective frequencies were multiplied to the score allotted to it, thus the total were obtained for each subject matter areas and finally they were ranked based on the mean scores to find out the magnitude of their importance by which farmers required training.

(c) Scoring technique

The respondents were requested to give their opinion regarding the degree of training required in onion production in each training need item on a three point continuum, as weightages assigned were 3, 2, and 1 respectively. These opinions were collected for all the 21 need items for all the respondents. The total score of each respondent was obtained by adding the scores of all items in the schedule. The score ranged from 21 to 63.

After administering the schedule they were quantified based on their scores. This was done to find out relationship between profile characteristics of onion cultivators with training needs.

(d) Categorization

Based on the total score obtained, the respondents were grouped into three categories by employing class interval method as follows:

Category	Score range
Low training needs	36 - 41
Medium training needs	41 - 46
High training needs	46 - 51

3.3.1.2 Knowledge

Knowledge includes all those behaviour and test situations, which emphasize remembering either by recognition or by recall of ideas and materials on some phenomena (Bloom *et al*; 1958)

The Knowledge in this context was operationalised as the ability to recall the factual information about the package of practices of onion cultivation by the respondent farmers. For measuring the respondent's knowledge on onion cultivation, a knowledge schedule was developed by adopting the following procedure. An item pool of knowledge questions on recommended package of practices of onion cultivation was prepared by referring relevant literature and consulting the University horticultural scientists and experienced officers in the field of Extension. After a thorough scrutiny of the items with the assistance of scientists, a knowledge schedule comprising items covering all the aspects of onion cultivation was prepared (Appendix).

The items were pretested by administering them to 30 farmers of the study area but outside the main sample area of the study and suitable modifications were made. A translated version (pashtu) of knowledge schedule was administered to the respondents of the sample areas.

(a) Scoring technique

The selected knowledge items were arranged under different types as multiple choices, true or false and open ended questions. The correct response to each item was given a score of 'one' and incorrect response was given a score of 'zero'. Total of all the scores of knowledge items was computed for each respondent.

Based on the total knowledge scores obtained by the respondents, they were grouped into three categories by the following class interval method as follows:

Category	Score range
Low level of Knowledge	18 - 20
Medium level of Knowledge	20 - 22
High level of Knowledge	22 - 24

3.3.2 INDEPENDENT VARIABLES

3.3.2.1 Education

In the present study, education was operationally defined as the extent of formal education possessed by an individual. A schedule was developed to measure education. The respondents were classified into 5 categories as follows:

Education level	Score
Illiterate	1
Primary School	2
Middle School	3
High School	4
Degree	5

3.3.2.2 Sociability

Sociability was conceptualized in the present study as respondent's participation in social institutions as a member or as an office bearer. This variable was measured by developing a schedule and respondents were divided into four categories as follows:

Category	Score
No membership in any organization	1
Membership in one organization	2
Membership in more than one organizations	3
Office bearer in one organization	4

3.3.2.3 Family Size

It is referred to the total number of members in the family consisting of husband, wife, children and other dependent members. The family size was measured in terms of the number of members in the family at the time of investigation. The respondents were categorized into 3 groups based on the class interval method as follows:

Category	Number
Small	2 - 6
Medium	6 - 10
Large	10 - 14

3.3.2.4 Farming Experience

It refers to the number of completed years of the respondent's involvement in onion cultivation and each completed year was given as one score. The onion cultivators were categoriesed into three groups based on the class interval method as follows:

Category	Score range
Low experience	3 - 10
Medium experience	10 - 17
High experience	17 - 24

3.3.2.5 Farm Size

Farm size was operationalzed as the number of standard acres possessed by the respondent at the time of enquiry. A weight of one was given to each standard dry land acre possessed by the respondent to calculate his farm size score. The farm size in Afghanistan is measured in terms of jeribs and hence the responses were obtained in jeribs.

Jeribs are converted into wet land (1 jerib = 0.5 acres of wet land) and later into dry land areas (1 acre of wet land = 2.5 acres of dry land). As there was no classification of farmers based on farm size in Afghanistan country, the classification being followed in Andhra Pradesh state as per section –B, subsection (1) B land Reform added ceiling Act No.1 of 1973 was followed for the present study. Accordingly, the respondent farmers were categorized into three groups as follows:

S.No.	Category	Farm size	
		(Wet land)	(Dry land)
1.	Marginal farmers	< 2.5 acres	< 5.0 acres
2.	Small farmers	2.5 – 5.0 acres	5.0 – 10 acres
3.	Big farmers	> 5 acres	> 10 acres

3.3.2.6 Annual Income

This variable was operationalised as the total annual income of the respondent from agriculture and any other source as reported by the respondents at the time

of interview. Weightage of one score was given to each 10,000 Afghani of annual income. The respondents were categorized into 3 groups by adopting class interval method as follows:

Category	**Annual income (Afghanis)**
Low	30,000 -1,20,000
Medium	1,20,000 – 2,10,000
High	2,10,000 – 3,00,000

3.3.2.7 Mass Media Exposure

It refers to the degree of utilization of different mass media sources by the respondent. The mass media exposure of onion farmers was measured with the help of a schedule developed for the sturdy, of which first three regarding reading news papers, farm magazines and agricultural books and remaining three refer to listening to radio, watching TV and video films in agriculture.

S.No	Mass media	Regularly (3)	Occasionally (2)	Never (1)
1.	Read news papers			
2.	Read Farm Literature			
3.	Read Agril. Books			
4.	Listen to radio programmes			
5.	Watch T.V. Programmes			
6.	See video Film on agriculture			

The respondents were asked to indicate their frequency of exposure to mass media mention in terms of regularly, occasionally and never and a weightage of score of 3, 2, 1, were given respectively.

The maximum score obtained in the present study was 13, and minimum was 7. The respondents were divided into three categories based on the class Interval method as follows:

Category	Score range
Low	7 - 9
Medium	9 - 11
High	11 -13

3.3.2.8 Extension contact

It refers to the degree to which an individual maintains contacts with the functionaries of the formal extension organizations like department of extension and university specialists, NGOs and input dealers. A schedule was developed for the present study. The respondents were asked to indicate their frequency of contact on a five point continuum ranging from always to never. A weightage of score of 5, 4, 3, 2, 1 was given for always, frequently, occasionally, rarely and never respectively.

S.NO.	Extension functionaries	Always (5)	Frequently (4)	Occasionally (3)	Rarely (2)	Never (1)
1.	Village Extension worker					
2.	Principal Agricultural officer					
3.	Non – Governmental Organization					
4.	Input dealers					
5.	University scientist					

The maximum possible score was 25 and minimum possible score was 5. In the present study, the maximum score obtained was 13, while minimum score was 7.

The respondents were divided into three categories based on the obtained score by employing class interval method as follows:

Category	**Score range**
Low	7 - 9
Medium	9 - 11
High	11 -13

3.3.2.9 Economic Motivation

It refers to the occupational success of onion farmers in terms of profit maximization of economic ends. The schedule consists of five positive statements and one negative statement against a five–point continuum ranging from strongly agree to strongly disagree. The scoring procedure for positive and negative statements followed is given below.

Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Positive	5	4	3	2	1
Negative	1	2	3	4	5

The maximum score obtained was 27 and minimum score was 18. The respondents were classified into three categories based on obtained score by employing class interval method.

Category	**Score range**
Low	18 - 21
Medium	21 - 24
High	24 - 27

3.3.2.10 Risk Orientation

Risk orientation was operationalised as the degree to which the farmer was orientated towards risk and uncertainty in accepting new ideas in onion cultivation. This schedule consisted of six statements. Out of which five were positive and one was negative. The respondents were asked to indicate their agreement or disagreement against a five–point continuum ranging from strongly agree to strongly disagree. The scoring procedure followed is as follows:

Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Positive	5	4	3	2	1
Negative	1	2	3	4	5

The respondents were classified into three categories based on the obtained score by employing class interval method.

Category	**Score range**
Low	17 - 20
Medium	20 - 23
High	23 - 26

3.3.2.11 Scientific Orientation

It was operationalised as the degree to which the respondent was oriented towards the use of scientific methods in farming and decision making. This schedule consists of six statements. Out of six statements, the second statement was negative and other five statements were positive. The scoring was done on a five point continuum and is as follow bellow.

Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Positive	5	4	3	2	1
Negative	1	2	3	4	5

The maximum score obtained was 28 and minimum score was 16. The respondents were classified into three categories based on the obtained score by employing class interval method as follows:

Category	**Score range**
Low	16 - 20
Medium	20 - 24
High	24 - 28

3.3.2.12 Marketing Orientation

Marketing orientation was operationalised as the degree to which a farmer is oriented towards marketing his produce for remunerative price. This schedule consists of six statements out of which four were positive and two were negative. Scoring was done on a three-point continuum as shown below.

Statement	Agree	Undecided	Disagree
Positive	3	2	1
Negative	1	2	3

The maximum and minimum scores in the present study were 13 and 7 respectively. The respondents were classified into three categories on the basis of obtained score by employing class interval method.

Category	Score range
Low	7 - 9
Medium	9 - 11
High	11 -13

3.4 TOOLS OF DATA COLLECTION

3.4.1 Interview schedule

An interview schedule was developed and used for the data collection in the investigation, most of the items included in the schedule were structured questions schedules and objective test items, which were suitable to the research design selected. The investigator had to translate the contents of the schedule in the local language i.e pashtu to make the respondents understood the questions properly and furnish reliable responses. Information required for schedule developed were collected by going through the relevant literature on the subject, detailed discussion with experts and considering various aspects of the problem under the study.

3.4.2 Pre-testing of the interview schedule:

Before giving a final shape to the interview schedule and using in field investigation, the schedule was pre-tested with carefully selected other than sample respondents. In the light of difficulties encountered during pre-testing, the interview schedule was modified suitably, in consultation with scientists and other experts. The final interview schedule was given in appendix.

3.4.3 Establishing rapport with the respondents

Prior to data collection, sufficient rapport was established with the respondents during the first few days of field investigation with the help of local leaders, progressive farmers and extension personnel. The respondents were convinced about the purpose of the study. This helped in obtaining the desired co-operation, valid and reliable information from the respondents.

3.5 METHOD OF DATA COLLECTION

Each of the selected respondents was personally interviewed with the help of interview schedule. The questions and statements were asked in local language i.e pashtu. The onion farmers were personally interviewed by the investigator which enabled him to get first hand information and gave an opportunity to observe the respondents personally. It was made sure that the questions were correctly understood by the respondents by repeating the questions and clarifying the doubts wherever necessary. Friendly atmosphere was maintained during the interview to see that the respondents were at ease and expressed their opinion fairly, freely and frankly. The responses of each respondent were recorded in the interview schedule by the investigator with due care. Every effort was made to cheek and cross cheek the data, collected from the respondents.

3.6 PREPARATION OF THE REPORT

The data thus collected through interview schedule were coded and tabulated. Then the data ware subjected to different statistical measures keeping in view the objectives of the study. The findings emerged out of the data were suitably interpreted, discussed and necessary inferences and conclusions were drawn.

3.7 STATISTICAL PROCEDURES FOLLOWED

The following statistical tools were used for analysing the data.

3.7.1 Frequency and percentages

Frequency and percentage were used to know the distribution pattern of respondents according to the variables. Percentage was used for standardization of size by calculating the number of individuals that could come under a given category if the total number of cases were 100.

3.7.2 Arithmetic mean ($\bar{x}$)

It is defined as the sum of all values of the observations divided by the total number of observations (n), symbolically it is presented as

$$\bar{x} = \frac{\sum x}{n}$$

Where

$\bar{x}$ = Arithmetic mean
$\sum x$ = Sum of the items
n = Total number of items

3.7.3 Standard deviation (σ)

It is positive square root of the mean of the sum of squares of the deviation taken from the arithmetic mean of the distribution.

$$\sigma = \sqrt{\frac{1}{n}\left[\Sigma x^2 - \frac{(\Sigma x)^2}{n}\right]}$$

Where

σ = Standard deviation
Σx^2 = Sum of squares of each individual
$(\Sigma x)^2$ = Square of sum of all items
n = Number of items

3.7.4 Co-efficient of correlation (r)

The degree of associationship (or the extent of relationship) is known as Coefficient of correlation. This is used to measure relationship between independent variables and dependent variables.

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left[\sum x2 - \frac{(\sum x)2}{n}\right]\left[\sum y2 - \frac{(\sum y)2}{n}\right]}}$$

Where,

r = Co-efficient of correlation

$\sum x$ = Sum of score of variable x

$\sum y$ = Sum of score of variable y

$\sum x2$ = Sum of square of score of variable x

$\sum y2$ = Sum of square of score of variable y

$(\sum x)2$ = Square of sum of score of variable x

$(\sum y)2$ = Square of sum of score of variable y

$\sum xy$ = Sum of product of variables x and y

n = Size of the sample

The 'r' calculated value was compared with 'r' table value for n-2 degrees of freedom. If the 'r' calculated value was equal or greater than 'r' table value, the relationship between the selected variables was considered significant or otherwise it was considered non-significant.

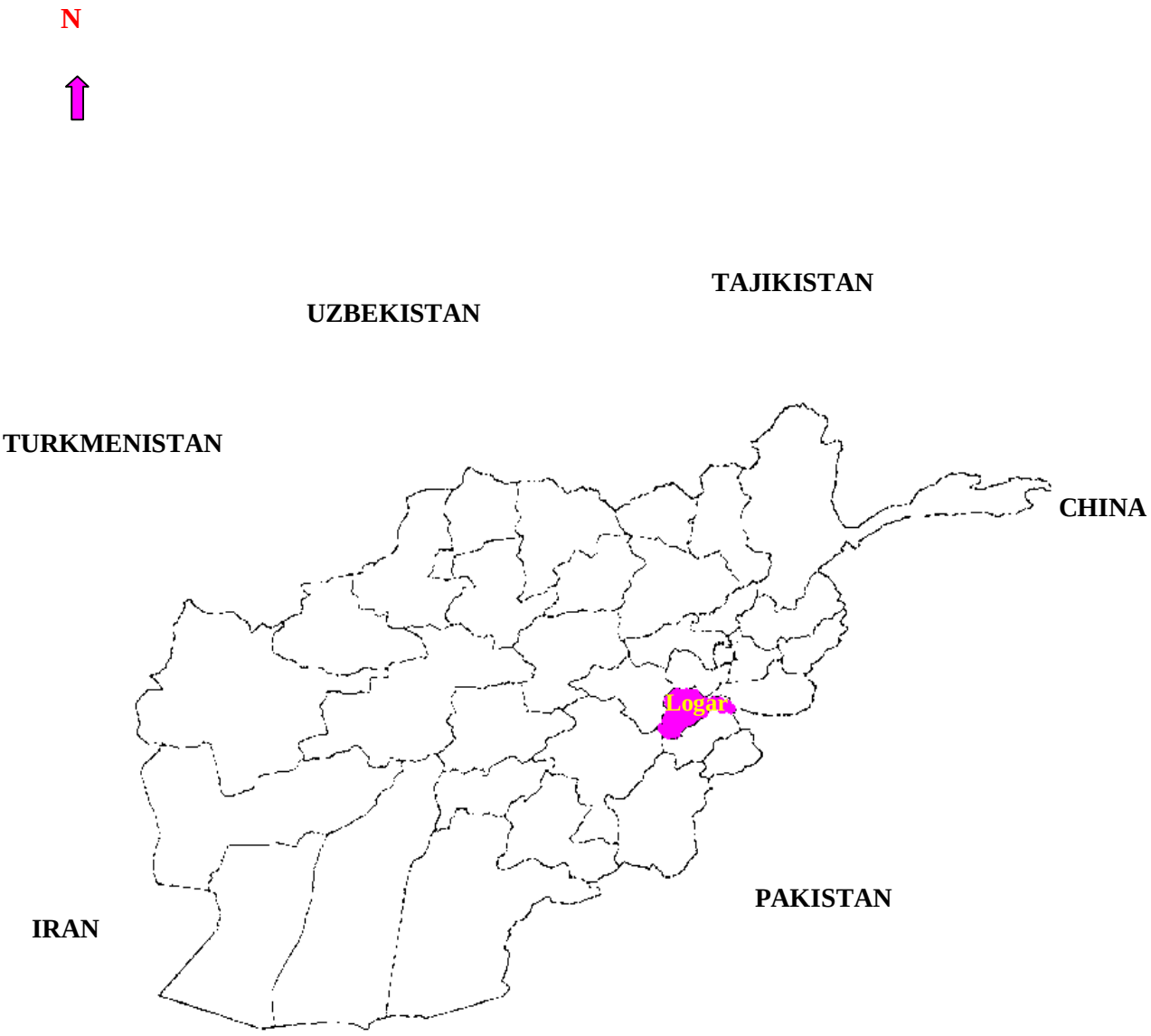
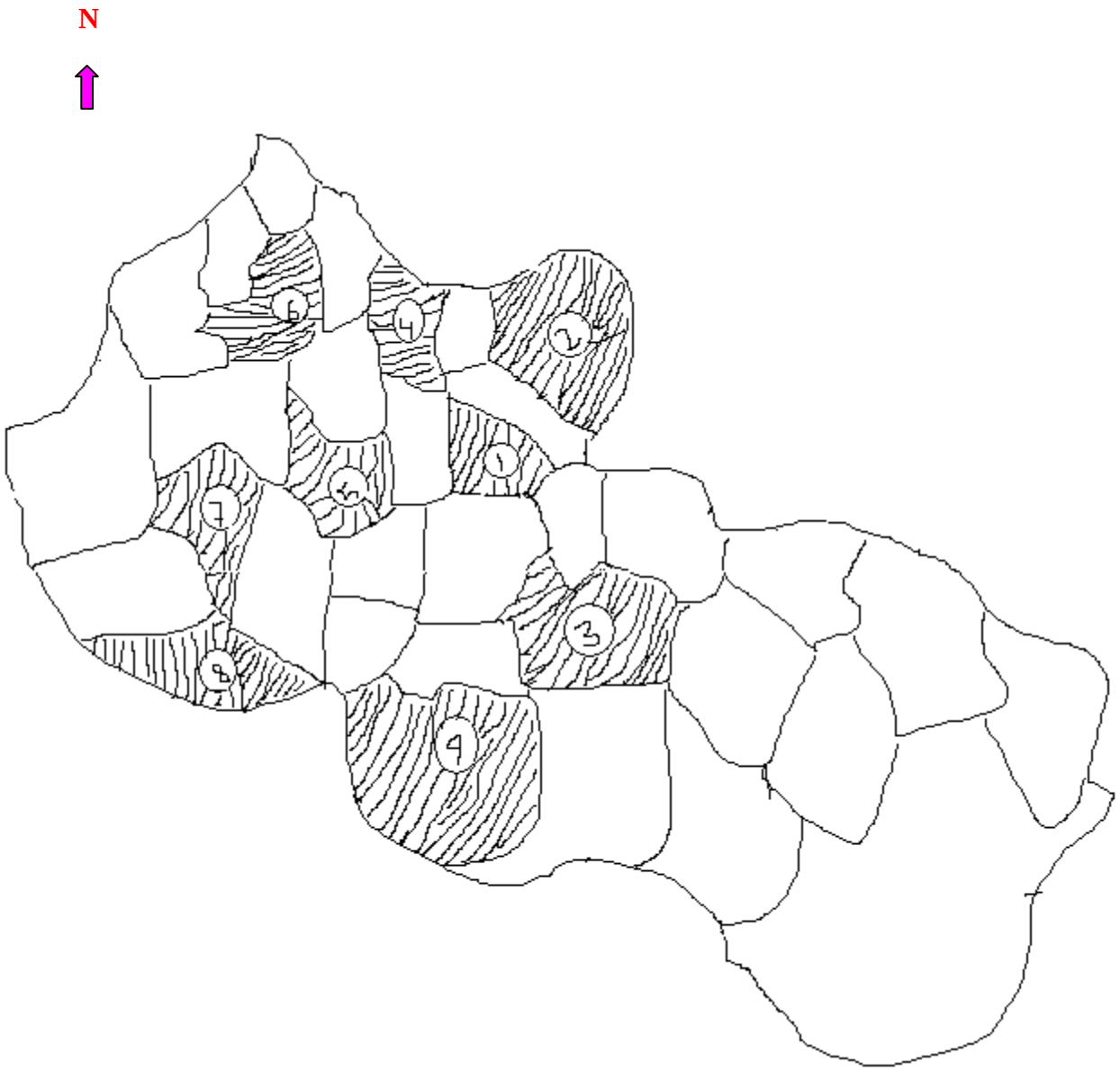


Fig.2: MAP SHOWING SELECTED LOGAR PROVINCE

Fig.3: MAP SHOWING SELECTED PUL-E-ALAM DISTRICT



1. Mohajer konjak
2. Shaghasi kala
3. Dadokhel
4. Kamal khel
5. Kolangar
6. Sarisang
7. Qala-e-Saber
8. Hesorak
9. Padkhub shana

Fig.4: MAP SHOWING SELECTED VILLAGES IN PUL-E-ALAM DISTRICT

CHAPTER – VI

SUMMARY AND CONCLUSIONS

Afghanistan is a landlocked, mountainous country whose importance lies in its strategic position at the crossroads of Central Asia. It borders Iran, 936 km; Turkmenistan, 744 km; Uzbekistan, 137 km; Tajikistan, 1,206 km; China, 76 km; and Pakistan, 2,430 km; And its complex networks of trade and cultural links has made it an irrestible prize for centuries. Only about 12.00 per cent of the country's total land is arable, three per cent is under forest cover, 46.00 per cent is under permanent pastures, with the remaining 39.00 per cent being mountainous. Desertification, particularly in the South-West, and deforestation are rising at an alarming rate, while some of the pastures are cultivated when rainfall is plenty and left fallow the following year, causing some erosion and loss of grazing land. Given highly variable rainfall and concomitant variations in production from the rainfed sector, the irrigated sector traditionally provided a higher proportion of all crops.

Agriculture is the mainstay of Afghanistan’s economy; it is the main source of National out put and employment. About 85.00 per cent of the country’s estimated 318,89,870 peoples depend on agriculture, the largest sector of the economy.

Farming is an important occupation in Afghanistan. It not only takes the responsibility of feeding ever increasing population, but also provides raw material to the agro – based industries. Therefore, the economy of the Nation rests with well being of the farmers. Unless the farmer gets new information, understand and learn new skills and put them into practice, in a right way, progress can not be achieved in increasing agricultural production.

Afghan farmers are increasingly interested in vegetable crop production, which gives a more immediate and greater source of cash than do traditional subsistence crops. The main summer vegetables grown include onions, tomatoes, eggplants, pumpkins, garlic and okra, while the main winter vegetables are cauliflower, spinach, carrots, potatoes and lettuce. Other vegetables are also grown but are relatively rare and area specific.

Each year, Afghanistan produces more than 3.2 million metric tons of fresh fruits and vegetables, accounting for 42.00 per cent of the country's annual agricultural output. These are high-value products, but easily perishable if not stored correctly. Largely due to the lack of refrigerated storage facilities, an estimated 20 to 30 per cent of fresh produce loses its value through spoilage before it reaches to the market. Without refrigeration, Afghan farmers and traders are only able to store fresh produce for a limited time and must sell their goods during harvest time when prices are seasonably low.

Onion (*Allium cepa* L.) is one of the most an important underground bulbous vegetable crop and is well known for its utilization as food and medicine. It is cultivated in Afghanistan over an area 10,556 ha with a total production of 1,38,448 tonnes. Onion is largely grown in Logar, Kabul, Nangarhar, Kandahar, Kapisa, Laghman, Kunar and Badakhshan provinces. It is not only grown for domestic consumption but also for export purpose. Onion is a widely consumed condiment in Afghanistan. Every body, rich and poor consume onion daily because it has high nutritive value and possess certain antibiotic properties.

The productivity of onion was reported highest in Korea (61.90 t/ha), China (61.76 t/ha), Australia (44.51 t/ha) and USA (42.96 t/ha) in that order. (Pandey and Bhonde 1999). While in Afghanistan it was only 40 t/ha (Ministry of Agriculture, Irrigation and livestock, Department of Statistics 2006).

The main reasons for low productivity of onion are traditional cultivation methods and use of local varieties, occurrence of pest and diseases, fluctuation of market prices and non-remunerative prices to onion make its cultivation unprofitable. Sometimes, the market rate is very low and sold at less than one rupee a Kilo.

Agricultural development plays an important role in the national development. In order to increase the onion crop yields the level of adoption and improved farm practices ought to be increased. Knowledge of the recommended technologies is a pre- requisite for adoption of practices. A greater knowledge of technical nature leads to higher adoption level because knowledge is not inert. Thus, knowledge influences the human behaviour producing both favourable and unfavourable responses. The basic input for achieving higher yields are assimilation of technical knowledge for which the first step is getting the knowledge. Knowledge is one of the important components of behaviour and as such it plays a major role in covert and overt behaviour of human being. Knowledge of the innovations is the basic requirement as it gives impetus to adopt technology. Development and acceptance of modern agricultural technology is the prime attention for increasing crop production. It is generally observed that farmers do not adopt recommended package of practices in cultivation of onion in view of lack of knowledge. Hence it is imperative to examine farmer's knowledge towards modern agricultural technology for increasing onion production.

It is observed that the process of acquisition of knowledge by farmers practicing different technologies depend on their profile constituted by various personal, socio-economic, and psychological characteristics. Likewise, it is supposed that there exist a certain set of personal, socio-economic and psychological characters operating with onion growers.

In order to acquire knowledge and skills, training is vital and essential input which induce motivation and create confidence and inculcate efficiency in an individual. To increase the production, of onion training is of immense helpful activity and is necessary. It is the function of helping others to acquire and apply knowledge, skill, abilities and attitudes which they do not possess but which are needed. It brings continuous improvement in the quality of work performed by the onion cultivators. Training only can bridge the enormous gap between the remarkable yield achieved by the scientists and that obtained by the farmers. It is therefore necessary to investigate the areas of training needs of onion farmers. If the training programmes are need based, a definite improvement in the knowledge level of the onion growers would occur. So far no attempts were made to investigate the knowledge levels of farmers in general and onion cultivators in particular and also identification of training needs of onion farmers. Keeping this in view, the present investigation entitled "A study on knowledge and training needs of onion cultivators in Afghanistan country" was taken up with the following objectives.

6.1 OBJECTIVES

1. To study the profile characteristics of onion cultivators.
2. To identify the training needs of onion cultivators.
3. To study the knowledge level of onion cultivators on the recommended package of practices of onion crop.
4. To study the relationship between selected independent variables and Knowledge and training needs of onion cultivators.
5. To find out the problems encountered by the onion cultivators and to elicit the suggestions to overcome the problems.

6.2 RESEARCH DESIGN

Ex-post facto research design was used in the present investigation.

6.3 SAMPLING PROCEDURE

Afghanistan country was purposively selected for conducting the research as the investigator hails from this country and the findings are very useful for the extension and administration of Afghanistan. Out of 34 onion growing provinces, Logar province was selected randomly using lottery method. Out of 7 districts in Logar province, Pul-e-Alam district was selected randomly again by lottery method. A list of onion growing villages were obtained from the selected district, nine villages were selected randomly. From each of the selected village, 15 farmers were selected randomly thus making a total sample of 135 respondents.

6.4 VARIABLES SELECTED FOR THE STUDY

6.4.1 Dependent Variables:

Training needs and knowledge of onion farmers were chosen as the dependent variables.

6.4.2 Independent Variables

The independent variables selected for the study were education, sociability, family size, farming experience in onion cultivation, farm size, annual income, mass media exposure, extension contact, economic motivation, risk orientation, scientific orientation, marketing orientation. The variables were measured with appropriate schedules developed and with appropriate scales for the study.

6.5 COLLECTION OF DATA

The data were collected using pre-tested interview schedule developed for the study. The obtained data were coded, tabulated and analysed, statistically and the results were interpreted accordingly.

6.6 SALIENT FINDINGS

6.6.1 Distribution of respondents based on their profile characteristics

Highest proportion of sampled farmers were found to be illiterate (36.30%) followed by primary school education level (34.82%), majority had no membership in any organization (71.11%), had small and medium family size (40.74%), medium farming experience (82.22%), small farm size (55.55%), high annual income (50.37%), low extension contact (61.48%), medium mass media exposure (45.18%), high economic motivation (49.63%) and risk orientation (53.33%), medium scientific orientation (57.78%) and high marketing orientation (60.00%) levels.

6.6.2 Distribution of respondents according to their training needs

About 46.00 per cent of the respondents were grouped under the category of high requirement regarding training needs followed by medium (39.26%) and low (14.82%) categories.

6.6.2.1 Distribution of respondents according to subject matter area

With regard to the requirement of training needs subject matter wise it was found from the study that disease management has got first rank, while application of manures and fertilizer got second rank, and remaining were in the following rank order varietal selection (3^{rd} rank), preparatory cultivation (4^{th} rank), seed production (5^{th} rank), seed treatment (6^{th} rank), irrigation (7^{th} rank), weeding and interculture (8^{th} rank),

preparation of spray solution (9th rank), storage (10th rank), drying and curing (11th rank), propagation methods (12th rank), nursery management (13th rank), transplanting (14th rank), export to other countries (15th rank), harvesting (16th rank), grading (17th rank), packing (18th rank), transportation (19th rank), marketing with in the country (20th rank) and drip and fertigation (21st rank).

6.6.3 Distribution of respondents according to knowledge level of onion cultivators on recommended package of practices of onion crop

The findings of the study had revealed that half of the onion cultivators (50.37%) had medium level of knowledge on the recommended package of practices followed by low (31.11%) and high (18.52%) knowledge levels.

6.6.4 Relationship between selected independent variables and Training needs

In order to explore the relationship or association between selected independent variables and dependent variables correlation coefficient was computed. As a result, the independent variables education, family size, economic motivation, scientific orientation and marketing orientation were found to be having positive and significant relationship with the training needs of onion farmers. While, farming experience, mass media exposure and risk orientation had shown negative and significant relationship with training needs. Other variables sociability, farm size, annual income and extension contact were found to be non-significant with training needs.

6.6.5 Relationship between selected independent variables and knowledge

The independent variables farming experience, annual income, mass media exposure, economic motivation, risk orientation, scientific orientation and marketing orientation were found positively and significantly related with knowledge of onion

cultivators. The other variables education, sociability, family size, farm size and extension contact had shown non-significant relationship with knowledge of onion farmers.

6.6.6 Problems encountered by onion cultivators suggestions given by them to overcome the problems

The problems encountered by the onion cultivators in the sampled area of Afghanistan country in the cultivation of onion crop include high cost of fertilizer, pesticides and electricity supply, shortage of labour, lack of knowledge on identification of pests and diseases and their control measures, non-availability of improved seed material, Low price for onions and lack of access to credit.

The suggestions offered by the onion cultivators to overcome the above problems include provision of subsidy on fertilizers, pesticides and electricity, increase extension workers at field level, provision of more labour in peak seasons, Government support to construction of storage structures for onion produce, provision of more institutional finance and fixing minimum support price for onion.

6.7 IMPLICATIONS OF THE STUDY

1. Highest proportions of the onion farmers were found to be illiterate and educated up to primary school level. Very few were giving education up to middle school, high school and degree holders. Education is one of the basic indicators of human development and national progress. Therefore, efforts need to be done to make the farmers more educated by opening opportunities at all levels. More emphasis is to be given on adult education functional literacy too.

2. It is evident from the study that majority of the onion farmers were found to have low sociability. Because of lack of education and also following traditionality in the selected area could be the reasons for this. It reflects ignorance on the part of

farmers and non-functioning of proper extension mechanism. Hence, there is a need to improve social participation of onion farmers by encourage them to participate in more and more organizational meetings with help of voluntary organizations.

3. Research results revealed that majority of the respondents were small farmers. As it is not possible to increase farm size, the farmers need to be educated to follow intensive cultivation practices to improve the productivity per unit area.

4. Low extension contact was found to be one of the important finding of the investigation and this needs attention of the policy makers and administration. For want of proper extension contact, the farmers were not able to identify the problems in cultivation of onion. The extension functionaries need to make frequent contacts and motivate the farmers towards adoption of recommended techniques. It was also advised by the farmers to establish extension-cum-training centers at district level to facilitate more extension contact. Further, arrangements for the extension workers to reside in villages should be made so that they can build good rapport with farming community and farmers get the benefit of solving day-to-day problems without losing further losses.

5. Results indicated that most of the respondents had medium mass media exposure. Mass media consumption for farmers is a direct need for quick acquisition and evaluation of technologies. Mass media is also considered to be most credible source of information now-a-days and can reach the unreached. Hence, officials may help in establishing community television sets, radio sets, and screening of films etc. frequently and provide opportunities to the farmers to increase their mass media exposure.

6. It is clear from the findings of the study that majority of the respondent onion farmers had high requirement of training needs. It clearly indicate the necessity of organizing training programmes. Training programmes help in capacity building of the farmers, and improves competency of the farmers. Hence, the extension agency of the government and also voluntary organizations need to concentrate on organizing the training programmes on onion cultivation practices duly giving the importance of including the course content of disease management, application of manures and fertilizer, varietal selection, preparatory cultivation, seed production, seed treatment etc. Not only conduct of the training programmes, the extension functionaries need to take up proper follow up for studying transfer of training.

7. The finding indicated that, half of the respondents had medium knowledge level on recommended package of practices of onion crop and little less than one-third of the farmers had low level of knowledge. In order to increase knowledge level of farmers, proper educational facilities, increased extension contact, adequate mass media exposure through print and electronic media are very much required. Besides, regular conduct of training prgrammes and exposure visits further increase the knowledge levels of the onion farmers.

8. From the results of the research it was once again proved that there was positive and significant association between farming experience, annual income, mass media exposure, economic motivation, risk orientation, scientific orientation and marketing orientation and knowledge of the farmers. Hence, the extension agency and other voluntary organizations need to concentrate in improving these areas to increase knowledge and which leads to adoption of improved practices in onion cultivation.

9. The suggestions given by the farmers to overcome the problems such as providing subsidy to inputs and electricity, establishment of extension-cum-training centers at district level, conducting demonstrations on improved technologies, providing government support for construction of storage facilities to fetch remunerative prices and to facilitate export, providing proper institutional finance and fixing of minimum support price need to be attended by the administration and policy makers of Afghanistan country to improve the knowledge and farming performance of onion growers and to make onion cultivation more profitable and sustainable.

6.8 FUTURE LINE OF RESAERCH

1. This study was confined to one district and nine villages only. For generalization of findings, similar studies could be conducted in other districts of the province where onion crop exists.
2. The present study was confined to only onion crop for assessing the training needs and knowledge level. Further, studies may be taken up on other important commercial crops grown in Afghanistan.
3. Similar studies can be repeated after a conclusive period of five years to assess training needs of the respondents and the impact of training in improving the socio – economic conditions of onion farmers.
4. This study identified training needs and knowledge level of farmers. Experimental studies can be taken up to see the effect of training on knowledge gain.
5. The study was confined to small sample of farmers. The same study can be taken up with large size sample and including more relevant variables.

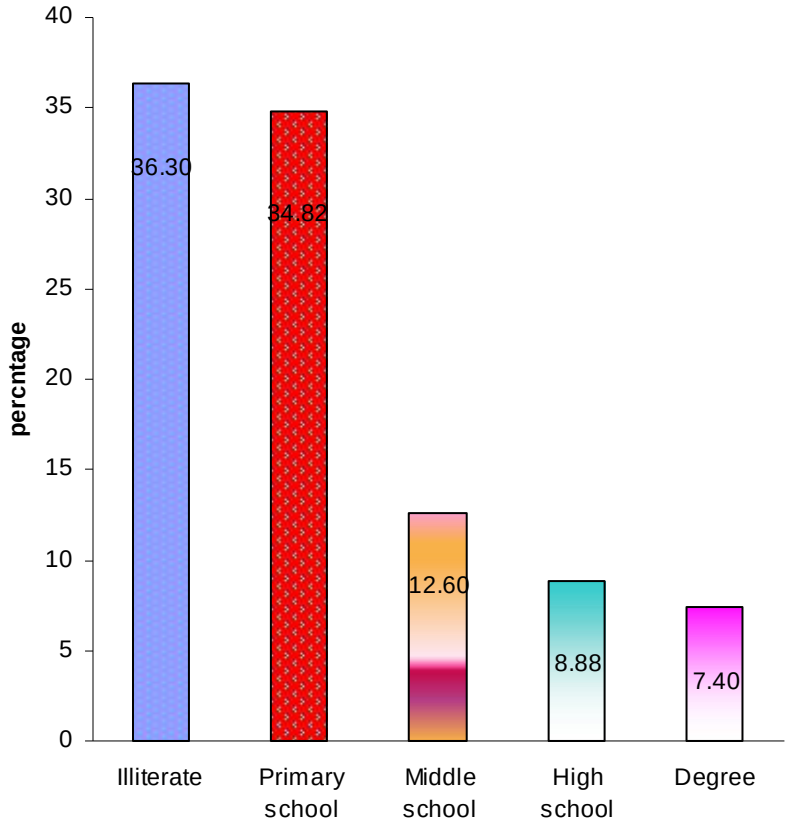


Fig. 5: Onion farmers based on their education

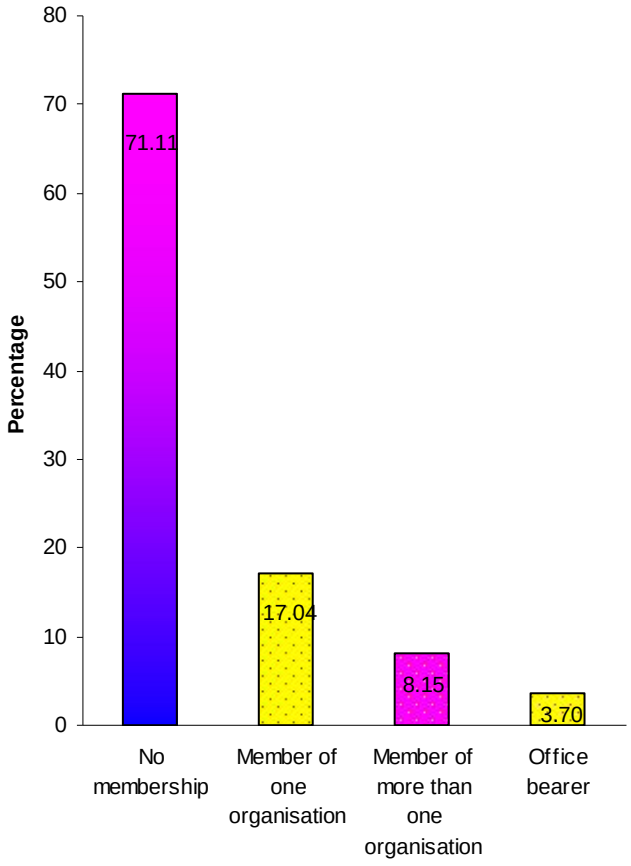


Fig. 6: Onion growers depending upon their sociability

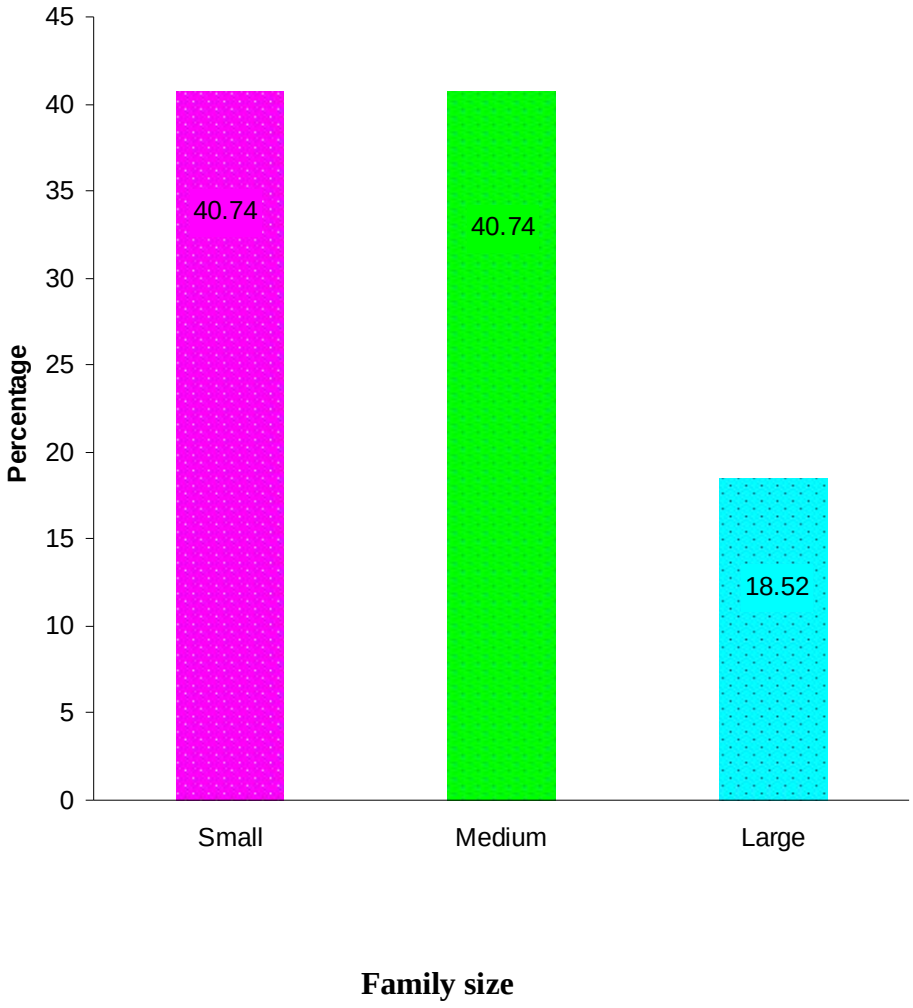


Fig. 7: Onion crop cultivators in relation to their family size

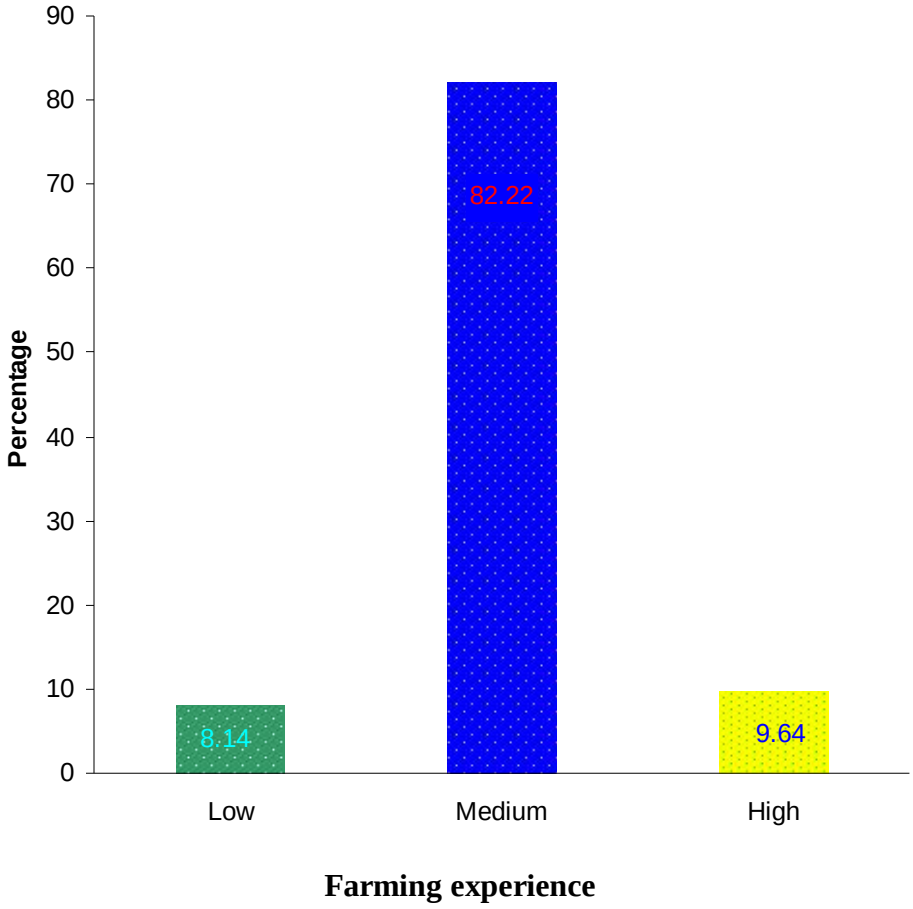


Fig. 8: Farming experience of onion crop growers.

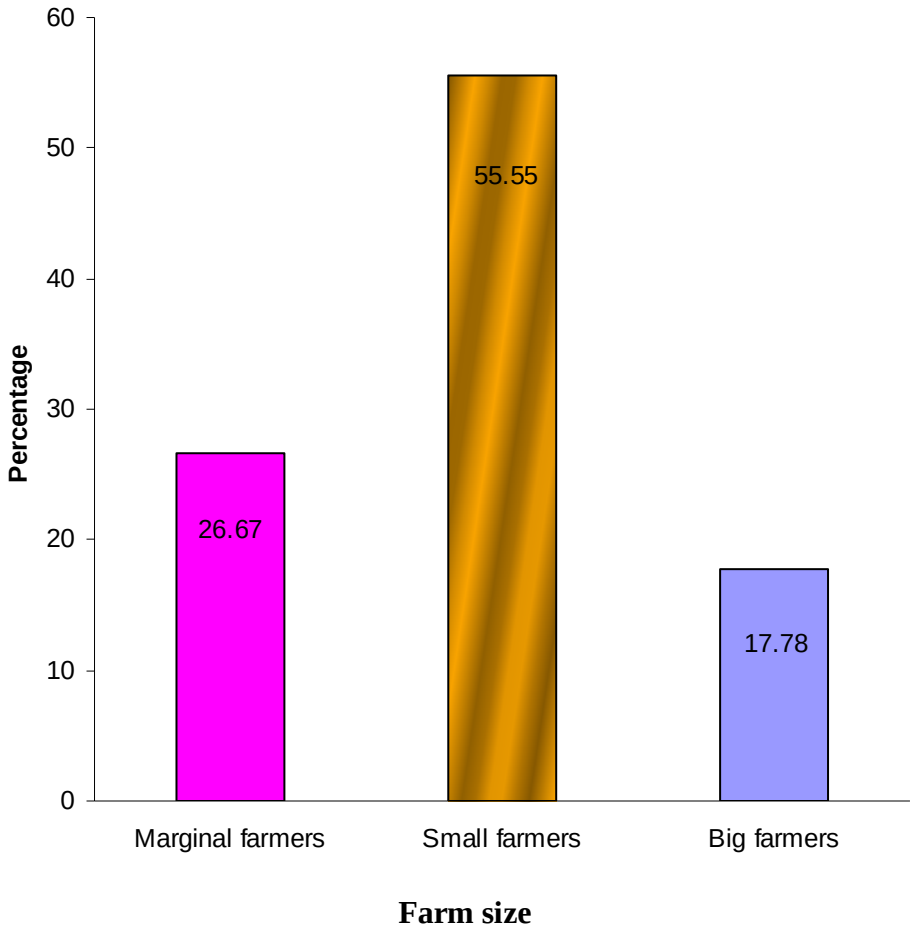


Fig. 9: Onion crop farmers based on their farm size

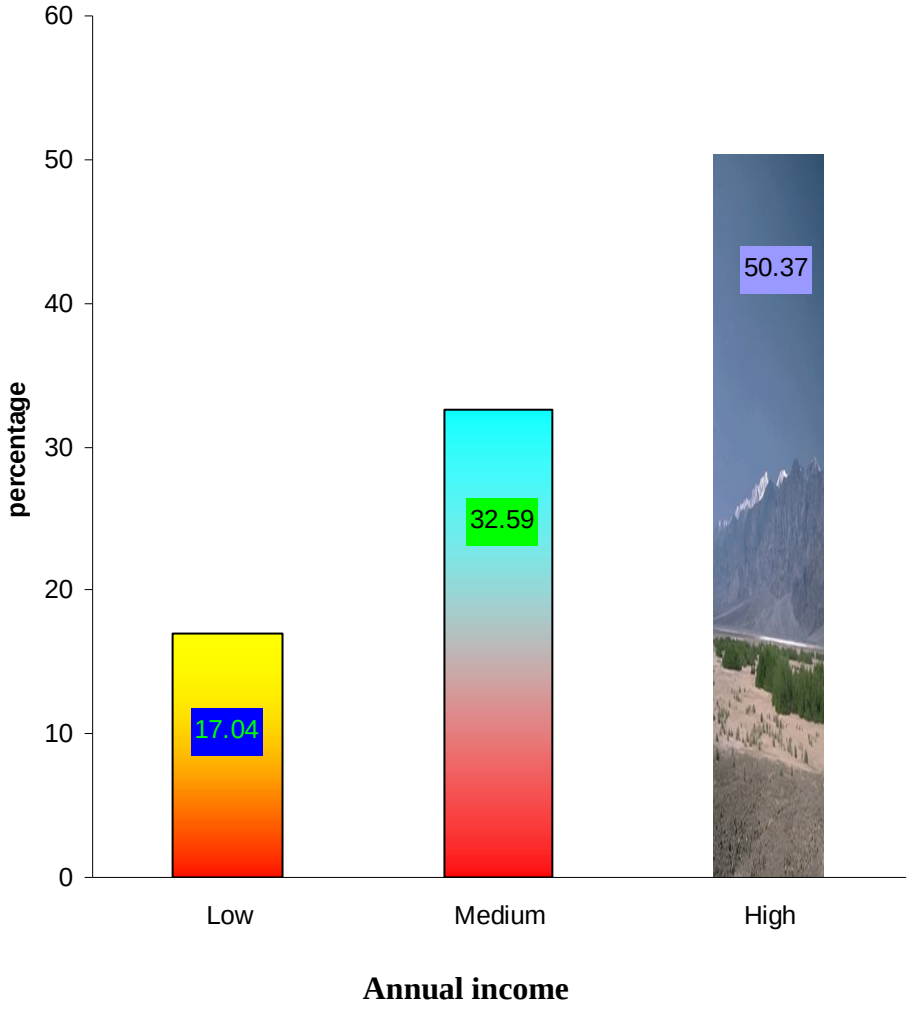


Fig. 10: Onion crop cultivators according to their annual income

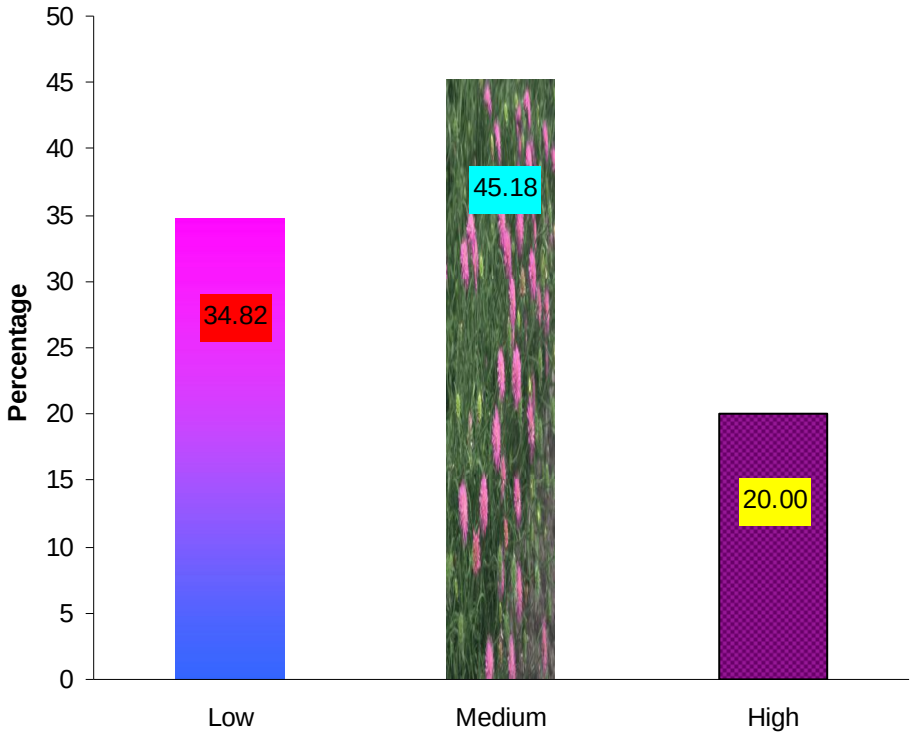


Fig. 11: Extent of mass media exposure to onion farmers

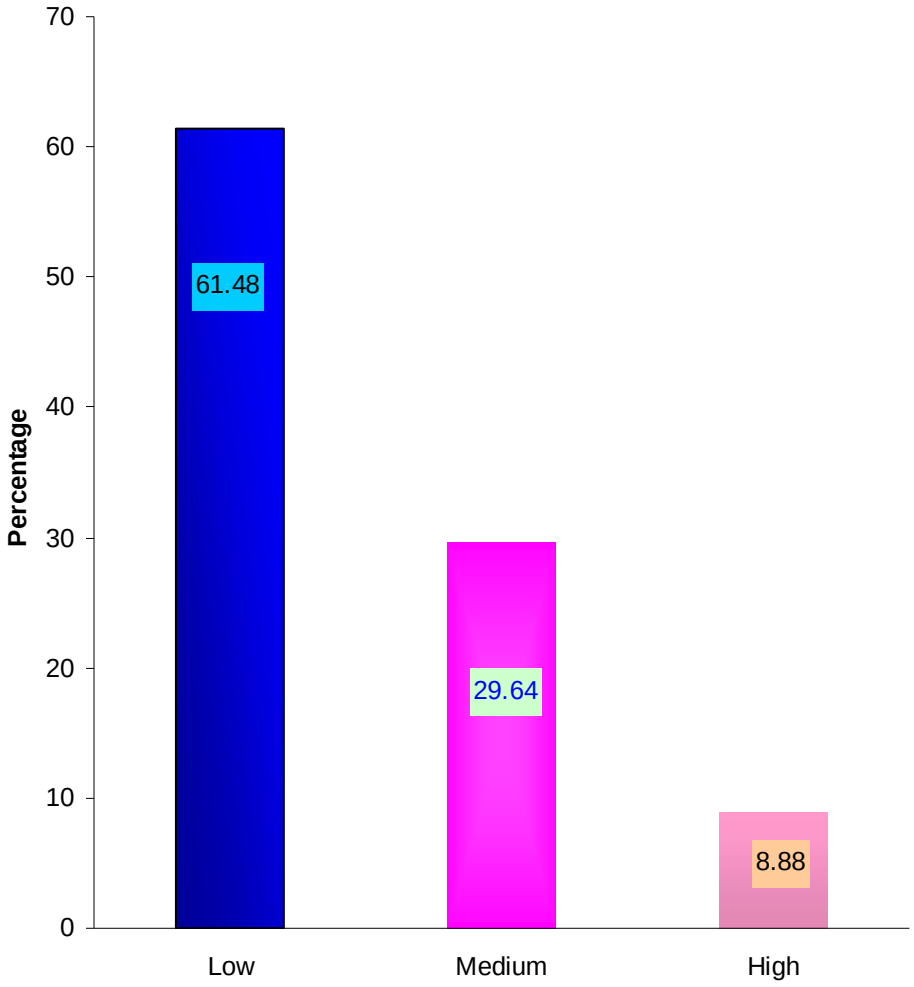


Fig. 12: Extension contact of onion crop cultivators

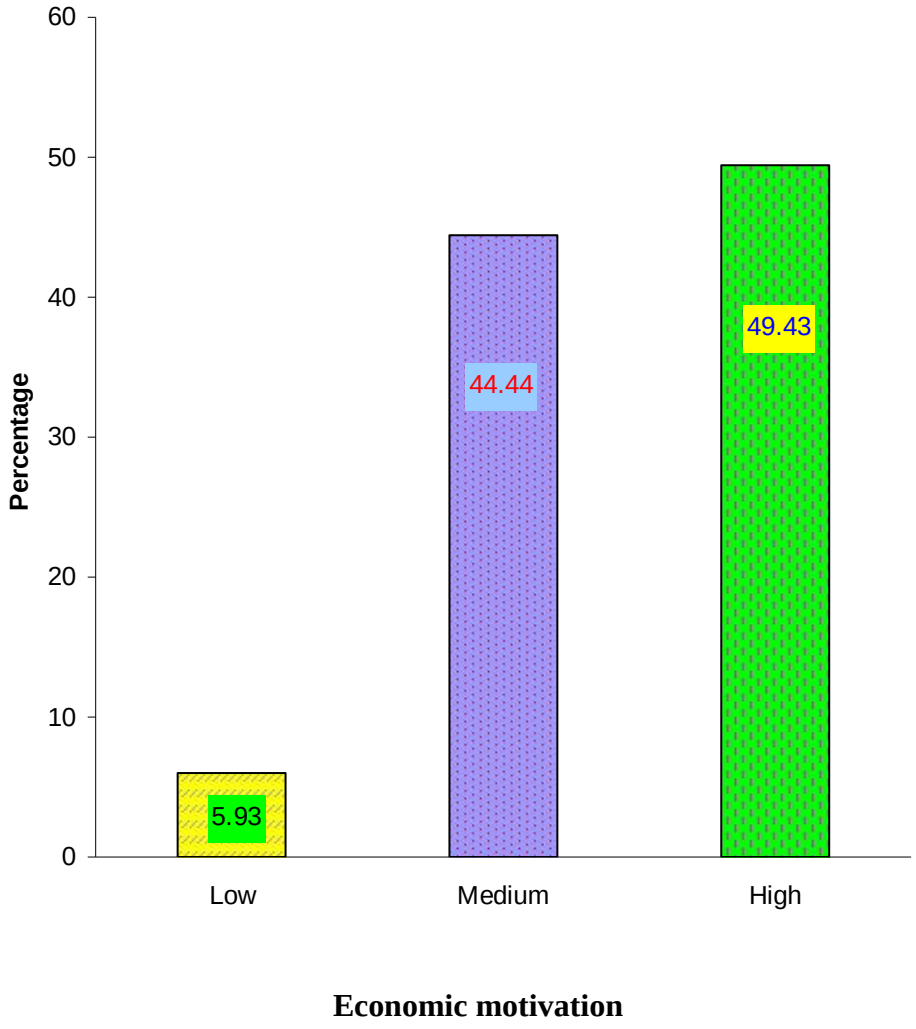


Fig. 13: Onion crop growers based on their economic motivation

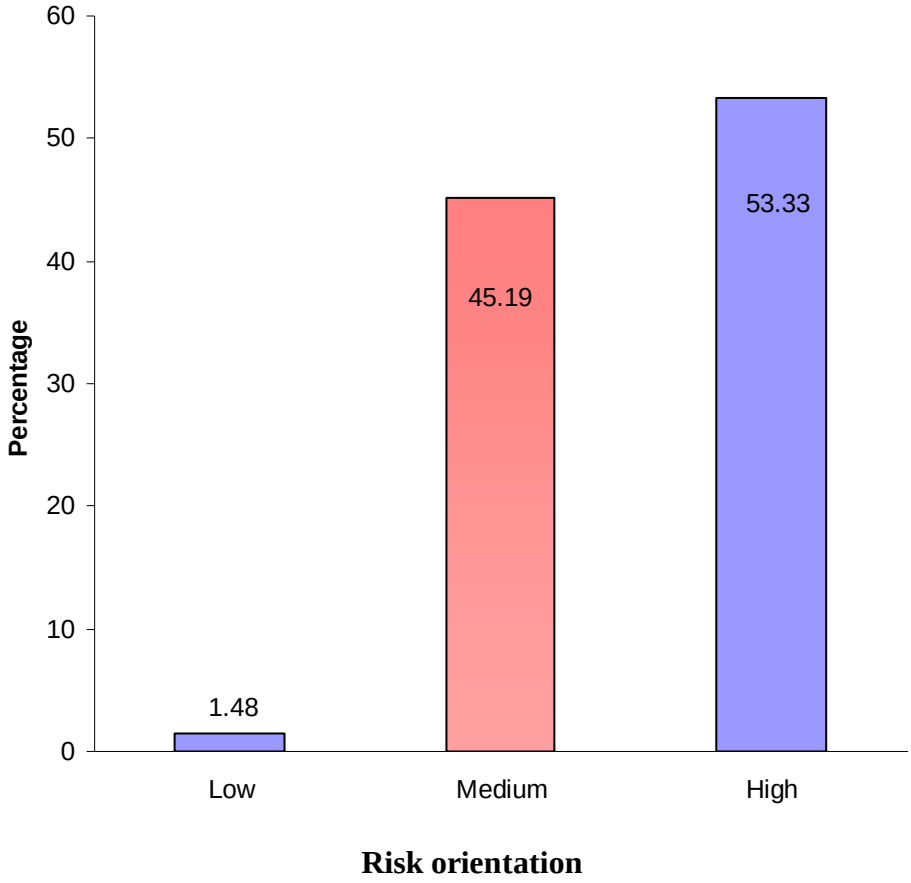


Fig. 14: Onion crop farmers depending upon their risk orientation

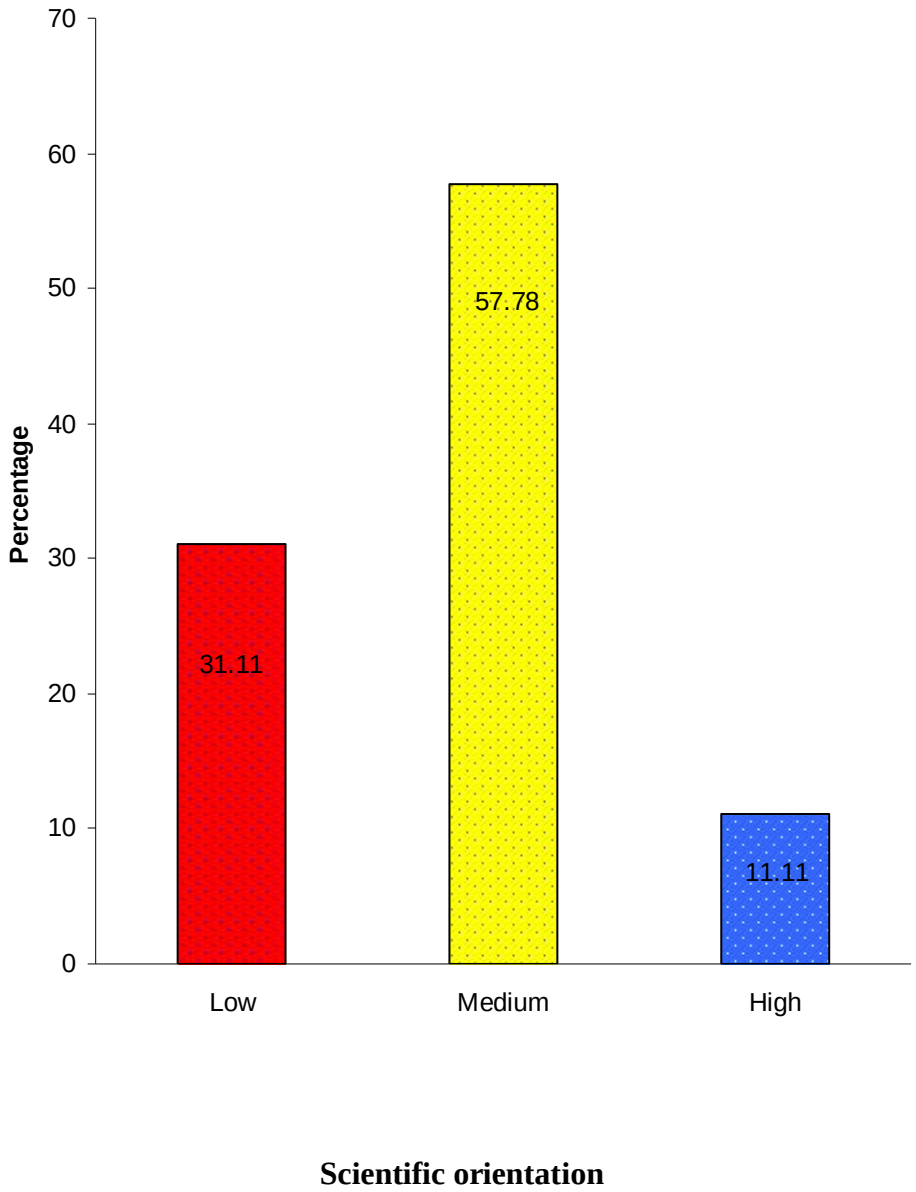


Fig. 15: Onion crop growers with their scientific orientation

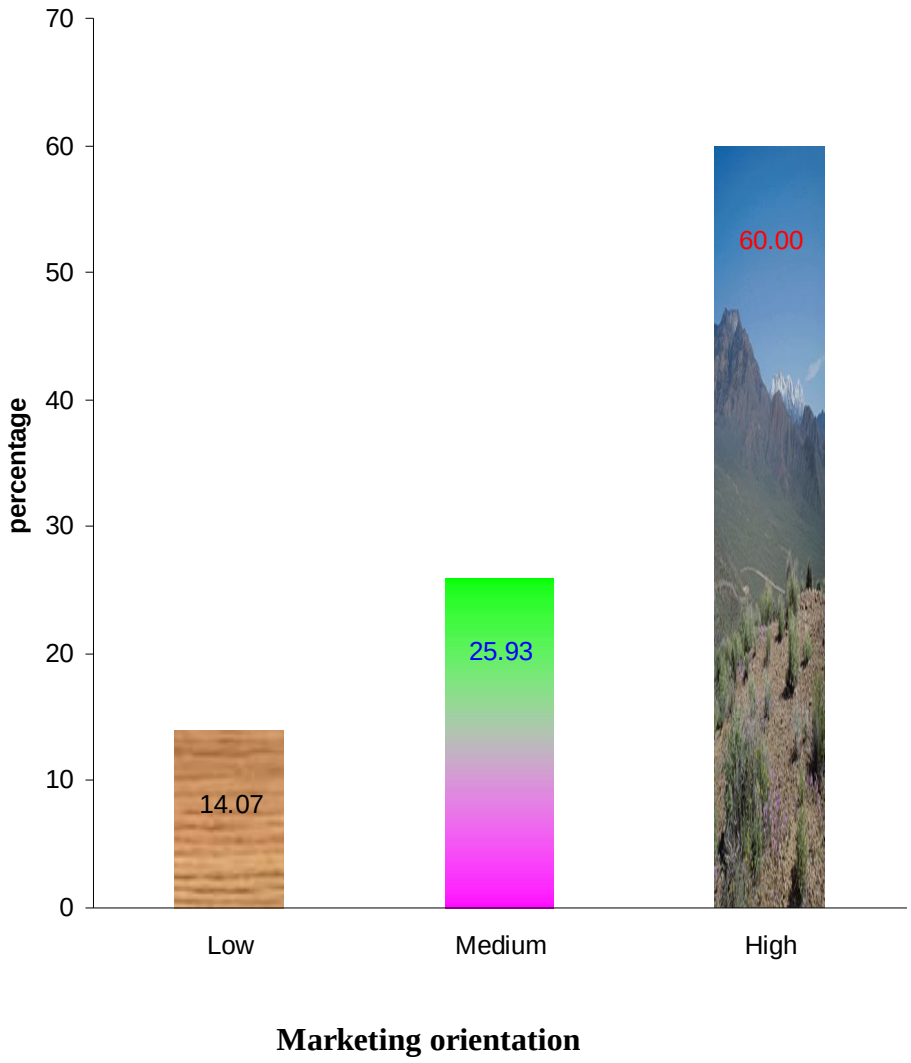
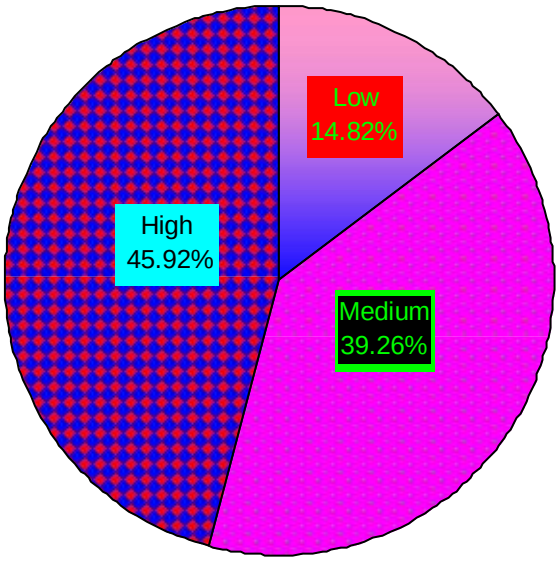
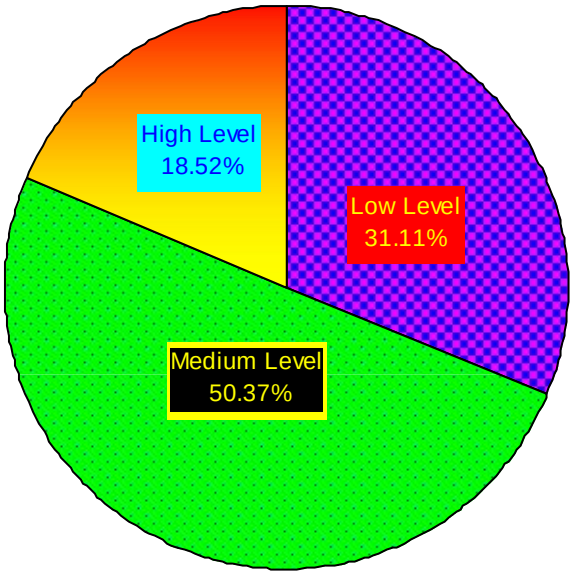


Fig. 16: Onion crop cultivators according to their marketing orientation



Training needs

Fig. 17: Onion crop cultivators with regard to their training needs



Knowledge

Fig. 18: Onion crop farmers depending upon their knowledge level

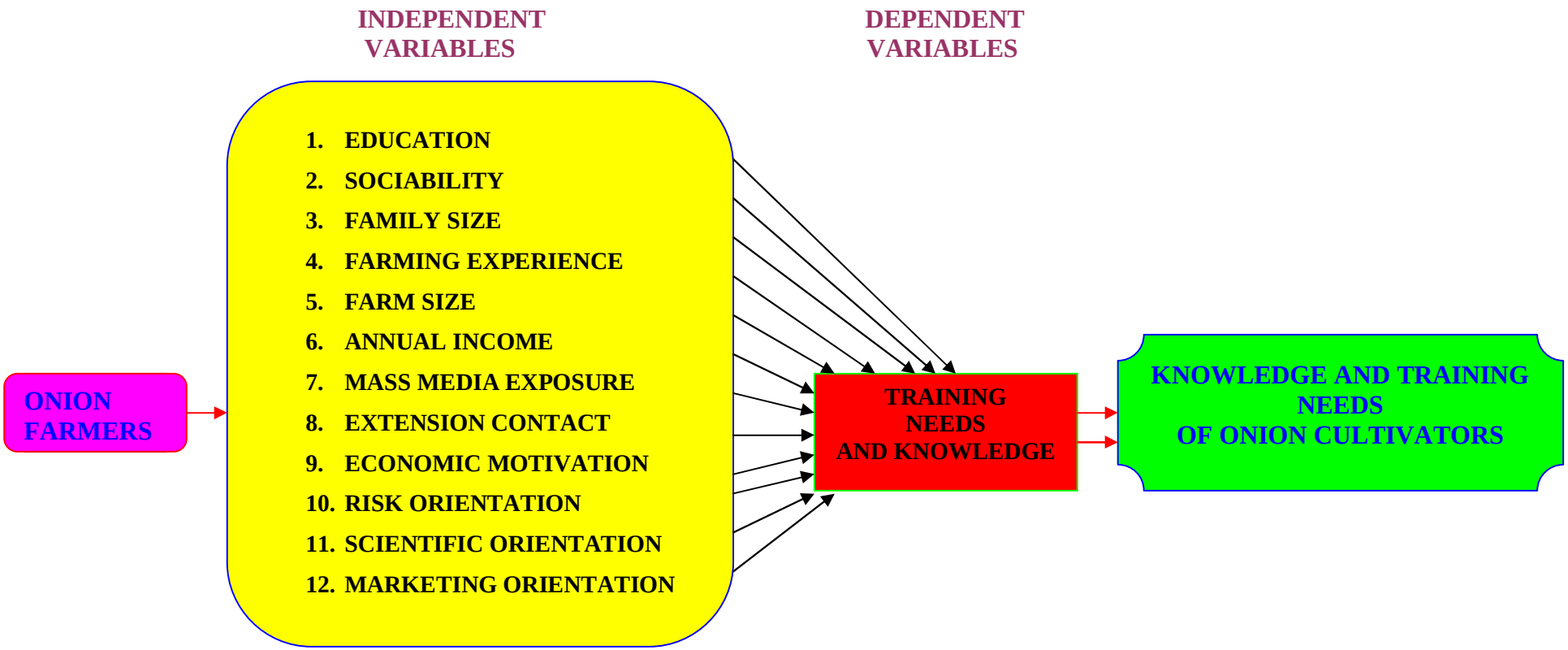


Fig. 1: Conceptual Model of the study

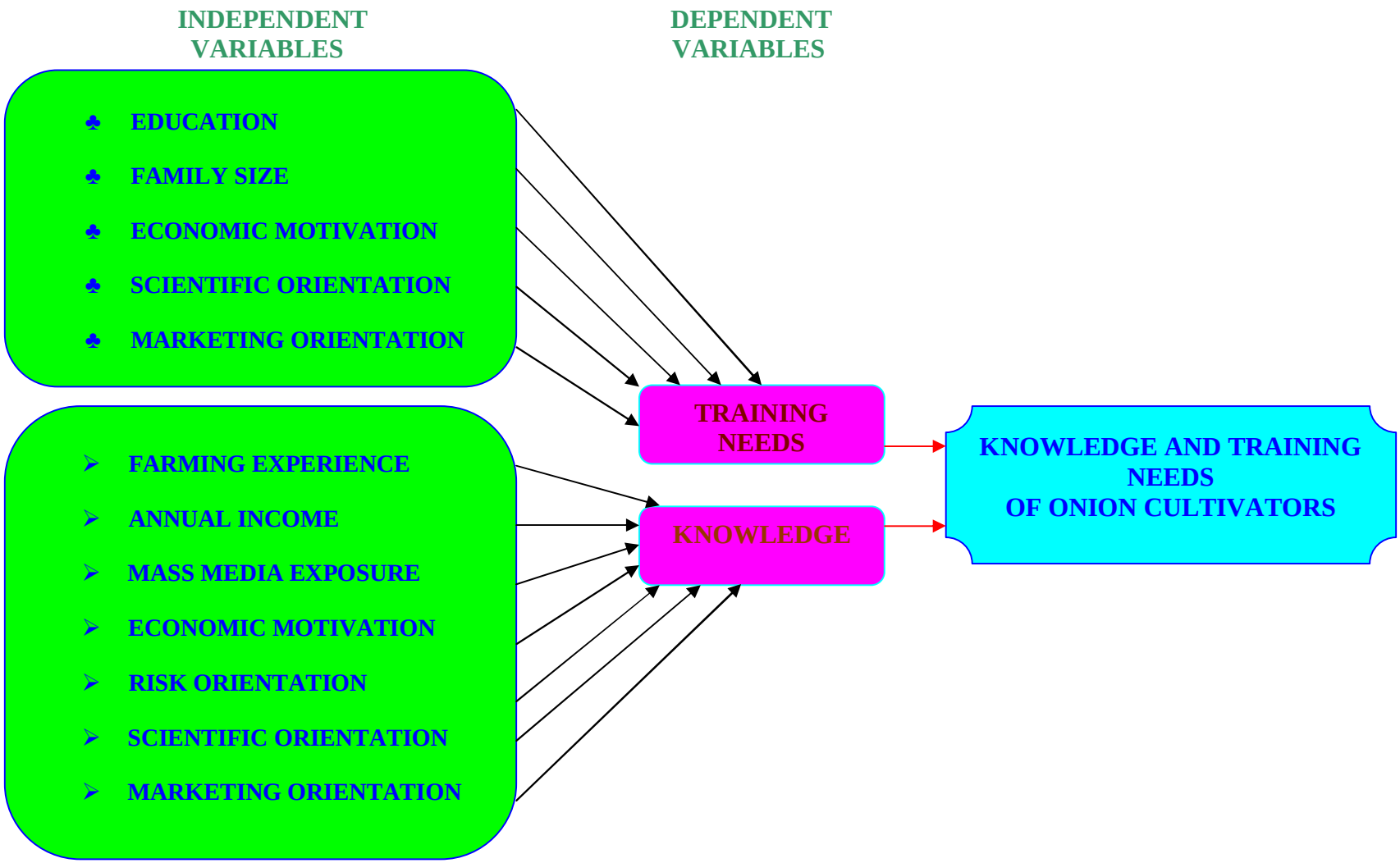


Fig. 21: Empirical Model of the study

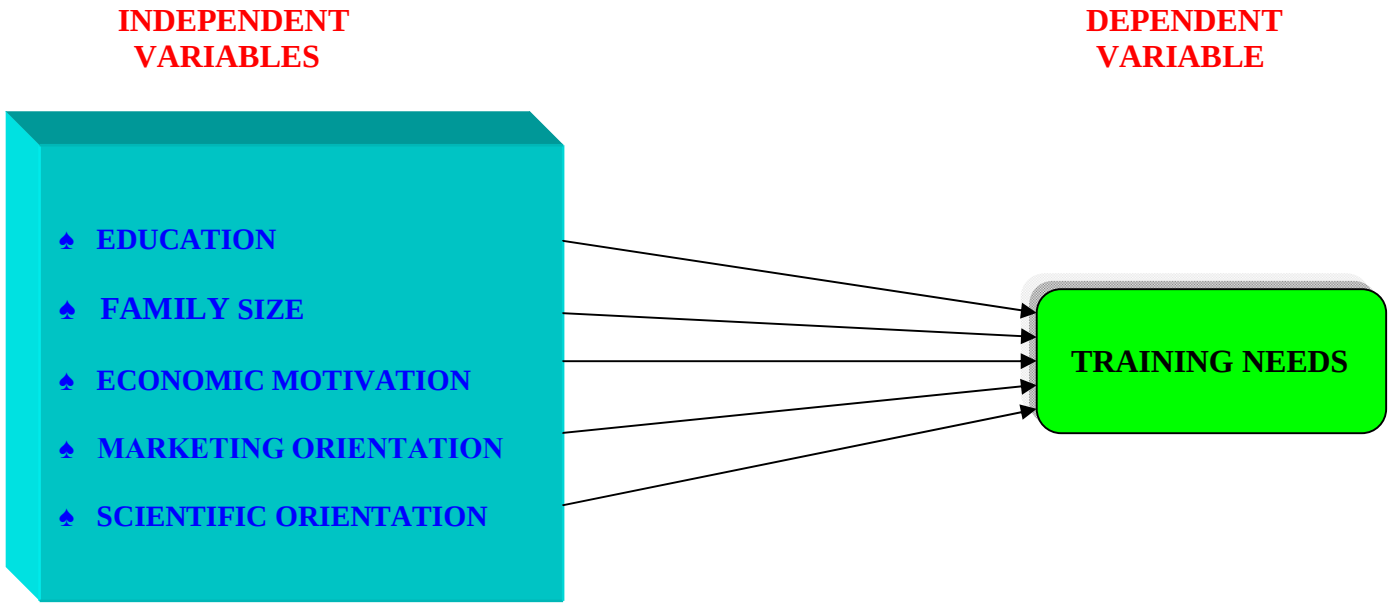


Fig. 19: RELATIONSHIP BETWEEN SIGNIFICANT INDEPENDENT VARIABLES AND TRAINING NEEDS OF ONION CULTIVATORS

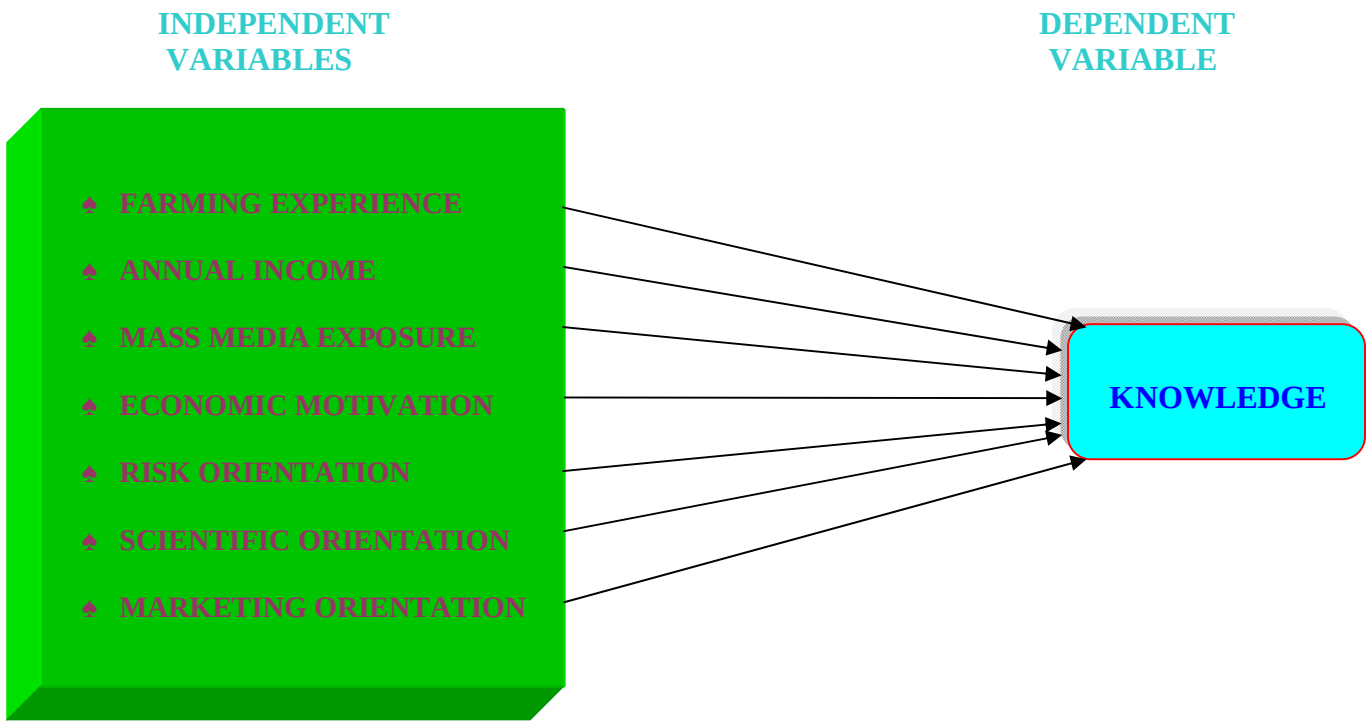


Fig. 20: RELATIONSHIP BETWEEN SIGNIFICANT INDEPENDENT VARIABLES AND KNOWLEDGE OF ONION CULTIVATORS

CHAPTER –V

DISCUSSION

In this chapter, the results are discussed and meaningful conclusions are drawn for which, the contents of Chapter IV are used as raw material. Discussion on the results of the study is presented in the following heads.

5.1 Profile characteristics of the onion cultivators

5.2 Training needs of onion cultivators

5.3 Knowledge level of onion cultivators on the recommended package of practices of onion crop

5.4 Relationship between selected independent variables and training needs of onion cultivators

5.5 Relationship between selected independent variables and knowledge of onion cultivators

5.6 Problems encountered by the onion cultivators and suggestions elicited to overcome the problems

5.1 PROFILE CHARACTERISTICS OF THE ONION CULTIVATORS

5.1.1 Education

It was evident from the Table 3 and Fig. 5 that more than one-third of the respondents (36.30%) were illiterate, followed by primary school educated (34.82%), middle school educated (12.60%), high school educated (8.88%) and degree educated (7.40%). This might be due to the reason that non-availability of basic facilities of education in villages and ignorance of farmers towards education. As a result degree

holders were found very meager. Government should take proper steps to provide basic educational facilities and help them to acquire higher studies as education is related to training needs to learn more about scientific onion cultivation.

This finding is in conformity with the findings of Jabeen (1991), Rao (1991), Samuel (1993), Anothram (1996) and Chandra Srivastava (1997)

5.1.2 Sociability

The data presented in Table 4 and Fig. 6 indicated that sociability of onion farmers was low, as majority of them (71.11%) did not have membership in any organization, while 17.04 per cent had membership in one organization, 8.15 per cent had membership in more than one organization and 3.70 percent were found to be the office bearer in one organization. This trend was observed due to the non-availability of proper social organizations and lack of interest and traditionalism prevailed among farmers. There is a necessity for the voluntary organizations to work in the rural areas and motivate the farmers to work in groups and to become the members in social process rather functioning in isolation. The benefits of participation and having membership in organizations need to be told to create awareness among the farmers for increasing the extent of sociability of farmers in general and onion cultivators in particular.

These findings are in tune with findings of Venugopal Rao (1996), Chandra (2000), Sajith Kumar (2004) and Chandra Mouli (2005).

5.1.3 Family size

A cursory look at Table 5 and Fig. 7 revealed that equal proportion of respondent onion farmers (40.74%) had small and medium sized families and only 18.52 per cent had large size families. Most of the farmers preferred for small and medium

families due to awareness and feeling difficulty in maintaining big families since we observe large number of onion cultivators were marginal and small farmers only.

This finding is in agreement with that of Raju (2004) finding.

5.1.4 Faming experience

It is clear from the Table 6 and Fig. 8 that majority of the farmers had medium farming experience (82.22%) in onion farming, followed by high (9.64%) and low (8.14%) farming experience. This might be due to reason that most of the farmers entered farming occupation lately because of their inability to take up farming at younger age and might have tried other occupations and finally settled in agriculture and hence this trend is expected.

The results are in agreement with the findings of Reddy (1996), Reddy (2003) and Ramu (2005).

5.1.5 Farm size

It was observed from Table 7 and Fig. 9 that more than half of farmers were small farmers (55.55%), followed by marginal (26.67%) and big (17.78%) farmers. The division and fragmentation of land over generations lead to present situation of small and marginal holding only.

This finding is in accordance with the finding of Marimuthu (1998), Noorjehan (1999), Sridhar (2001), Suresh (2004) and Ramu (2005).

5.1.6 Annual income

Findings of annual income in Table 8 and Fig. 10 revealed that half of the farmers (50.37%) belonged to high income group, 32.59 per cent medium and 17.00 per cent low income group. Onion is one of the important cash crops grown in Afghanistan.

During the study the investigator could collect the information for getting high annual income from agriculture in general and onion in particular was attributed to favourable climate and good fertility levels soils leading to good yield and income. Hence, half of the farmers were found to in high income group. Further, there are chances to fetch more income by the farmers provided the government take special interest in giving subsidy to the critical inputs and electricity and timely extension assistance.

5.1.7 Mass media exposure

The results presented in Table 9 and Fig. 11 indicated that higher proportion of onion farmers (45.18%) had medium mass media exposure, followed by low (34.82%) and high (20.00%) categories. This trend might be due to the fact that major portion of the farmers were found to be small farmers and illiterate. Meager facilities for exposure to print (magazines and news papers) and electronic media (radio and television) could be the other reason, which can be attributed to above trend. Access to information is of paramount importance in the present day farming. The Government may not provide extension machinery to have direct contacts with the farmers but need to strengthen mass media thereby farmers can get the needy information.

These findings are in tune with the findings of Alagirisamy (1997), Sivasubramanian (2003), Sajuithkumar (2004) and Ramu (2005).

5.1.8 Extension contact

It was observed from Table 10 and Fig. 12 that less than one-third of onion farmers (61.48%) had low extension contact, followed by 29.64 per cent medium extension contact and only 8.88 per cent had high extension contact. This result might be due the absence of proper extension network and system prevailing in the villages of Afghanistan and mostly the farmers were involved in religious activities and hence poor extension

contact is resulted since farmer's timings may not be suitable by meeting the extension workers. Afghanistan government needs to establish concrete extension system in the country in general and in the villages especially to extend its services and to benefit the farmers.

This result is in conformity with the findings of Thirumal (1998), Sakthivel (2000), Senthilkumar (2001) and Naik (2006).

5.1.9 Economic motivation

It was seen from Table 11 and Fig. 13 that nearly half of the onion growers (49.63%) had high economic motivation, while 44.44 per cent had medium economic motivation and remaining 5.93 per cent had low economic motivation. Onion is one of the important cash crop with very good yield potential among the vegetables might be the probable reason for having high economic motivation. Farmers look at onion crop commercially and it is having export potential and thereby higher proportions of the respondents had high economic motivation.

This result is in tune with the findings of Venugopal Rao (1996), Sakthivel (2000) and Senthilkumar (2001).

5.1.10 Risk orientation

The results from Table 12 and Fig. 14 indicated that more than half of the onion farmers (53.33%) had high level of risk orientation, followed by medium (45.19%) and very meager percentage (1.48%) had low risk orientation. This trend could be attributed to high annual income, high economic motivation, favourable conditions for growing onion, export potential of the crop etc.

5.1.11 Scientific orientation

It was evident from the Table 13 and Fig. 15 that more than half of the onion farmers (57.78%) had medium scientific orientation, followed by 31.11 per cent low and 11.11 per cent high scientific orientation. This trend might be due to their low extension contact and low mass media exposure. Though they had high annual income, economic motivation, high risk orientation, but they lack access to the above said variables, which led to have major portion of the farmers in medium category of scientific orientation. In fact, the government can exploit the farmer's potential by establishing proper extension mechanism and improvement of mass media access to the farmers. Scientific orientation need to be improved for proper adoption of modern technologies.

This finding is in accordance with the findings of Atchutaraj (1998), Chandra (200), Reddy (2003), Sajith Kumar (2004), Ramu (2005) and Naik (2006).

5.1.12 Marketing orientation

It was observed from the Table 14 and Fig. 16 that majority of the farmers (60.00%) had high marketing orientation, followed by low (25.93%) and medium (14.07%) level of marketing orientation. Onion crop being the cash and commercial crop having lot of export potential, fluctuation in onion prices, lack of storage facilities made the farmers to have more market orientation.

These findings are in tune with findings of Suresh kumar (1997) and Anitha (2003).

5.2 TRAINING NEEDS OF ONION CULTIVATORS

It was noticed from the Table 15 and Fig.17 that less than half of onion cultivators (45.92%) were grouped under high training needs category, followed by

medium (39.26%) and low (14.82%) training needs. Since the farmers were found to be illiterate, having low social participation, low extension contact, were medium in mass media exposure, and scientific orientation had, small and marginal farm holdings the requirement of training needs were found to be in high category. Further, the results might be due to their high economic motivation, risk orientation and marketing orientation, which led to know more about different aspects of onion cultivation and hence this trend was noticed. Therefore, the government need to concentrate more on conduct of the need based training programmes by including the course content based on the identified subject matter areas in order. Establishment of extension-cum-training centers at district level and their intensive efforts in extending their services to the farmers is the need of the hour.

5.3 KNOWLEDGE LEVEL OF ONION CULTIVATORS ON THE RECOMMENDED PACKAGE OF PRACTICES OF ONION CROP

It was clear from Table 17 and Fig. 18 that half of the onion farmers (50.37%) had medium level of knowledge on the recommended package of practices of onion crop, followed by 31.11 per cent with low knowledge level and 18.52 per cent with high knowledge level. Illiteracy of the farmers, low sociability, low extension contact, medium mass media exposure and scientific orientation could be attributed for observing this trend. Hence, the policy makers and administration including extension system need to put concerted efforts to make the farmers more knowledgeable through different information sources and also by conducting training programmes systematically.

These findings are in agreement with the findings of Sakthivel (2000), Reddy (2003), Ramu (2005).

5.4 RELATIONSHIP BETWEEN SELECTED INDEPENDENT VARIABLES AND TRAINING NEEDS OF ONION CULTIVATORS

It was seen from the Table 18 and Fig.19 that, independent variables education, family size, economic motivation, scientific orientation and marketing orientation were found to have positive and significant relationship with training needs of onion cultivators. Whereas, farming experience, mass media exposure and risk orientation had negative and significant relationship with the training needs. Other variables sociability, farm size, annual income and extension contact were not having significant relationship with training needs.

Education increases the rationalization in the individual. Educated farmers know the value of training. Along with the education level, the ability to group facts, analyze and interpret them also increases. Hence, the better-educated farmers might have felt that training is more important and therefore the positive and significant association between education and training needs was observed. This finding is in tune with the findings of Ramulu (1992), Nirmala and Annamalia (1997), Sangeetha (2004) and Naik (2006).

As family size increases, the cost of living increases and forces them to earn more from within available resources. Highest proportions of the farmers were found to be small and marginal and it is not possible for horizontal expansion and hence they need to improve productivity to fetch more yield and more returns. In order to produce more, farmers need to improve their capabilities require lot of knowledge and that can be possible through trainings only and hence such trend was noticed in the present study. This finding was in accordance with the findings of Nikhade and Patki (2005).

The small and marginal farmers who were most in onion cultivation were anxious of their economic returns. They wanted to earn more for their subsistence and were knowing that learning of knowledge and skills related to onion cultivation will certainly help them to achieve good profits. This might be due to the fact that as the farmer had high economic motivation, they want to get more income from their field. Hence, there was positive and significant association between economic motivation and training needs of the onion cultivators.

Similarly the positive and significant relationship was found between scientific orientation and training needs. This might be because farmers had scientific bent of mind towards latest technology to fetch more from onion cultivation. The farmers were found to have poor social participation and poor extension contact. Simultaneously, they might be getting information through informal sources but they want to produce more by following scientific practices of cultivation to control some pests and diseases prevalent in onion production. This could be possible through training only and thereby training needs increased as scientific orientation increases. This result is in tune with the findings of Sangeetha (2004) and Naik (2006).

The relationship between market orientation and training needs of onion farmers was found to be positive and significant. Marketing orientation is the degree to which a farmer is oriented to seek information with regard to market process of different commodities, warehouses, grading their produce etc., which in turn yield good price. Farmers who had higher marketing orientation will generally try to acquire more knowledge and information about latest trends in onion cultivation. It is possible through training and hence such trend was observed. This finding was in agreement with the finding of Naik (2006).

5.5 RELATIONSHIP BETWEEN SELECTED INDEPENDENT VARIABLES AND KNOWLEDGE OF ONION CULTIVATORS

The results in Table 19 and Fig. 20 clearly indicated that farming experience, annual income, mass media exposure, economic motivation, risk orientation, scientific orientation and marketing orientation had shown positive and significant relationship with knowledge of onion cultivators.

As the experience in onion cultivation goes on increasing the knowledge also increases due to continuous practicing over the years. Experience does not match with any other activity. Learning is self-activity and is possible through experience and hence such trend was noticed.This finding was in accordance with the findings of Jeyaraj (1997), Maheshwari (2000) and Sajith Kumar (2004).

As the income level increases the farmers get themselves motivated to acquire more knowledge on new technologies in onion cultivation and hence such relationship was observed. The findings of Ananthachary (1990) and Patil et al (1999) were found in tune with this result.

Mass media exposure had shown positive and significant association with knowledge of onion farmers. It implies that knowledge level of onion farmers increases with exposure to mass media. It is quite obvious that mass media creates awareness and knowledge about latest technologies and thereby the knowledge levels of farmers increases and hence such trend was noticed. This finding was in accordance with the findings of Parthasarathi (1997), Sakthivel (2000), Latha (2002), Subramanyam (2002), Sajith Kumar (2004) and Ramu (2005).

The positive and significant relationship between economic motivation and knowledge implies that as economic motivation increases, the knowledge of farmer tend to increase. The farmers with high economic motivation want to reap more returns though application recommended package of practices and this led to acquire more knowledge and hence such trend was observed. This finding is in line with the findings of Sakthivel (2000), Chatterjee (2000), Latha (2002), Sajith Kumar (2004) and Ramu (2005).

Risk orientation was found to have positive and significant association with knowledge of onion farmers. In order to minimize risks in onion cultivation, farmers tend to acquire more information and hence such trend was observed and this finding is in tune with the findings of Raju (1999), Sakthivel (2000), Subramanyam (2002), Reddy (2003), Sajith Kumar (2004) and Ramu (2005).

Scientific orientation had shown positive and significant relationship with knowledge of respondents. This implies that knowledge increases with increase in scientific orientation. The farmers who had scientific bent of mind would strive for acquiring more scientific and recommended technologies in onion crop and in the process they obtain information and knowledge and hence this trend was noticed and is in agreement with the findings of Raju (1999), Ramakrishnan (1999), Ravishankar (2000), Latha (2002), Subramanyam (2002), Reddy (2003), Sajith Kumar (2004) and Ramu (2005).

Marketing orientation was found to be positively and significantly associated with knowledge of onion farmers. The farmers with high marketing orientation tend to acquire more information in quality production to fetch more price to the produce in the market and hence such trend was noticed. This result is in conformity with the Chander (1991), Reddy (1998) and Rajendra Kumar (2002).

5.6 PROBLEMS ENCOUNTERED BY THE ONION CULTIVATORS AND SUGGESTIONS ELICITED TO OVERCOME THE PROBLEMS

5.6.1 Problems Encountered by the Onion Cultivators

A critical look at Table 20 indicated that more than three-fourths of onion farmers (77.77%) expressed high cost of fertilizer, pesticides and electricity supply as foremost problem. This might be due to the fact that there was no production of fertilizers, pesticides and electricity production in country and these need to be imported from other countries coupled with high import duties, large gap in supply and demand and mal practices resorted by local traders.

Shortage of labour problem was expressed by exactly two-thirds of onion farmers (66.66%). It might be due to the fact that majority of farmers were the small and marginal farmers and onion is an intensive crop and it has to be observed with care. The crop further requires much labour to attend weeding and harvest operations. Most of the people do not like to work in other fields for wages and they concentrate in their own fields only. As a result the labour becomes scarce at needy times and this might be the reason for this finding. This necessitates to find out labour saving devices to overcome the problem.

Lack of knowledge on identification of pests and diseases and their control measure was another problem indicated by 40.74 per cent of farmers. It might be due to the reason that there was no strong research and extension mechanism in the field of agriculture. As a result, the farmers mostly follow traditional methods of cultivation with indigenous varieties and methods and most of them were illiterate with no training at all and hence this became one of the problems encountered by the onion cultivators.

Non-availability of improved seed material was indicated by 40.00 per cent of farmers. This might be due to absence of proper scientific research and extension mechanism in the country.

Low price for onions was reported by little less than one-third of onion farmers (32.59%) as the problem in onion cultivation. It might be due to the fact that majority of growers were selling their produce through middlemen who determine the price of onion. Moreover, prices are dependent on produce arrivals in the market at a time and demand from consumers. There should be a suitable marketing system for eliminating the middlemen by bringing producer with consumers directly as that of Rythu bazaars in India to fetch more price to onion.

Lack of access to credit was another problem posed by onion farmers (31.85%). This could be attributed to the non-availability of strong institutionalized credit system in the country. There is a need to provide proper institutional finance to the farmers to lessen their burden and huge interests charged by the money lenders. Possibility is to introduce various finance system providing self help groups.

5.6.2 Suggestions Elicited by the Onion Cultivators to Overcome the Problems

The results presented in Table 21 include the suggestions elicited from the onion farmers to overcome the problems encountered by them in onion cultivation, which were listed above. The suggestions given by the farmers include subsidy on fertilizers, pesticides and electricity **(**66.66%), followed by increasing extension workers at field level (51.85%), government should provide more labour (51.11%), government support to construction of storage structures (47.40%), more institutional finance for credit (42.22%) and fixing minimum support price for onion (25.92%). The subsidy on fertilizers, pesticides and electricity enables the farmers to reduce the cost of production of onion and

increase the net income and hence highest proportion of the farmers suggested to provide subsidy on fertilizers, pesticides and electricity. Since there was no proper extension system and low extension contact, the farmers might have suggested to provide more number of extension workers at field level. Provision of more labour by the government was suggested in the context that farmers were facing lot of problem of labour shortage at peak times and hence it was suggested. Because of more fluctuation in onion price and also farmers were forced to sell their produce at less remunerative price after harvest for want of storage facilities, the onion farmers suggested construction of storage structures. Due to lack of support of financial institutions for providing credit for agriculture purpose and high interest rates charged by the money lenders, the farmers suggested to provide credit support from financial institutions as is done in Government of India. Finally, the farmers suggested fixation of minimum support price for onion and this might be due to high fluctuation in onion prices and also malpractices played by the middlemen.

CHAPTER – IV

RESULTS

This chapter highlights the findings of the investigation with reference to the objective of the study. The data during study were coded, analysed, interpreted and the results are presented objective wise under the following heads.

4.1 Profile characteristics of onion cultivators

4.2 Training needs of onion cultivators

4.3 Knowledge level of onion cultivators on the recommended package of practices of onion crop

4.4 Relationship between selected independent variables and training needs of onion cultivators

4.5 Relationship between selected independent variables and knowledge of onion cultivators about recommended package of practices

4.6 Problems encountered by the onion cultivators and suggestions elicited to overcome the problems

4.7 Empirical model of the study

4.1 PROFILE CHARACTERISTICS OF ONION CULTIVATORS

The respondents, distributed into different categories based on their selected profile characteristics are presented in the following tables and interpreted through frequencies and percentages.

4.1.1 Education

Table 3: Distribution of respondents according to their education

Sl.No.	Education level	Frequency	Percentage
1.	Illiterate	49	36.30
2.	Primary school	47	34.82
3.	Middle school	17	12.60
4.	High school	12	8.88
5.	Degree	10	7.40
	Total	135	100.00

It is clear from Table 3 and Fig. 5 that little more than one - third of onion farmers were distributed under illiterate (36.30%) and primary school (34.82%) categories followed by middle school (12.60%), high school (8.88%), and degree (7.40%) holders.

4.1.2 Sociability

Table 4: Distribution of respondents according to their Sociability

SL.No.	Sociability	Frequency	Percentage
1.	No membership in any organization	96	71.11
2.	Membership in one organization	23	17.04
3.	Membership in more than one organizations	11	08.15
4.	Office bearer in one organization	05	03.70
	Total	135	100.00

Results presented in Table 4 and Fig. 6 portray that more number of respondents (71.11%) had no membership in any organization, while 17.04 per cent were having membership in one of the organization, followed by 8.15 per cent members of more than one organization and 3.70 per cent were office bearers.

4.1.3 Family size

Table 5: Distribution of respondents according to Family Size

Sl.No.	Family size	Frequency	Percentage
1.	Small	55	40.74
2.	Medium	55	40.74
3.	Large	25	18.52
	Total	135	100.00

It is evident from the Table 5 and Fig. 7 equal proportion of respondents (40.74%) belonged to small and medium family size categories and remaining 18.52 per cent belonged to large family size.

4.1.4 Farming experience

Table 6: Distribution of respondents according to their Farming experience

Sl.No.	Farming experience	Frequency	Percentage
1.	Low	11	08.14
2.	Medium	111	82.22
3.	High	13	09.64
	Total	135	100.00

It can be observed from the Table 6 and Fig. 8 that most of the respondents (82.22%) had medium farming experience followed by high (9.64%) and low (8.14%) experience in onion cultivation.

4.1.5 Farm size

Table 7: Distribution of respondents according to their farm size

Sl.No.	Farm size	Frequency	Percentage
1.	Marginal farmers	36	26.67
2.	Small farmers	74	55.55
3.	Big farmers	25	17.78
	Total	135	100.00

It is clear from the Table 7 and Fig. 9 that more than half of respondents (55.55%) were small farmers followed by marginal (26.67%) and big (17.78%) farmers.

4.1.6 Annual income

Table 8: Distribution of respondents according to their annual income

Sl.No.	Annual income	Frequency	Percentage
1.	Low	23	17.04
2.	Medium	44	32.59
3.	High	68	50.37
	Total	135	100.00

It is evident from Table 8 and Fig. 10 that half of the farmers (50.37%) belonged to high income group followed by 32.59 per cent medium and 17.04 per cent low income group.

4.1.7 Mass media exposure

Table 9: Distribution of respondents according to mass media exposure

Sl.No.	Mass media exposure	Frequency	Percentage
1.	Low	47	34.82
2.	Medium	61	45.18
3.	High	27	20.00
	Total	135	100.00

The above Table 9 and Fig. 11 indicate that 45.18 per cent of the farmers had medium level of mass media exposure followed by low (34.82%) and high (20.00%) mass media exposure.

4.1.8 Extension contact

Table 10: Distribution of respondents according to extension contact

Sl.No.	Extension contact	Frequency	Percentage
1.	Low	83	61.48
2.	Medium	40	29.64
3.	High	12	08.88
	Total	135	100.00

Results presented in Table 10 and Fig. 12 portray that less than two thirds of onion cultivators (61.48%) had low extension contact followed by 29.64 per cent medium and 8.88 per cent had high extension contact.

4.1.9 Economic motivation

Table 11: Distribution of respondents according to their economic motivation

Sl.No.	Economic motivation	Frequency	Percentage
1.	Low	08	05.93
2.	Medium	60	44.44
3.	High	67	49.63
	Total	135	100.00

The data presented in Table 11 and Fig. 13 indicate that nearly half (49.63%) of the respondents had high economic motivation; while, 44.44 per cent had medium economic motivation and 5.93 per cent had low economic motivation.

4.1.10 Risk orientation

Table 12: Distribution of respondents according to their risk orientation

Sl.No.	Risk orientation	Frequency	Percentage
1.	Low	02	01.48
2.	Medium	61	45.19
3.	High	72	53.33
	Total	135	100.00

The results shown in Table 12 and Fig. 14 reveal that little more than half of the respondents (53.33%) had high level of risk orientation followed by 45.19 per cent medium and very meager percentage (1.48%) had low risk orientation

4.1.11 Scientific orientation

Table 13: Distribution of respondents according to their scientific orientation

Sl.No.	Scientific orientation	Frequency	Percentage
1.	Low	42	31.11
2.	Medium	78	57.78
3.	High	15	11.11
	Total	135	100.00

The data from Table 13 and Fig. 15 indicate that more than half of the respondents (57.78%) had medium scientific orientation followed by 31.11 per cent low and 11.11 per cent high scientific orientation.

4.1.12 Marketing orientation

Table 14: Distribution of respondents according to their marketing orientation

Sl.No.	Market orientation	Frequency	Percentage
1.	Low	35	25.93
2.	Medium	19	14.07
3.	High	81	60.00
	Total	135	100.00

It is evident from Table 14 and Fig. 16 that 60.00 per cent of the respondents had high level of marketing orientation followed by low (25.93%) and medium (14.07%) level of marketing orientation.

4.2 TRAINING NEEDS OF ONION CULTIVATORS

4.2.1 Training needs

Table 15: Distribution of respondents according to their training needs

Sl.No	Training needs	Frequency	Percentage
1.	Low	20	14.82
2.	Medium	53	39.26
3.	High	62	45.92
	Total	135	100.00

It is evident from the Table 15 and Fig 17 that 45.92 per cent of the onion farmers had high training needs followed by medium (39.26%) and low (14.82%) categories.

Table 16: Distribution of respondents based on subject matter area and degree of training needs

(n=135)

S.No.	Subject matter areas	Degree of training need			Mean score	Rank
		Very essential	Essential	Not essential		
1.	Preparatory cultivation	60	40	15	2.04	4
2.	Varietal Selection	70	32	20	2.18	3
3.	Seed production	40	50	30	1.85	5
4.	Seed treatment	15	45	60	1.44	6
5.	Propagation methods	5	20	85	1.03	12
6.	Nursery management	4	15	90	0.97	13
7.	Transplanting	85	40	5	0.95	14
8.	Application of manures and fertilizer	85	40	5	2.52	2
9.	Irrigation	15	34	70	1.36	7

10.	Drip and fertigation	1	2	108	0.85	21
11.	Weeding and interculture	11	40	65	1.32	8
12.	Disease management	120	3	0	2.66	1
13.	Preparation of spray solution	9	35	75	1.27	9
14.	Harvesting	3	8	100	0.93	16
15.	Drying and curing	9	20	85	1.12	11
16.	Grading	0	9	105	0.91	17
17.	Storage	8	25	90	1.21	10
18.	Packing	1	1	115	0.89	18
19.	Transportation	0	10	117	0.88	19
20.	Marketing within the country	2	5	100	0.86	20
21.	Export to other country	1	11	102	0.94	15

From the results presented in Table16, it is very clear that disease management has got first rank, while application of manures and fertilizer got second rank, and remaining were in the following rank order: varietal selection (3rd rank), preparatory cultivation (4th rank), seed production (5th rank), seed treatment (6th rank), irrigation (7th rank), weeding and interculture (8th rank), preparation of spray solution (9th rank), storage (10th rank), drying and curing (11th rank), propagation methods (12th rank), nursery management (13th rank), transplanting (14th rank), export to other countries (15th rank), harvesting (16th rank), grading (17th rank), packing (18th rank), transportation (19th rank), marketing with in the country (20th rank) and drip and fertigation (21st rank).

4.3 KNOWLEDGE LEVEL OF ONION CULTIVATORS ON THE RECOMMENDED PACKAGE OF PRACTICES OF ONION CROP

The knowledge of the respondents on the recommended package of practices of onion cultivation was measured with the help of schedule developed for the study as detailed in chapter III. The respondents were categorized into three groups based on obtained scores by employing class interval (inclusive) method and results are as presented in Table 17.

Table 17: Distribution of respondents according to their knowledge level on the recommended package of practices of onion crop.

SL.NO	Knowledge level	Frequency	Percentage
1.	Low	42	31.11
2.	Medium	68	50.37
3.	High	25	18.52
	Total	135	100.00

It is clear from Table 17 and Fig. 18 that half of the onion cultivators (50.37%) in Afghanistan from sampled area had medium level of knowledge, followed by 31.11 per cent low knowledge and remaining 18.52 per cent had high knowledge.

4.4 RELATIONSHIP BETWEEN SELECTED INDEPENDENT VARIABLES AND TRAINING NEEDS OF ONION CULTIVATORS

In order to study the nature of relationship between the selected independent variables and the training needs of onion cultivators, correlation coefficient (r) were computed and the values are presented in Table 18. This relationship between selected independent variables and the training needs of onion growers were tested by null hypothesis and empirical hypothesis

Null Hypothesis

There will be no relationship between the selected independent variables and training needs of onion cultivators.

Empirical Hypothesis

There will be significant relationship between the selected independent variables and training needs of onion cultivators.

Table 18: Relationship between selected independent variables and training needs of the onion cultivators

(n=135)

SI.No	Variable	Independent variables	Correlation coefficient ('r') values
1.	X_1	Education	0.183 *
2.	X_2	Sociability	-0.012
3.	X_3	Family size	0.191*
4.	X_4	Farming experience	-0.397 **
5.	X_5	Farm size	0.159
6.	X_6	Annual income	-0.021
7.	X_7	Mass media exposure	-0.301 **
8.	X_8	Extension contact	0.063
9.	X_9	Economic motivation	0.359 **
10.	X_{10}	Risk orientation	-0.469 **
11.	X_{11}	Scientific orientation	0.220 *
12.	X_{12}	Marketing orientation	0.194*

* : Significant at 0.05 level of probability
** : Significant at 0.01 level of probability

4.4.1 Education Vs Training needs

An examination of Table 18 and Fig.19 reveals that the computed coefficient of correlation value 0.183^* was positively and significantly related with training needs of the respondents about the recommended package of practices. Therefore, the null hypothesis was rejected and empirical hypothesis was accepted. Hence, it could be deduced that there was a positive and significant relationship between the education and training needs.

4.4.2 Sociability Vs Training needs

From the results presented in Table 18 and Fig. 19 it is evident that the computed coefficient of correlation value ('r' = -0.012) was found non – significant and negatively related with training needs of the respondents. Hence, null hypothesis was rejected and empirical hypothesis was accepted. So it could be therefore, inferred that there was a negative and non significant relationship between sociability and training needs of onion cultivators.

4.4.3 Family size Vs Training needs

An examination of Table 18 and Fig. 19 reveals that the computed coefficient of correlation value 0.191^{*} was positively and significantly related with training needs of the respondents. Therefore, the null hypothesis was rejected and empirical hypothesis was accepted. Hence, it could be deduced that there was a positive and significant relationship between family size and training needs**.**

4.4.4 Farming experience Vs Training needs

From the Table 18 and Fig. 19 it is evident that the computed coefficient of correlation value -0.397^{**} was negatively and significantly related with training needs of the respondents. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a negative and significant relationship between farming experience and training needs of onion cultivators.

4.4.5 Farm Size Vs Training needs

From the Table 18 and Fig. 19 it could be inferred that, the computed coefficient of correlation value ('r' = 0.159) was found non-significant with training needs of the respondents. Hence, null hypothesis was accepted and empirical hypothesis was

rejected. Therefore, it could be concluded that farm size was positively and non-significantly related to the training needs of farmers.

4.4.6 Annual income Vs Training needs

It is evident from the Table 18 and Fig. 19 that the computed coefficient of correlation value ('r' = -0.021) was negatively and non - significantly related with training needs of the respondents. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a negative and non - significant relationship between annual income and training needs of onion cultivators.

4.4.7 Mass media exposure Vs Training needs

An examination of Table 18 and Fig 19 reveals that the computed coefficient of correlation value -0.301^{**} was negatively and significantly related with training needs of the subjects. Therefore, the null hypothesis was rejected and empirical hypothesis was accepted. Hence, it could be deduced that there was a negative and significant relationship between mass media exposure and training needs of the onion farmers.

4.4.8 Extension contact Vs Training needs

Table 18 and Fig. 19 points out that the computed coefficient of correlation value ('r' = 0.063) was found positive and non - significant with training needs of the respondents. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that extension contact was not associated with training needs of onion cultivators.

4.4.9 Economic motivation Vs Training needs

Appraisal of Table 18 and Fig. 19 reveals that the computed coefficient of correlation value 0.359^{**} was found positive and significantly related with training needs of

the respondents. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was a positive and significant relationship between economic motivation and training needs of onion growers.

4.4.10 Risk orientation Vs Training needs

From the Table 18 and Fig.19 it evident that the computed coefficient of correlation value -0.469** was negatively and significantly related with training needs of the respondents. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was a negative and significant relationship between risk orientation and training needs of onion farmers.

4.4.11 Scientific orientation Vs Training needs

From Table 18 and Fig.19 it is evident that the computed coefficient of correlation value was 0.220* scientific orientation was found positively and significantly related with training needs of the respondents Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that scientific orientation was positively and significantly associated with training needs of onion cultivators.

4.4.12 Marketing orientation Vs Training needs

From Table 18 Fig.19 it could be inferred that, the computed coefficient of correlation value 0.194* was found to have positive and significant relationship with training needs of the respondents. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was positive and significant relationship between marketing orientation and training needs of onion farmers.

4.5 RELATIONSHIP BETWEEN SELECTED INDEPENDENT VARIABLES AND KNOWLEDGE OF ONION CULTIVATORS ABOUT RECOMMENDED PACKAGE OF PRACTICES

In order to study the nature of relationship between selected independent variables and the knowledge of onion farmers about the recommended package of practices, correlation coefficients (r) were computed and the values are presented in Table 19. This relationship between of selected independent variables and the knowledge of onion cultivators were tested by null hypothesis and empirical hypothesis

Null Hypothesis

There will be no relationship between the selected independent variables and knowledge of onion cultivators.

Empirical Hypothesis

There will be significant relationship between the selected independent variables and knowledge of onion cultivators.

Table 19: Relationship between selected independent variables and knowledge of the onion cultivators

(n=135)

SI.No	Variable	Independent variables	Correlation coefficient ('r') values
1.	X_1	Education	0.164
2.	X_2	Sociability	0.132
3.	X_3	Family size	0.061
4.	X_4	Farming experience	0.214 *
5.	X_5	Farm size	0.143
6.	X_6	Annual income	0.242 *
7.	X_7	Mass media exposure	0.196 *
8.	X_8	Extension contact	0.116
9.	X_9	Economic motivation	0.206 *
10.	X_{10}	Risk orientation	0.377 **
11.	X_{11}	Scientific orientation	0.198*
12.	X_{12}	Marketing orientation	0.384 **

* : Significant at 0.05 level of probability
** : Significant at 0.01 level of probability

4.5.1 Education Vs Knowledge

From the results presented in Table 19 and Fig. 20 it is evident that the computed coefficient of correlation value ('r' = 0.164) was found positively related but non significant with knowledge of the respondents about the recommended package of practices. Hence, the null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be inferred that there was a positive and non- significant relationship between education and knowledge of onion cultivators.

4.5.2 Sociability Vs Knowledge

The results of Table 19 and Fig. 20 point out that the computed coefficient of correlation value ('r' = 0.132) was found to have positive and non-significant relationship with knowledge of the respondents about the recommended package of practices. So, the null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be inferred that there was positive and non - significant relationship between sociability and knowledge.

4.5.3 Family size Vs Knowledge

From the Table 19 and Fig. 20 it is evident that coefficient of correlation value ('r' = 0.061) was found to be non-significant. As such, the null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be inferred that there was no significant association between family size and knowledge of the respondents about recommended package of practices of onion.

4.5.4 Farming experience Vs Knowledge

From the results presented in Table 19 and Fig. 20 it is evident that computed coefficient of correlation value 0.214* was positively and significantly related with knowledge of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant association between farming experience and knowledge of onion cultivators.

4.5.5 Farm Size Vs Knowledge

Results presented in the Table 19 and Fig. 20 portray that, the computed coefficient of correlation value ('r' = 0.143) was found positive and non-significant relationship with knowledge of the respondents. Hence, the null hypothesis was accepted and empirical hypothesis was rejected. From this, it could be inferred that farm size was not related to the knowledge of onion cultivators.

4.5.6 Annual income Vs Knowledge

A perusal of Table 19 and Fig. 20 reveal that the computed coefficient of correlation value 0.242* was positively and significantly related with knowledge of the respondents. As a result, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant association between knowledge and annual income of onion cultivators.

4.5.7 Mass media exposure Vs Knowledge

An examination of Table 19 and Fig. 20 reveal that the computed coefficient of correlation value 0.196* was positively and significantly related with knowledge of the subjects. Therefore, the null hypothesis was rejected and empirical

hypothesis was accepted. Hence, it could be deduced that there was a positive and significant relationship between the variables in question.

4.5.8 Extension contact Vs Knowledge

It could be inferred from Table 19 and Fig. 20 that the computed coefficient of correlation value ('r' = 0.116) was positively and non-significantly related with knowledge of the respondents about the recommended package of practices. Hence, the null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be confirmed that there was a positive and non-significant relationship between extension contact and knowledge of the respondents.

4.5.9 Economic motivation Vs Knowledge

From the Table 19 and Fig. 20 it can be crystallized that the computed coefficient of correlation value 0.206^{*} was found to have positive and significant relationship with the knowledge of the respondents. Therefore, the null hypothesis was rejected and empirical hypothesis was accepted. Hence, it could be inferred that there was no significant relationship between economic motivation and knowledge of the respondents about recommended onion package of practices.

4.5.10 Risk orientation Vs Knowledge

From the Table 19 and Fig. 20 it is evident that the coefficient of correlation value 0.377^{**} was positively and significantly related with knowledge of the respondents about the recommended package of practices. As such, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be concluded that there was a positive and significant relationship between risk orientation and knowledge of the onion cultivators.

4.5.11 Scientific orientation Vs Knowledge

It is evident from the Table 19 and Fig. 20 that the computed coefficient of correlation value 0.198* was positively and significantly related with knowledge of the respondents about the recommended package of practices. Consequently the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant association between the above mentioned variables.

4.5.12 Market orientation Vs Knowledge

From the Table 19 and Fig. 20 it is evident that the coefficient of correlation value 0.384** was positively and significantly related with knowledge of the respondents about the recommended package of practices. As such, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between market orientation and knowledge of the respondents about recommended onion package of practices.

4.6 PROBLEMS ENCOUNTERED BY THE ONION CULTIVATORS AND SUGGESTIONS TO OVERCOME THE PROBLEMS

The problems faced by onion cultivators in the selected area of Afghanistan and suggestions as perceived by them to overcome the problems are presented in this section.

4.6.1 Problems encountered by the onion cultivators

An attempt was made to ascertain the problems encountered by the onion cultivators in the adoption of recommended package of practices of onion and also their suggestions to overcome them. During the interview, the respondents were asked to enumerate the problems faced by them in the adoption of recommended practices of onion

and to give their suggestions. The problems expressed by the respondents are tabulated and presented in Table 20 with frequencies and percentages and ranking was given based on the frequency and percentage.

Table 20: Problems encountered by the onion cultivators

(n=135)

S.No.	Problems	Frequency	Percentage	Rank
1.	High cost of fertilizers, pesticides, and electricity supply	105	77.77	I
2.	Shortage of labour	90	66.66	II
3.	Lack of knowledge on identification of pests and diseases and their control measures	55	40.74	III
4.	Non-availability of improved seed material	54	40.00	IV
5.	Low price for onions	44	32.59	V
6.	Lack of access to credit	43	31.85	VI

It is evident from Table 20 that little more than three – fourths (77.77%) of the respondents expressed high cost of fertilizer, pesticides and electricity supply as foremost problem followed by shortage of labour (66.66%). The other problems found in order lack of knowledge on identification of pests and diseases and their control measures (40.74%), non - availability of improved seed material (40.00%), Low price for onions (32.59%) and lack of access to credit (31.85%) comes last in rank.

4.6.2 Suggestions as perceived by onion cultivators to overcome the problems

After eliciting the problems faced by the respondents in onion cultivation, the subjects were requested to offer their suggestions to overcome the problems listed above. The suggestions given by them are presented in Table 21 along with frequency, percentage and ranks.

Table 21: Suggestions as perceived by the onion cultivators to overcome problems

(n=135)

S.No.	Suggestions	Frequency	Percentage	Rank
1.	Subsidy on fertilizers, pesticides and electricity	90	66.66	I
2.	Increase extension workers at field level	70	51.85	II
3.	Government should provide more labour	69	51.11	III
4.	Government support to construction of storage structures	64	47.40	IV
5.	More institutional finance (credit)	57	42.22	V
6.	Fixing minimum support price for onion	35	25.92	VI

It can be observed from the Table 21 that two third (66.66%) of the respondents suggested provision of subsidy on fertilizers, pesticides and electricity, followed by increase extension workers at field level (51.85%), provision of more labour in peak seasons (51.11%), Government support to construction of storage structures for onion produce (47.40%), provision of more institutional finance (42.22%) and fixing minimum support price for onion (25.92%) comes as last suggestion.

4.7 EMPIRICAL MODEL OF THE STUDY

The conceptual model formulated earlier (Fig.1) for the research study was tested based on the results and empirical model was developed and it is presented in Fig. 21.

This model was hopefully conceived to give an objective assessment of training needs and knowledge of onion farmers about recommended package of practices. This model was tested with the help of correlation coefficient analysis to find out the relationship between selected independent and dependent variables.

Training needs of onion farmers were positively and significantly related to education, family size, economic motivation, scientific orientation and marketing orientation.

Knowledge of onion cultivators about recommended package of practices was positively and significantly related to farming experience, annual income, mass media exposure, economic motivation, risk orientation, scientific orientation and marketing orientation.

These findings can help extension personnel and administrators of Afghanistan country to concentrate more on the variables which were significantly correlated with training needs and knowledge of respondents to conduct the training programmes more effective and in improving the knowledge of farmers on the latest recommendations of onion cultivation.

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APPENDIX

A STUDY ON KNOWLEDGE AND TRAINING NEEDS OF ONION CULTIVATORS IN AFGHANISTAN COUNTRY

INTERVIEW SCHEDULE

SI.NO. :

Name of the respondent :

Village :

District :

PART-A

PROFILE OF ONION CULTIVATORS

1. Education

a) Illiterate ( )

b) Primary school ( )

c) Middle school ( )

d) High school ( )

e) Degree ( )

f) Any other (specify) ( )

2. Sociability

a) No member of any organization ( )

b) Member of one organization ( )

c) Member more than one organization ( )

d) Office bearer ( )

e) Any other (specify) ( )

3. Family Size

a) Small (1-3 members) ( )

b) Medium (4-6 members) ( )

c) Large (7-9 members) ( )

d) Very large (above 10 members) ( )

4. Farming Experience in Onion Cultivation. _____ Years.

5. Farm Size {Number of jeribs} {5 jeribs =1 ha}

a) Wet land: _____ jeribs

b) Dry land: _____ jeribs

Total land: _____ jeribs =_____ hectare

6. Annual Income

1) From onion cultivation Rs._____
2) Other than onion crops Rs._____
3) Family labour Rs._____
4) Dairy Rs._____
5) Poultry Rs._____
6) Any other (specify) Rs._____

Total Rs._____

7. Mass Media Exposure

How often do you participate in the following mass media exposure?

Source	**Extent of participant**		
	Regularly	Occasionally	Never
1. Read news papers			
2. Read Farm Literature			
3. Read Agril. Books			
4. Listen to radio programmes			
5. Watching T.V. Programmes			
6. Seeing video Film on agriculture			

8. Extension Contact

Please state your frequency of contact with the following source:

S.No.	Source	Always	Frequently	Occasionally	Rarely	Never
1.	Village Extension worker					
2.	Principal Agricultural officer					
3.	Non – Governmental Organization					
4.	Input dealers					
5.	University scientist					

9. Economic Motivation

A set of statements representing economic motivation of farmers are given below. Please state whether you strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) or Strongly Disagree (SDA) about each of them.

S.No.	Statements	SA	A	UD	DA	SDA
a)	A farmer should work towards more yields.					
b)	The most successful farmer is one who makes more profits.					
c)	A farmer should grow cash crops to increase profits in comparison to growing food crops for home consumption.					
d)	The farmer should try the new farming ideas which may earn him more money.					
e)	It is difficult for the farmer's children to make good start unless he provides them with economic assistance.					
f)	A farmer must earn his living but the most important thing in life cannot be defined in economic terms.					

10. Risk Orientation

A set of statements representing economic motivation of farmers are given below. Please state whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), or Strongly Disagree (SDA) about each of them.

S.No.	Statements	SA	A	UD	DA	SDA
a)	A farmer should grow large number of crops to avoid greater risk involved in growing onion crop alone.					
b)	Onion farmer should rather take more of a chance in making big profits than to be content with a smaller but less risky profits					
c)	Onion grower who is willing to take greater risks than the average farmer usually does better financially.					
d)	It is good for onion farmer to take a risk when he knows his change or success or fairly high.					
e)	It is better for a farmer not to try new farming method in onion unless most other has used them successfully.					
f)	Trying of entirely new method in onion farming by a farmer involves risks but it is worthy it.					

11. Scientific Orientation

Please indicate whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), or strongly disagree (SDA), to each of the following statements, pertaining to scientific motivation.

S.No.	Statements	SA	A	UD	DA	SDA
a)	Improved methods of Onion cultivation gives better results to a farmer than traditional one.					
b)	The way a farmer's forefathers have done in onion farming is felt that it is still the best.					
c)	An experienced onion cultivator should use modern methods of farming.					
d)	Though it takes time for a farmer to learn improved methods in Onion cultivation it is worth learning.					
e)	A good farmer experiment with new ideas of farming in onion					
f)	Traditional methods of farming in onion crop have to be changed in order to raise the level of living of farmer.					

12. Marketing Orientation

A set of statements representing marketing orientation is given below. Please state the degree of you Agreement (A) or Disagreement (DA) or Undecided (UD) with each statement.

S.No.	Statements	A	DA	UD
a)	Market news received through mass media about onion crop is not so useful to a farmer in general and to an onion grower particular.			
b)	A farmer can get good price from onion by grading his produce.			
c)	Storage of onion can help the farmer to get better price.			
d)	One should sell his onion produce to the nearest market irrespective of price.			
e)	One should purchase farm inputs from nearest shop from where other more of farmers purchase.			
f)	One should grow onion varieties which have more market demand.			

PART – B

I. Training Needs

Please indicate your training need in respect of the following onion cultivation practices in term of "very essential" or " essential" or " not essential" with a tick mark.

S.No.	Main areas of training	Degree of training		
		Very essential	Essential	Not essential
1.	Preparatory cultivation			
2.	Varietals Selection			
3.	Seed production			
4.	Seed treatment			
5.	Propagation methods			
6.	Nursery management			
7.	Transplanting			
8.	Application of manures and fertilizer			
9.	Irrigation			

10.	Drip and fertigation			
11.	Weeding and interculture			
12.	Disease management			
13.	Preparation of spray solution			
14.	Harvesting			
15.	Drying and curing			
16.	Grading			
17.	Storage			
18.	Packing			
19.	Transportation			
20.	Marketing with in the Country			
21.	Marketing other than Country			

II. Knowledge of Farmers on The Recommended Package of Practices of Onion

1. State the correct answer from given alternatives

1. Which colour of onion has good market ( )
   (a) Red (b) white (c) yellow

2. The best season for sowing of onion in kharif ( )
   (a) April- May (b) May- June (c) June- July

3. The type of soil most suitable for onion production is ( )
   (a) Black soil (b) red soil (c) Sandy soil

4. Onion can be propagated by ( )
   (a) Seed (b) Bulb (c) Cutting

5. What is the seed rate of onion for broadcasting ( )
   (a) 8-10 kg/ha (b) 11-13 kg/ha (c) 14-16 kg/ha

6. Onion is considered to be a crop of ( )
   (a) Cool season (b) Hot season (c) Rainy season

7. Onion seed treatment given by ( )
   (a)Trifluralin (b) Captan (c) Dithane M.45

8. Gap filling should be done after the transplantation of onion ( )
(a) $7^{th\ day}$ (b) $10^{th\ day}$ (c) 15^{th} day

9. Indicate any one of the pre emergence herbicide. ( )
(a) Pendimethalin (b) Fluchloralin (c) Glyphosate

10. The quantity of FYM per ha applied is ( )
(a) 10-15 tonnes (b) 15-20 tonnes (c) 20-30 tonnes

11. Recommended Quantity of Thiram used for seed treatment is ( )
(a) 3g/kg of seed (b) 5g/kg of seed (c) 6g/kg of seed

12. Sprouting of onion bulb can be controlled by ( )
(a) Malic hydrazide(MH) @.2500ppm (b) MH @. 500ppm (c) MH @. 200ppm

13. The physiological disorder which has direct effect on onion yield ( )
(a) Sprouting (b) Bolting (c) Rotting of onion

14. The size of the multiplier onion ( )
(a) Big (b) Medium (c) Small

15. The crop is ready to harvest when the leaves turn ( )
(a) Red (b) Black (c) Yellow

16. In post harvest products, onion can be used by ( )
(a) Dehydration (b) Sun drying (c) Cooking

17. How many days the matured and uprooted bulbs are left in the shade for Curing ( )
(a) 10-12 days (b) 15-20 days (c) 20-25 days

18. Which colour of onion has more pungency ( )
(a) Yellow (b) Red (c) White

Please state True / False for the following items

19. Four to Five shallow ploughings are sufficient to make the soil loose. True / False

20. Onion can be grown under wide range of climatic condition. True / False

21. Light and frequent irrigation are recommended as onion is shallow Rooted crop True / False

22. In onion, Weeds are controlled by Tenoran @ 2.5kg/ha 3 to 5 weeks after transplanting. True / False

23. Application of Basalin @1 litre/ha immediately after Transplanting also control the weeds True / False

24. Thrips in onion can be controlled by spraying Monocrotophos (0.03%) True / False

11. Answer the following:

25. Name the soil type suited to onion crop.
    Ans.
26. What is the major pest of onion?
    Ans.
27. Mention the symptoms onion trips /onion maggot.
    Ans.
28. What is/ are the varieties of onion recommended to your area?
    Ans.
29. What is the normal duration of onion crop?
    Ans.
30. What are the symptoms of Downy mildew disease in onion?
    Ans.

PART – C

Problems

Problems faced by the farmers in onion cultivation.

1.

2.

3.

4.

5.

6.

Suggestions

Please give your suggestions to overcome the problems in onion cultivation.

1.

2.

3.

4.

5.

6.