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Role of Print Media Communication in the Enhancement of Afghan (Male) Farmers' Agricultural Knowledge on "Improved Orchard Management Practices"

Aybak District, Samangan Province - Afghanistan

A Research project submitted to Van Hall Larenstein University of Applied Science in Partial Fulfillment of the Requirements for the Degree of Management of Development, Specialization Rural Development and Communication

By

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Dedication

To all Afghan poor farmers' family and to my special person

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Abbreviations

ANDS	Afghanistan National Development Strategy
CSO	Central Statistical Office
FOD	Farmer Organization Development
GTZ	German Agency for Technical Cooperation
HLP	Horticulture and Livestock Project
IAK	Agrar Consulting GmbH Germany
ICB	Institutional Capacity Building
IDEA-New	Incentives Driving Economic Alternatives/New
IPM	Integrated Pest Management
IRD	International Relief and Development
MIAL	Ministry of Agriculture, Irrigation and Livestock
MOIC	Ministry of Information and Culture
NGO	Non Government Organization
NIAEM	National Institute of Agricultural Extension Management
ROP	Roots of Peace
USAID	United State Agency for International Development

Abstract

Aybak district of Samangan, Afghanistan is one of the districts where most the population are engaged with orchard farming especially their almonds are popular in most of the Asian countries. But mostly the farmers of this area are suffering from not having full access to agricultural extension workers and agricultural extension messages about orchard management practices, which made their life difficult.

After the 3 decades of war in Afghanistan, all its infrastructures, transport, education and especially communication systems were destroyed but now with having the support of developed countries and international donors the country is moving forward and since the communication system was destroyed and meanwhile the limited extension workers compel the MAIL to get use of mass media, so now not only MAIL and its development project like Horticulture and Livestock project (HLP) but some other development organizations are also trying to deliver the extension messages though mass media especially print media and radio.

The objective of this research was to explore the role of print media communication in the enhancement of Afghan (male) farmers' agricultural knowledge on improved orchard management practices. The research was also aim to provide a contribution to policy analysis and policy design policy recommendation of Ministry of Agriculture, Irrigation and Livestock (MAIL) and Horticultural and Livestock Project (HLP).

The result shows that most of the respondents have access to different print media, such as brochure, magazine, pamphlet, calendar and leaflet which they received from different government and non government organizations. They have learned different orchard management practices from different printed extension materials, they only used the messages or information which was relevant to them and some messages were really appreciated.

In order to provide contribution to the policy analysis, policy design and policy recommendation of Ministry of Agriculture, Irrigation and Livestock (MAIL) and Horticultural and Livestock Project (HLP) the following points are indicated: 1. Ministry of Agriculture, Irrigation and Livestock and other development organizations have to include or give priority in print media to those messages which are relevant to the farmers' needs and problems. 2. As most of the Afghan farmers are illiterate so there should be pictorial messages rather than having too much text, and use real photographs for each message of orchard management practices. 3. Ministry of Agriculture, irrigation and Livestock and other development organizations have to introduce those orchard management practices which are appropriate to the farmers' socio-economic status, means which they can afford. 4. The designers of extension printed materials have to get farmers feedback in order to have interesting, attractive and understandable information.

The above few points may support the MAIL, HLP and other development organizations to deliver relevant, interesting, attractive and useful orchard management information to Afghan.

1. Introduction

1.1. Agriculture in Afghanistan

Afghanistan is a mountainous country located in the south and central Asia with having border in the southeast with Pakistan, in the west with Iran, in the north with Tajikistan, Turkmenistan and Uzbekistan and in the northeast with China and about 75% of its population living in rural areas. Agriculture has traditionally been the major activity for a large proportion of the population, mainly in the most remote rural areas. Populations have been migrated from rural to urban areas and above six million have fled the country. The years of turmoil left much of the country's rural infrastructure and agriculture sector in a serious state of disrepair. Due to these long-term conflicts, together with a destructive drought, an important part of the cultivable land has been stripped and has been left fallow. Furthermore millions of hectares have been mined. This led to a significant reduction of arable land and degradation of the environment. Between 1997 and 2004, 50% of the livestock herd was lost and between 1978 and 2004, agricultural production declined by an average of 3.5% a year (ANDS, 2008-2013).

Agriculture dominates the Afghan economy, contributing an estimated 53% of gross domestic project and providing employment and livelihoods for about 80% of the population. However, 30 years of war and long-term conflict and the recent destructive drought have seriously affected Afghanistan's agriculture sector. The Government of Afghanistan realizes that the developing of agriculture sector is important for economic growth and it is a key factor for poverty reduction and for tackling opium poppy cultivation. Given the country's dependence on agriculture, the rate of recovery in the sector will mainly determine the nation's overall rate of economic recovery and poverty reduction. In order to promote broad-based economic growth, conserve natural resources and reduce rural poverty it is important to have higher rates of growth in agricultural productivity. Agricultural productivity growth is mainly based on technology, application of science, information and needs to be provided by national agricultural research and communication system. However as Afghanistan moves forward on developing agricultural sector, especially agricultural research and communication systems, so it can no longer rely only on traditional government systems, but must to involve all institutions and organizations which generate, import, share and use agricultural knowledge and information (Miller, D. USAID report, 2006).

Prior to 1979, Afghanistan's agriculture research system comprised of over 1,000 staff out of which 25% was technical experts and 24 research stations. However, as a result of widespread degradation of infrastructure and human capital, now this system is largely dysfunctional. The agricultural extension system was used to work all over the country with over 400 extension units, now only 136 have functioning. Even these 136 units needs trained staff and major renovation. Capacity building needs to focus on updating technical skills, developing new skills related to management, monitoring and evaluation, modern agribusiness and participatory approaches because currently most staffs on the payroll have little introduction to modern agricultural management practices. (Miller, D., USAID report Feb, 2006).

Regarding mass media, radio is the most widespread source of information, in 2005 Afghanistan had an estimated 45 FM radio and about 10 television stations. Most of the electronic news media are government-owned in early 2000s Radio Television Afghanistan (RTA) was the most powerful government-owned broadcast outlet. The circulation of independent print publications has been confined to the Kabul region. The 2004 media law through Ministry of Information and Culture requires registration of periodicals and during one year some 250 periodicals were registered by MOIC. State-owned principal daily newspapers are Kabul Times, Anis and Eslah and privately owned are Arman-e-Melli, Shari'at, Ittefaq-e Islam, Hewad and Eradeh. Because of financial difficulties, all independent print media are dependent on the government or political factions without their financial supports these independent print media will never publish. There are domestic news agencies, government-owned Bakhtar and privately owned Hindokosh and Kabul Press (Library of Congress-Federal Research Division, August 2008). Ministry of Agriculture, Irrigation and Livestock also release a bi-monthly magazine since 2002, named *Karhana* which means Agriculture (RAMP/USAID report, 2004).

The conflict of last three decades not only destroyed the infrastructure, education, telecommunication, and health sector but it totally destroyed the extension system of Agriculture in Afghanistan. Most of the population (80%) are engaged in agricultural activity, their education level is very low, most of the young Afghan generation are trying to migrate to developed countries and work there as a hard labor in order to support their family meanwhile people living in the rural areas, they don't have the expertise of any other skills rather than agriculture, so agriculture is directly related to their food security, but this sector is undermined during last 3 decades. As Mr. Tooryalay Wesa mentioned in his book that during the conflict the agriculture sector was affected the most. Agriculture extension system as the main linkage of the government to rural communities which was badly affected (Wesa, 1994). However from last 8-10 years the Ministry of Agriculture, Irrigation and Livestock with having the support of development country is trying its best to reestablish the destroyed/damaged extension units in all over the country but yet they are very far of the target to achieve (to communicate with farmers and enhance their agricultural knowledge on improved orchard management practices), because currently in most rural areas, MAIL has only one male extension staff per district, equipped with limited facility, who therefore is seriously constrained in providing services to a large number of farmers in a district. To countervail the current situation of limited human resources the use of information and communication technologies, might be a considered. However international organizations (USAID, GTZ) and MAIL development project like, the Horticulture and Livestock Project (HLP)[1], make use of mass media such as radio, TV, and print media like newsletters, brochures, pamphlet, leaflets and agriculture calendars as a channel for communicating and exchanging the information for the enhancement of farmers' agricultural knowledge on few limited orchard management practices. Therefore Ministry of Agriculture, Irrigation and Livestock (MAIL) and Horticulture and Livestock Project (HLP) curious to learn and lacks knowledge on the role of print media communication in the enhancement of farmers' agricultural knowledge on improved orchard management practices. Since 2007 HLP was sub-contracted its horticulture extension activities to an International NGO called IAK (Agrar Consulting GmbH Germany), then after few years HLP does not extend its contract with IAK and sub-contracted an international Organization Roots of Peace for its horticulture extension system. HLP/ROP has produced some brochures named Gardner (Baghdar in Dari language) about

[1] One of the core project of Ministry of Agriculture, Irrigation and Livestock funded by World Bank

pruning, Irrigation, orchard mapping and orchard Layout. HLP/ROP distributed these brochures through extension workers only once, not only brochure but HLP produce annual calendar by its ICB (Institutional Capacity Building) component. But now HLP itself hired an expert called Extension Material Specialist for developing different extension material for both livestock and horticulture activities with having the support of these two components. The expert works closely with the ICB's sub-component called Communication (HLP, 2010). The researcher tried to add here the idea of HLP's Extension Material Specialist about the overall extension material produced by HLP, but unfortunately the position was vacant because of his resign, only the researcher received some printed extension material and some drafts raw pictorial messages about animal husbandry. Meanwhile the researcher found out that HLP yet does not established such monitoring and evaluation system to get the audience feedback about these extension materials; however HLP has good internal monitoring and evaluation system. Before starting the field work it was noticed the not only HLP pass the orchard management messages through print media but beside this Ministry of Agriculture, Irrigation and Livestock and some other national and international NGOs (IRD, IDEA-New, Roots of Peace, Aga Khan Foundation and Action Aid) are also producing and distributing its orchard management messages through print media, so according to time shortage the researcher was able to visit only Roots of Peace and IDEA-New office and received some brochures and pamphlets in both hard and soft copy from mentioned organizations

1.2. The research project

To gain insight into the current and potential impact of media and information and communication technologies this research will explore the role of print media communication in the enhancement of Afghan male farmers' agricultural knowledge on improved orchard management practices. The research also aims to provide a contribution to policy analysis and policy design policy recommendation of Ministry of Agriculture, Irrigation and Livestock (MAIL) and Horticultural and Livestock Project (HLP).

To achieve the established objective the following main research question has been formulated as:

> How and what mass (print) media communication interventions have potential use for the enhancement of Afghan farmers agricultural knowledge on improved orchard management practices?

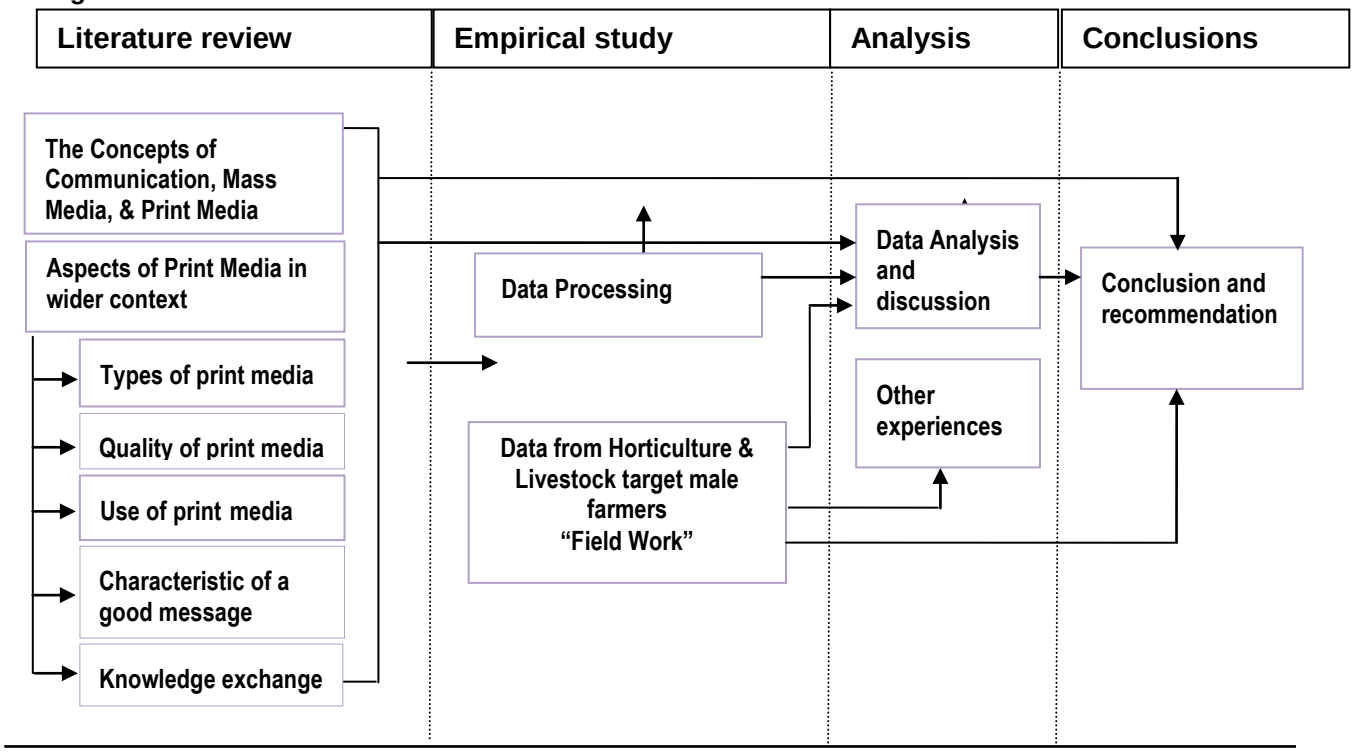
In order to answer these questions, the research will focus on the contribution of print media communication to farmers' agricultural knowledge and practices in relation to improved orchard management practices. Issues of types of print media used and access to them, how they inspire farmers for innovative practices, and the appreciation of print media by Afghan farmers will be at the focus of this research.

- What is the contribution of print media in the enhancement of agricultural knowledge of Afghan (male) farmers on improved orchard management practices?
- To what extent Afghan farmers appreciate the access and messages of print media distributed by HLP?
- What options are discerned to enhance the effectiveness of print media extension messages on improved orchard management practices?

The report of include this first chapter as an introduction section. The second chapter presents the literature review of communication, mass media and print media in the wider context, including different types of print media, quality of print media, use of print media, characteristic of a good message and knowledge exchange.
The third chapter introduces the field study providing empirical data on the access to print media, receiving of extension messages on orchard management from print media, frequency and timing of receiving the print media, using and specificity of printed extension messages, farmers understanding from the messages they receive in printed form and also their feedbacks. , The findings are presented in chapter four. Chapter five provides an analysis and chapter six synthesizes all conclusions of the study and advances, some policy recommendations for Horticulture and Livestock Project and Ministry of Agriculture, Irrigation and Livestock.

The research framework is shown in figure 1

Figure 1: Research Framework



2. Literature review

In this chapter the main concepts of the study are presented, starting by communication and its different forms than will describe Media and its types and its role in the enhancement of farmers' agriculture knowledge.

2.1. Communication

The word 'Communication' originates from the Latin word "communicare" that refers to the verb "to communicate" which means to exchange or interact along, or transmission of knowledge from one person to other or from a person to a group of people; to have interchange of thoughts to make common (Zijp 1994). Also (Leeuwis, 2004) defines communication as a process through which people exchange their experiences and ideas. To exchange meanings, their knowledge, experience and ideas, people are using different types of devices such as words, pictures, drawing, music, Chinese characters, alphabet, body language etc). Rollinson (2008) defines communication as the process in which information and its meaning is transmitted by a sender to receiver(s), he also referred to Weick and Browning (1968, p 224) said that communication is the process of transmitting information from one person to another. (Wood, 2009) define communication as *"communication is a systemic process in which people interact with and through symbols to create and interpret meanings"*. The key part of this definition is "**process"** which means it is in progress and always motive, moves forward and changing continually. It is very difficult to find when communication starts and when it stops.

> *"Communication is the complex process of creation, transmission, maintenance and transformation of information and ideas, using a mix of interpersonal and mediated channels which are sustained by political, economic and social structures" (Melkote and Steeves, 2001 cited in Chitnis, 2005, pp 34). "Communication means the movement of knowledge to people in such ways that they act on that knowledge to achieve some useful results" (Winfield, 1967 cited in NIAEM, BI 2007).*

Communication is a tool of awareness and makes people aware of societal goals and means prescribed for their success, equips them with knowledge and skills required for effective performance of roles assigned to them. Communication is essential and primary to the decision making process, a key factor at all level of development planning. Communication whether through mass media or through interpersonal channels affect the behavior pattern of person and groups Communication affects directly or indirectly the behavior of a person or a group through mass media or interpersonal communication. (Chakarary, 2007)

If we go further or in-depth communication is the act of transmitting, imparting and interchanging thoughts, ideas or information through verbal and written channels i.e. speech, writing and signs. In other words Communication is a system, which facilitates the transfer of information, messages and signals from one person or place to another person or place or from a person to a group and possibly from a group to a group (Zijp 1994). In its real sense, communication involves the complete transfer of an idea or knowledge from a person's mind to another. It is not, therefore, enough if you tell the farmer about a new idea. They must hear it, understand it and remember it.

In other words, communication is telling someone something in such a manner that he gets it (NIAEM 2007).

Communication has oral (verbal) and written media forms, the forms of oral media consists of face to face conversation, telephone, conference, Dictaphone, meeting, public address system, lecture media consists in the form of notes, letter circulars, memos, leaflets, reports, manuals, rules, orders, catalogues and etc. Visual communication also forms part of the communication and it consists of slides, neon hoardings, posters and other printed pictures, television and documentary films are audio-visual communication media. Communication maybe through verbal or written, action, figure, pictures, and the nature of communication is exchange of massages and interaction the purpose of communication is to make other understand and act upon it accordingly in the same sense. Communication is effective when the massage is shared and understood with one another. There can be no communication if the information is not shared or not understood by the receiver. It is not necessary in effective communication that the receiver must agree or accept the information it is possible that the receiver reject or either disagree with the information and its part of communication. Rejection or disagreement exists in the communication (Anand 2007).

There are four major types of communication (Willem, 1994).

1. Intrapersonal communication.
2. Interpersonal communication.
3. Group communications
4. Mass communications.

Intrapersonal communication:
This type of communication involves only a single person. Analyzing things in our minds or our thoughts, talking with ourselves are the examples of intrapersonal communication. Everything first starts from the human mind and then comes out for discussion, debate or any other purpose.

Interpersonal communication:
This type of communication involves two persons-one individual is talking, discussing or arguing with another individual. Best example for interpersonal communication includes formal interview between two persons. The purpose of interpersonal communication is to give or get information, persuading, problems solving, counseling and just chatting. This method is common but take more time than other types. Leonie, 2010 mentioned that “Overall, smallholders mention direct communication with direct contacts as the most useful because it enables them to exchange information through which they understand and learn the most. Apparently, direct communication is the best way to contact smallholders and motivate them, through learning, how to apply no-tillage”.

Group Communication:
In group communication an individual is talking to a group of people or a group, discussing problems with one another. An agriculture expert is delivering a lecture to a group of farmers; a teacher delivering a lecture to students in a class is typical examples of group communication.

Mass Communication:
Mass communication involves the communication with a large number of people. Address on radio, TV or at public place to a large gathering is an example of Mass communication. Mass this method is time and resource saving as a message can be conveyed rapidly to a large number of audience at a time while interpersonal and group communication methods need more time and resources. In extension, combined methods are used according to situation.

As society changes from traditional to modern, the importance of communication shifts from oral to media system of communication, factors involved in this shift of communication from oral to media includes large number of audience or receivers and physical distance between the commentators and the audience or receivers, it is necessary to use different communication channels and some aids to make the communication more effective even in interpersonal, face-to-face, word of mouth communication, (NIAEM, 2007). This research will focus more on mass (print) media communication, so before elaborating on mass media communication lets have some insights about media. Leeuwis defines media is as the way of exchanging information between human beings, helps to connect different communication channels to carry out text, audit, signals, visual tactile (Leeuwis, 2004). Meadow 2006 also notes that media is plural of medium which is Latin word means middle. Medium is the middle between sender and receiver. Meanwhile (Gandhi, 2008) mentioned that; *"Media (the plural of "medium") is a truncation of the term media of communication, referring to those organized means of dissemination of fact, opinion, entertainment, and other information, such as newspaper, magazines, out-of-home advertising, cinema films, radio, and television, the World Wide Web, books, CDs, DVDs, video-cassettes, computer games and other forms of publishing. The term "mass media" is mainly used by academics and media-professionals. When members of the general public refer to "the media" they are usually referring to the mass media, or to the news media, which is a section of the mass media".*

2.2. Mass Media

Mass Media, involves large number of receivers; mass media carry the written, spoken and visual information from sender (source) to receiver, readers, listeners, and viewers. Mass media materials are important and needed whenever large number of people must be reached and motivated to action, Mass media can be divided into four types,

1. Printed (news papers, brochures, leaflets, magazines, etc)
2. Spoken (Radio, etc)
3. Visual (television, Cinema, etc)
4. Combination of above three

As mentioned by many sources, the advantage of mass media is that it's low cost and large number of recipients will receive the information. Mass media refer to those which enable development workers and organization to reach a large number of people, direct or indirect, with a single source. The average village level worker can maybe contact a dozen farmers in one day on an individual basis. He can conduct two or three meetings and meet 100 to 200 farmers. However, he/she could distribute or post hundreds of leaflets, newspaper or other printed material in a day. It is appropriate that mass media materials can supplement extension workers (NIAEM, 2007) and

according to (Chakrarty, 2007) mass media not only reflect the value of our society but also influence them. In a democratic society mass communication conveys information and opinion that ultimately enable citizens to make decisions. Also mass media have been used to stimulate people in some sense. It does so by raising the level of aspiration for the good things of the world, for a better life.

> *"Mass media, especially print is a popular means of disseminating agricultural information, Print Agricultural Information Materials (PAIMs) such as information brochures and leaflets, booklets and newsletters are commonly used by extension agencies to disseminate information to farmers (Velasco, Kowalski and Lowe, 1996 cited in Mokwatlo, 2005). Morris (2000 and 2001 cited in Mokwatlo, 2005) identified 138 PAIMs produced in South Africa (SA) to provide information to communal livestock farmers or advisors, and he indicates that the quality and relevance of these publications for subsistence and small-scale farmers were, however not assessed. (Bembridge, 1997 cited in Mokwatlo, 2005) surveyed the availability of printed extension materials aimed at small-scale farmers in South Africa and found the quality of available publications to be variable and their distribution ad hoc"*

2.3. Print media

As a fast growing industry which helps to reach large number of the audience, the different types give a plethora of options for people to reach a different bracket of users. Mokwatlo, 2005 referred to Diedericks,1990 that hard cover books, paper backs, periodicals, newspapers, magazines, pamphlets or brochures and graphics or visual publications (such as photo stories and comics) are different types of the print media which are used to communicate with the public. Hassan et al, 2010 referred to (Machila et al., 2006) that in Malaysia the Department of Agriculture's, produced some printed publications such as bulletin, brochure and pamphlet. Majority of the publication are published annually. Increase in the frequency of the publication of print media materials and their distribution to the farmers indeed can enhance understanding on agriculture knowledge. Furthermore, he referred to (Nielsen and Heffernan, 2006) any update in the print media materials will enhance the understanding and knowledge of the farmers. Leonie, 2010 indicates that during small holder meetings some experts are using photographs or even audiovisuals to simplify, clarify and to support verbal communication.

Print media has different types for example: Newsletter, brochure, pamphlets, circular letters, and calendar. Print materials are used individually or in mixture with other extension methods. Some of the printed materials are presented below.

Leaflet

A printed matter sometimes called flyers, which are usually a single sheet, but sometimes folded. It gives exact or accurate information about a particular topic. Leaflets have a number of advantages. They are relatively easily, easily prepared, economical, can be preserved and used by readers. They can be used for farmer training workshops and programs, can be used in schools and as a basis for discussion in gatherings or in meetings. Commercial concern and theatres commonly advertise their products by distributing leaflets. In Agricultural extension, leaflets may be personally distributed by the staff in the farmer field days, farmers' tours and in collage days. Some

other methods of distribution are by placing the leaflet in seed, insecticide and fertilizer bags. These methods permit large number of leaflets to be distributed quickly, easily and at low cost and using of different color paper, ink and photographs can increase the attractiveness of leaflets.

Pamphlets

Any leaflet which contains a minimum of 4 and a maximum of 12 pages and is stitched or stapled at the center is called a pamphlet. There is no fixed size for a pamphlet as such; it may range from 12 to 24 pages.

Circular Letters:

Circular letters are considered to be an effective means of transferring the extension message to the recipients. These letters which is known to be an important event for the villagers, they can be used to convey information of common interest to quite a large number of people at one time. Another merit of using circular letters is that they are not only economical but also very effective if they are enriched with drawings, cartoons and pictures. Circular letters are divided into two types; Announcement and Subject Matter. While the former type announces an event like meeting or demonstration to take place, the latter may be in the form of an informal news story. The subject matter type contains facts which are presented in personalized form and is designed to bring about changes in the practices.

News Letters:

Newsletter is also considered an important means of transferring messages to the intended recipients. Newsletter, which mostly focus on the current important issues is generally printed periodically in large numbers and distributed in many ways. (Oushy, H. and Bader, J 2007) also indicate that newsletters can be used to give timely information about a topic, meeting, and issue also to get information through questionnaires and the cooperation and interest of community leaders, different group members and other program cooperators.

Bulletins

Another method of transferring information is printing/publishing of bulletins. Through this tool, people convey large amount of information whose primary objective is to render those information which the reader can apply to his own local life. The size of this booklet is generally more than 20 pages. Broadly speaking, there are two types of bulletins; Technical and Popular. While the first type is designed to present scientific data/resources to those working in specific fields, the second presents material to people in the field of extension.

Farm Journals

Farm journals are used to convey relevant development messages to the intended population. Certain shortcomings and limitations like financial problems, delayed publication and lack of trained farm journalists have negatively affected the effectiveness of this very tool.

Wall Newspaper

Wall Newspaper is used to provide timely information to the rural population on a regular basis. As its name connotes, a wall newspaper is printed on only one side and is displayed on walls. Information printed on this tool is usually decorated with drawings and photographs to become more attractive. Color, illustrations, drawings and photographs help attract attention. Wall

Newspapers generally are so designed to transfer a number of items such as announcements, crop forecasts, latest research results and success stories.

Newspaper

Newspaper is probably the most popular means of information dissemination these days. Information published in the newspaper consists of news, views, advertisements etc and is disseminated at regular periods, namely daily and weekly. It is worth mentioning that the purpose of newspaper is to 1. Serve as a platform for extension practices in an area 2. Deliver information which would be of some use to the leaders of a community and 3. To enlighten the public about program/project, progress etc.

Banners

Although banners are seldom used by extension workers nowadays, they have been one of the traditionally used media information visuals in India. To clearly present a message, banners are needed to be tactfully designed. Height and length of a banner should be proportionate to each other and to avoid its destruction by wind and rain, flex printing should be taken.

Calendars

Since calendars are vastly used as an advertising tool throughout the world, it is recommended for the extension workers to make optimum utilization of this famous instrument. The core merit of calendars is that they are persistent reminders of the intended messages.

Photo Journalism

"One picture is worth a thousand words"

As most of the words convey different meanings, words (written or spoken), often fail to convey what exactly is meant and almost every word has many different meanings, therefore the average reader, and especially our farm readers, with having less education, takes time to understand the exact meaning of a word. Therefore it is preferred to use pictures to disseminate messages in today's world. Pictures have the ability to tell the audience more than what words can ever do. In addition, pictorial messages help people learn faster and remember things for longer periods of time. Furthermore, a good picture draws the viewer's attention and arouses his interest in the subject matter.

Since pictures are a universally well known language, with pictures we remember things longer and learn faster. A good quality picture draws the viewer's attention at once and arouses his interest in the subject matter. Pictures make the subject matter more realistic and vivid. In addition, it avoids writing too much thus; replacing a huge amount of writing.

We cannot ignore the fact that every medium has its own merits and demerits. Not only these tools have their advantages and disadvantages, print media has its both sides. The followings shed light on the advantages and disadvantages of print media.

2.4. Qualities of print media

(Mokwatlo, 2005, p. 29-31) Outlines the following qualities as possessed by print media:

1. *Portability:* one of the advantages of the print media is its portability. Portable materials such as books and pamphlets can be received in virtually in a situation as (Stewart, 1985 cited in Mokwatlo, 2005) that "*the message can be received in virtually in any situation*". Visual media such as television required equipment and proper venue for user to hear the message.

2. *Technological complexity and cost:* One of the salient features of the print media is its low complexity and inexpensiveness. Mass media such as print is an effective and cheap way to disseminate information. It needs little technology as compared to audio and visual media to produce and store.

3. *Reviewability**:*** Print material has the ability to be used at any time whenever it is needed. It remains in use as a reference for many years while the users may come and go (Bembridge, 1997 cited in Mokwatlo, 2005).

4. *Credibility:* An important advantage of the print material is its credibility. People trust print material because they believe the source of information originates from outside their area and therefore it is credible (Bembridge, 1997 and Leach, 1999 cited in Mokwatlo, 2005).

5. *Precision of expression:* It goes without saying that print material allow for a greater accuracy of content and precision of expression then visual media. Unlike electronic media, information generated through print media can be clearly stated without any bias (Stewart, 1985 cited in Mokwatlo, 2005).

6. *Accuracy:* To pass on realistic information, message presented in Print Agricultural Information Materials (PAIMs) should be exactly correct, evidence-based and update (Smith, 1998 cited in Mokwatlo, 2005).

7. *Appropriateness:* Appropriateness is probably one of the important factors based on which the recipients decide whether to accept it or not (Smith, 1998 cited in Mokwatlo, 2005). Information should be appropriate to the age, gender, educational level, ethnicity, socio-economic status and lifestyle of the target audience (Bettereley et al, 2000 cited in Mokwatlo, 2005).

8. *Relevance:* In order for the information to be accepted by the audience, it should address the needs and concerns of the intended population. If information does not consider the needs and concerns of the target group, it will not be taken seriously by them (Morris, 2001 cited in Mokwatlo, 2005).

While there are quite a number of merits of the printed information, illiteracy is said to be the major barrier to its use by the target audience. (Guillemette, 1989 cited in Mokwatlo, 2005) come up with the following guidelines to design messages that would be understandable to relatively low literate readers.

- Simplicity of layout and language
- Compatibility of the technical messages or information with the user/ reader's knowledge and background.
- Consistency (predictability) in both its layout and language used.

The above guidelines are also emphasized by Bembridge (1991). He states that

- "The message should be relevant to the audience's needs, problems, concerns and long-term interests;
- Ideas should be reduced to the simplest possible terms, using simple illustrations such as visual aids and demonstrations;
- Concepts should be clearly defined; and
- Messages should be organized into logical stages and be presented in the local language of the intended audience".

It is an accepted fact that developing printed materials will not prove productive unless the needs and circumstance of the target audience is not assessed and the content to meet the needs of the group is not tailor made.

2.5. Use of Print Media

The purpose behind using print media is to reach out to large numbers of people and add to the quality of the extension events in different ways. The Ministry of Agriculture of Bangladesh in its Agriculture Extension Manual (MoA, Bangladesh, 1999) has categorically described some of the ways by which we can enhance the quality of the extension messages.

Awareness: Print media items produced for widespread distribution and can create knowledge of new ideas, actions or problems which famers needs to take action right away, e.g. pest.

Interest: it is noticed that print media can add interest to extension events and people always show their attention and interest to those extension events when they use flash cards, photographs and samples.

Memory: It is naturally that whenever information is given in different formats, people are trying to remember the important and useful points. So hearing, vision and using touch always works well than only listening to someone.

Explanation: In extension events the extension agents often get help of using charts and pictures in order to explain his ideas and concepts more clearly and simply to the participants, so they are more likely to understand his ideas.

Effects: Using of photographs, models and flip charts often helps the extension staff to show what might happen if a farmer apply a new idea. For example rice-fish production, the extension staff can show this idea through a photograph of fish being produced in a rice farm and this photograph will give farmers clear idea about rice-fish production.

Structure: Print media give the opportunity to extension agents to structure talks and events. For example, a serious of flash cards gives main points to cover in a talk or give structure to an extension event.

Participation: To proactively encourage target audience to take part in the extension activities, it is very essential to use live samples, models, photographs and other printed information. For example, we can comprehend to the farmers how to build and fill a rice-fish field by making a model of and demonstrating it for them. Similarly, households can examine issues related to sanitation and water supply with a well structured set of pictorial flash cards.

Other than the above mentioned print media, comic books are also considered to be the best potential in technology transfer. Comic books that would serve the needs of the extension personnel can be published through desktop publishing. Producing comic books for enlightening the target population on different issues is also possible through imaging technology, layout and design software.

Farmers learn by using different ways. They learn from the experts, promoter as well as among themselves. It indicates that farmers learn by using both vertical and horizontal movement of knowledge. Much they are learning by doing, observation, trial and innovation (Mukute, M. 2010). Farm people need knowledge in order to get better and improve their community, their life style, their ways of living and living itself. Farm, extension worker, home advisers get the information and knowledge from the technicians and scientists, interpret it and chose of it what the farmers need or want. They are communicating new ideas, feelings, impressions, thoughts and information to enable farmers to do old practices in a new and better way and to learn new skills. The information, message or idea is just 'noise' when it is not relevant to a group of people, so a good message must be relevant interesting, useful, credible, profitable, motivating and complete which clearly states what to do?, how to do?, when to do? And what would be the result. Furthermore a good message should produce desirable changes in human behavior, so it should be; attractive, specific, simply stated, accurate, timely, and appropriate to the channel selected, in line with the objective, understandable by the audience, in line with socio-economic, mental and physical capabilities of the audience, Manageable, applicable, and adequate (NIAEM, 2007). In the conclusion of literature review it is noticed that there are four types of communication; intrapersonal communication, interpersonal communication, group communication and media communication. Media communication contains Hybrid media (Internet & CD ROM), Interpersonal Media e.g telephone and conventional mass media which have four types printed, spoken, and visual and combination of these three and in some literature it has divided in two types' electronic media and print media. In literature review its find out that print media has different types (brochure, pamphlet, wall newspaper, newsletter, farm journal, circular letters, bulletins, banner, calendar and leaflets, which are used as mass medium and aims to exchange the information to mass audience.

3. The Research

3.1. Research Methodology

This research is based on concepts of communication, mass media, print media and knowledge. Based on the literature review the research will continue with a case study of HLP project of Ministry of Agriculture, Irrigation and Livestock in Aybak district of Samangan province in Afghanistan. A pre-field seminar conducted and some meetings were held with the HLP key staffs (Extension Material Specialist, Monitoring and Evaluation Specialist and Information and communication Coordinator) before survey. Individual interviews conducted with HLP target farmers; they are randomly selected from the beneficiary list of HLP project. First the researcher with close collaboration of HLP field staff (Provincial Extension Coordinator) choose randomly 5 villages, and then randomly selected 6 farmers from each village, The main population frame of Aybak district provided by the HLP Farmer Organization Development (FOD) Component contained name of the HLP male target farmers organized into producer groups but lacked orchard size of some of the listed group members. This did not allow selection of samples using the systematic random sampling, thus, a simple random sampling method was employed for selecting the representative samples. In total interviews have been conducted with 30 farmers. So for having and getting sufficient information about the role of print media the researcher designed a semi-structure questionnaire (see Annex A) which contains 24 questions including 7 questions about a specific HLP brochure chosen by researcher with the help of former HLP/ROP Regional Extension Coordinator “Mr. Ahmad Shah Khan”, who has the experience of more than 15 years of working in extension field. The questionnaire was discussed with research supervisor Dr. Loes Witteveen and HLP M&E Specialist Dr. Jit Pradhan “Bhuktan”, to seek their comments and suggestions toward improving the quality of the research questionnaire. The researcher received a number of constructive comments and suggestions and based on which the researcher improved the questionnaire, then the questionnaire was very thoroughly reviewed during the meeting with HLP extension staff. The researcher field tested the questionnaire in Bala Abb village of Mir Bacha Kot district in Kabul province, interviewing 3 farmers. The questionnaire was revised further and simplified based on pre-test interview reflections, comments and feedbacks of HLP experts. Some feedbacks were received after printing the questionnaires from the research supervisor, so because of not having the printing facility in the field the researcher edit the questionnaires in hard copy. This way the questionnaires were refined and finalized for actual conduct of the survey in selected sample villages and farmers. The research data were collected through interview with the selected farmers and observation of the researcher from the field. The interviews focused on information about print media, particularly on access to print media, receiving of extension messages on orchard management from print media, frequency and timing of receiving the print media, using and specificity of printed extension messages, farmers understanding from the messages they receive in printed form and also their feedbacks, suggestions and recommendation for the improvement of printed extension messages. For analyzing the collected data the researcher used Ms Excel program, first dummy tables were produced for each question and then data was entered in dummy tables and then the results were shown in result tables, for analyzing the descriptive questions, frequency counting method was used in order to prevent the repetition of same answers, only will show the same answers in percentage in the result section.

3.2. Research Study Area:

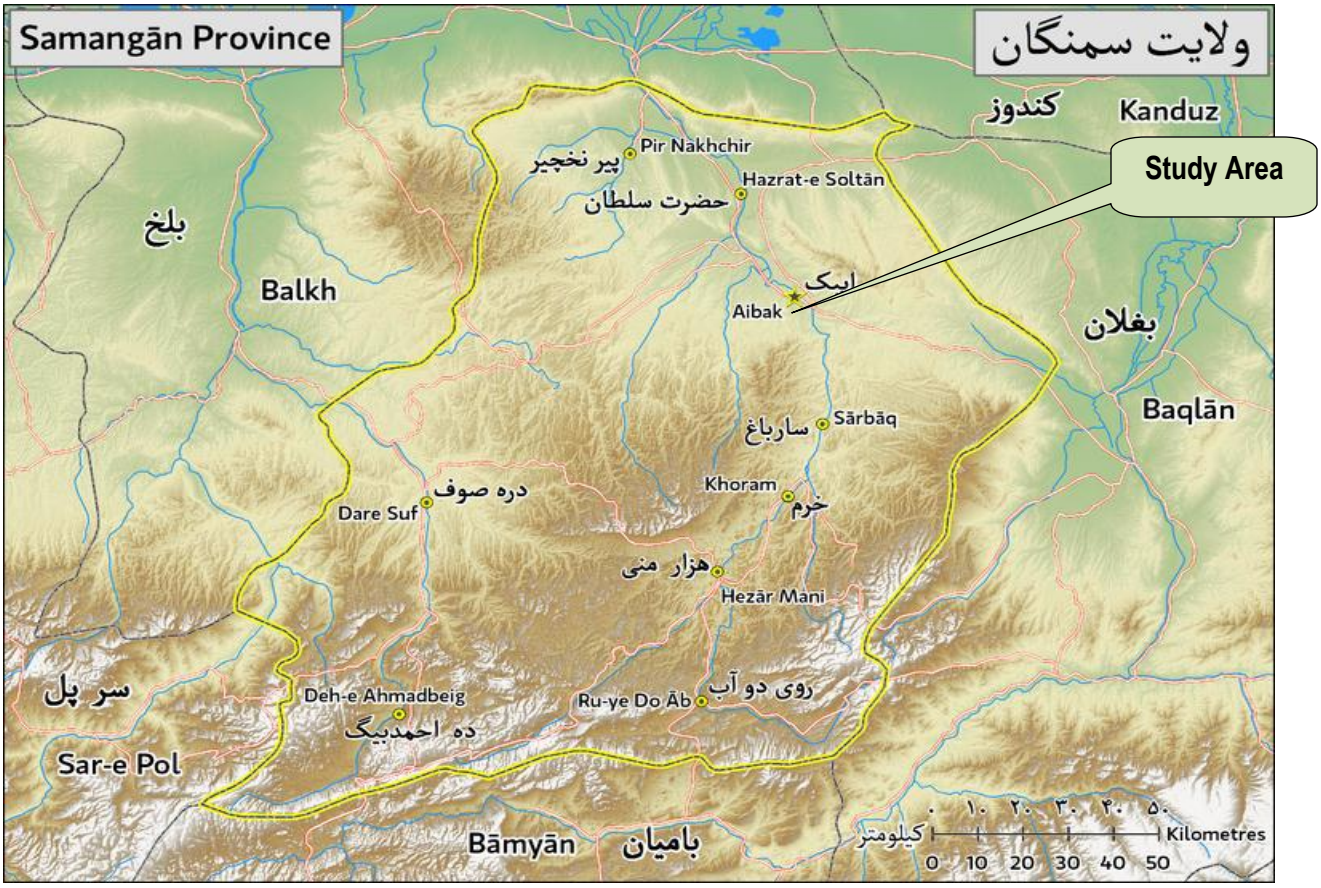
Samangan province is located in the north of the country (Afghanistan) and bordered by Baghlan, Balkh, Bamyan, Kunduz and Sar-e-pul provinces. The Province is well positioned on the main trade road between Mazar-e-Sharif and Pul-e-Khumri, Salang and Kabul. Samangan province has a population of 327,700 persons, 48.8% women (CSO, 2005-06 cited in NRVA, 2007-08) and encompasses an area of 11,262 square kilometers, 93% of the mentioned population lives in rural area and the remaining 7% is living in urban area. Samangan is a province with mixed ethnicities groups mainly Uzbeks in the northeast and central areas, Takjiks in the east, Hazaras in the south and in the west a mixture of all, including small populations of Pastoons and Turkmans. Samangan province has 7 districts including provincial capital Aybak (Dara-e-Souf bala, Dara-e-Souf Payan, Feroz Nakhshir, Hazrat Sultan, Khuram wa Sarbagh, Ruyi Du Abb districts and capital Aybak). In normal years (a year during which the precipitation approximates the average for a long period of record), the majority of the populations in Samangan province are engaged in agriculture and animal husbandry, especially cultivating cereal crops such as wheat, rice and maize, herbal products, such as caray and asfitida are grown for export. Melons, cotton, oil seeds, vegetables and strawberries are also grown (PREPS, b, 2006). Drought resistant species such as almonds, pistachios, pomegranates and apricots are cultivated. In 2008-2009 after Zabal[2] province Samangan produce the highest amount almond of about 14000 Metric ton from 4000 hectares of land (CSO, 2008-2009). The important source of income was the export of high quality almond and pistachios for the province, excellent almonds and pistachios are now cultivated, but marketing is a problem. The almonds are bought at low cost by the traders from Pakistan who, in turn, sell them in India or within Pakistan with a good profit.

The City Aybak also called Samangan is the provincial capital of Samangan province; it has the total population of about 85000 people (CSO 2003 cited in NRVA, 2007-08) and encompasses an area of 1553 square kilometers. In total Aybak city has 96 villages and 80 Community Development Councils. The ethnic diversity of this city is, in majority 55% Uzbak, 35% Tajik, 5% Pashtoon and the rest 5% includes other small ethnicities. Aybak city has 16 primaries, 12 secondary and 5 high schools for boys and 17 primaries, 1 secondary and 4 high school for girls. Only 5% of the residents of Aybak city have access to safe drinking water and 10% of them have access to private and public electricity and because of having 40 health posts and 2 comprehensive health posts 80% of the population in this city has access to basic health services. The majority of the population is engaged in agricultural and livestock activities. The main industries in the district are rug weaving, carpentry, tailoring and embroidery. Aybak district suffers from poverty and weak economy because of low level of education, limited agricultural knowledge and production, inaccessibility to infrastructural services and health problem. The income of the residents of Aybak district depends on agricultural and livestock productions, but these productions are in very low level because of poor agricultural knowledge and due to lack of access to modern farming system and methods such as adequate irrigation water and chemical fertilizers, improved seeds, machinery and lack of update information about agricultural activities and agricultural technologies. Moreover, the residents of this district have limited access to social services such as

[2] Zabul province located in southeastern Afghanistan, produced the highest amount almond (18900 metric ton from 5400 hector land) in 2008/2009 (CSO 2008-2009)

education, with existing schools' shortage of qualified teachers and teaching materials. They lack basic infrastructure services such as roads. The existing roads are destroyed and haven't been reconstructed yet. Weak economy, lack of modern technology, poor condition of health and illiteracy has caused the people to lead a depressed life

Figure 2: Map of Samangan Province



Source: http://en.wikipedia.org/wiki/Samangan_Province

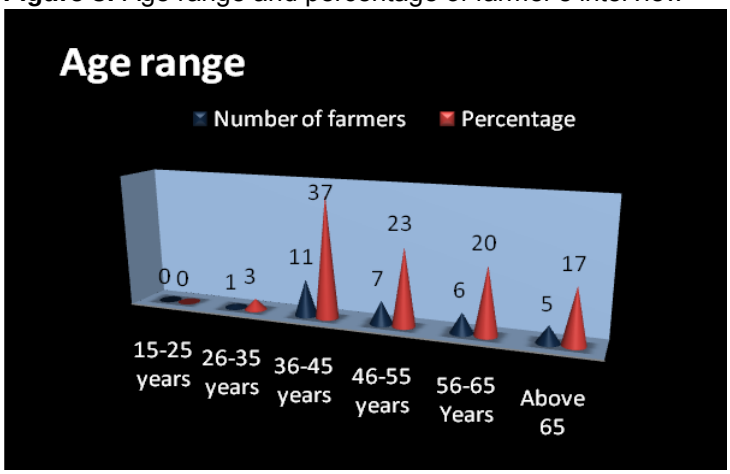
3.3. Respondents profile

The research survey was conducted in 5 villages of the capital "Aybak district" of Samangan province with 30 farmers of different aged. Table 1 and figure 3 showed that the majority (37%) of interviewed farmers were in between (36-45 years) old and (23%) of (46-55) years old. The survey did not cover very young farmers between (15-25 years) old, unlike the survey covered (17%) of old farmers above 65 years.

Table 1: Age range of Interviewed farmers

SN	Age Group	[N] (n=30)	[%]
1	15-25 years	0	0
2	26-35 years	1	3
3	36-45 years	11	37
4	46-55 years	7	23
5	56-65 Years	6	20
6	Above 65	5	17
Total		30	100

Figure 3: Age range and percentage of farmer's interview

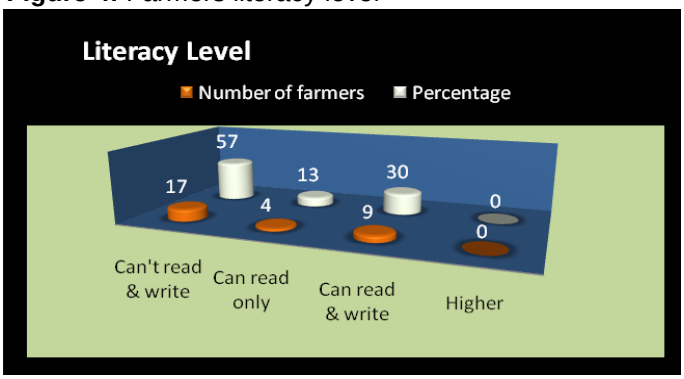


The result in (table 2 and figure 4) is not showing the farmers who have higher education, unlike above (50%) of interviewed farmers were illiterate they cannot read and write. Only (30%) of farmers answered that we attended the school and we can read and write well but, some (13%) of farmers replied phrases like "*in childhood we only attended Madrasa*[3]*, and some literacy courses therefore we came to read only but cannot write*".

Table 2: Interviewed farmers literacy level

SN	Literacy Level	[N] (n=30)	[%]
1	Can't read and write	17	57
2	Can read only	4	13
3	Can read and write	9	30
4	Higher	0	0
Total		30	100

Figure 4: Farmers literacy level



The result shows in figure 5 that the literacy level of young respondents are higher than the old aged respondents, the study shows that 58% of those who are illiterate (cannot read and write) are above 56 years old, unlike the literacy level increase in the young aged farmers. One interview was conducted with a farmer in the age between (26-35) years, which can read and write. 11 interviews were conducted with farmers in the age between (36-45) years, out of them 5 can read and write, 3 of them can only read and the remaining 3 were illiterate they cannot read and write. Between the age of (46-55) 7 farmers were interviewed 3 of them can read and write, 3 of them were illiterate (cannot read and write) and the remaining one farmer only can read, but unlike 6 farmers between the age of (56-65) were interview and all of them were illiterate, they cannot read and write also 80% of the interviewed farmers above 65 were also illiterate. It shows that the literacy level is higher among young generation than the old generation.

[3] Madrasa is the place where only religious books are being thought.

Figure 5: Literacy level according to age range

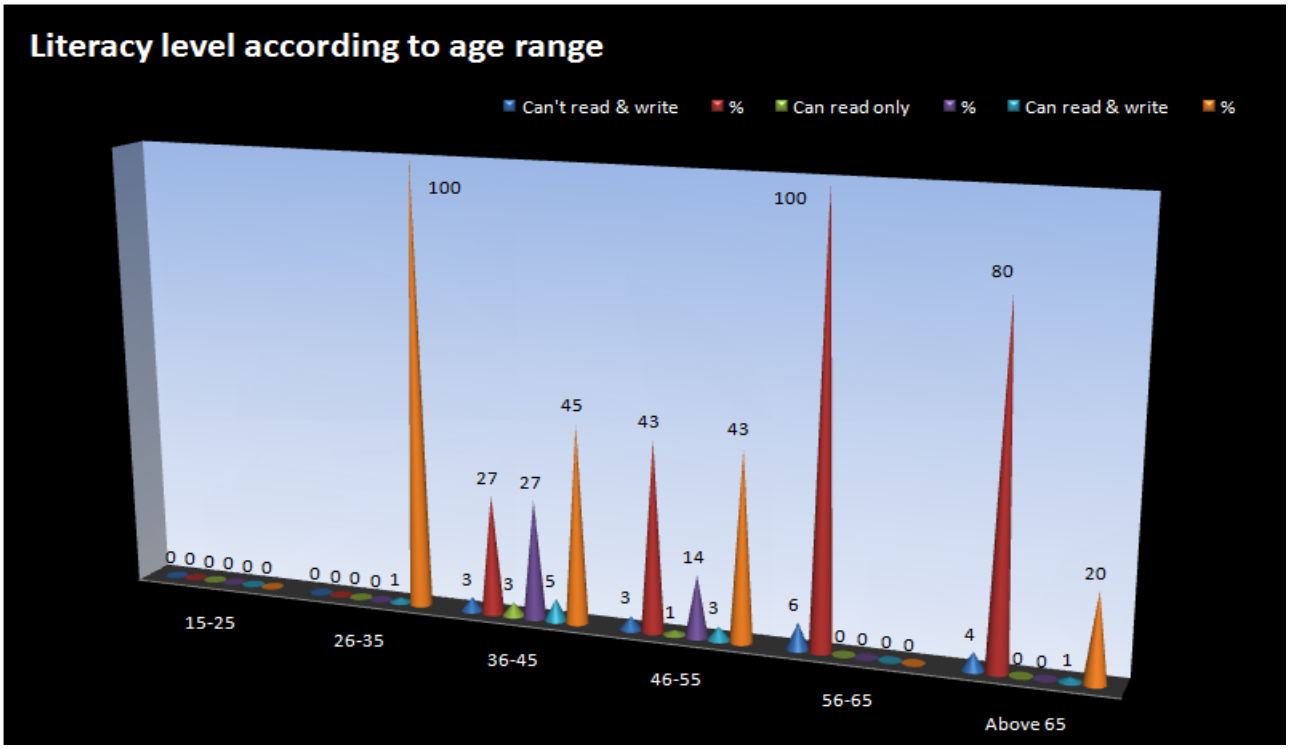
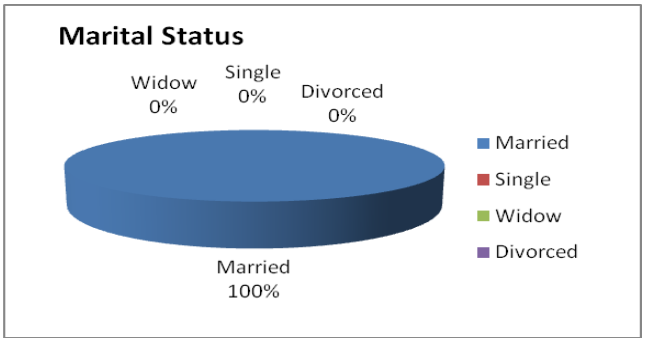


Table 3 with figure 6 showed that all interviewed farmers were married and the reason for this was asked by the researcher from the HLP project "Provincial Extension Coordinator" Mr. Majeed, because for interview, farmers were selected based on the list provided by HLP/M&E component. So Mr. Majeed replied that during the selection of farmers by HLP project to organizing them into group called producer group. All the head of household were selected, therefore HLP don't have other marital status farmers rather than married. There are very few cases in some provinces of having unmarried farmer in a producer group that father was died so the group decided to bring his son into the group.

Table 3: Marital Status

SN	Marital Status	[N] (n=30)	*[%]*
1	Married	30	*100*
2	Single	0	*0*
3	Widow	0	*0*
4	Divorced	0	*0*
Total		30	*100*

Figure 6: Farmers Marital Status



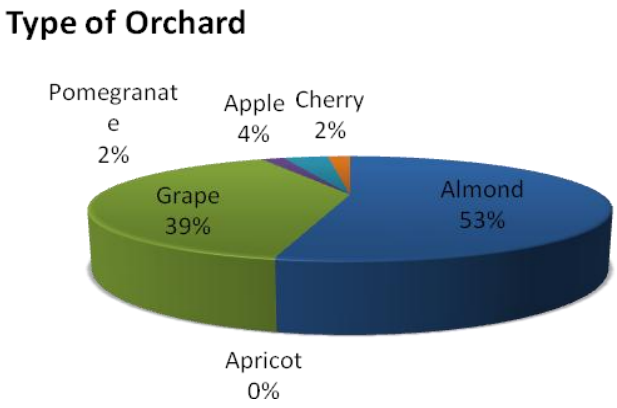
In Samangan province farmers grow different types of fruits but, the result shows the major fruits are almond and grape. According to Afghanistan Central Statistic Office (2008-2009) after Zabal province Samangan produces the highest amount almond of about 14000 Metric ton from 4000 hectares land. The research result showed in both table 4 and figure 7 that all the interviewed

farmers have almond orchards with the maximum average orchard size of 4.3 *Jerib* (range 0.5-25 *Jerib*) and (73%) of farmers have grape orchards with the average size of 1 *Jerib* (range 0.5-2.5 *Jerib*). Furthermore the result showed that minority of farmers also have pomegranate, apple and cherry orchards, unlike they do not have apricot orchards.

Table 4: Different fruit orchards and size by Jerib

SN	Fruit type	Have Orchard of		Orchard Area [Jerib]		
		[N] (n=30)	[%]	Average	Max	Min
1	Almond	30	100	4.3	25	0.5
2	Apricot	0	0	0.0	0	0
3	Grape	22	73	1.0	2.5	0.5
4	Pomegranate	1	3	0.5	0.5	0.5
5	Apple	2	7	0.8	1	0.5
6	Cherry	1	3	0.5	0.5	0.5

Figure 7: Different fruit orchards and size by Jerib

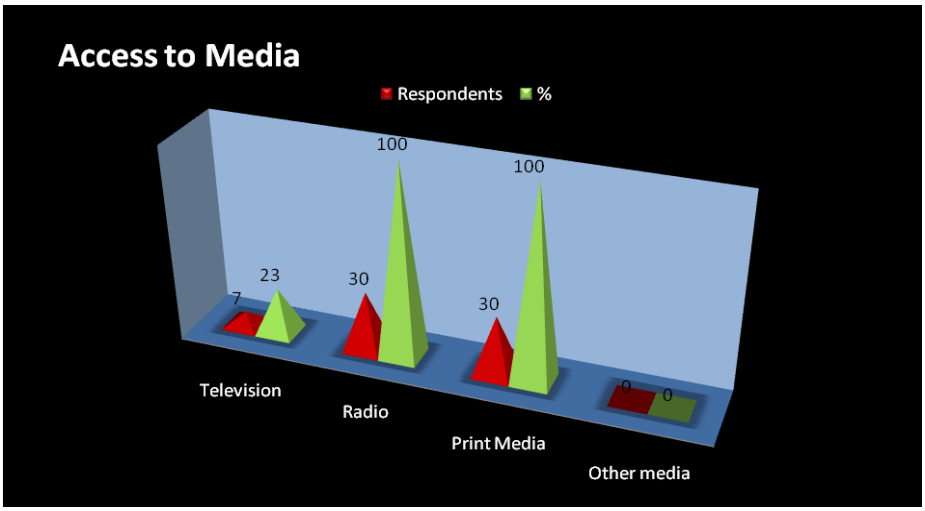


4. Results

4.1. Accessibility

The research was conducted as both quantitative and qualitative research method; semi-structured interviews were used for data collection. The main objective of this chapter is to present the result of this research. Before all this is important to mention that to which media the respondents have access as the result shown and it indicates in figure 8 that all the 30 respondents have access to radio and different print media and only 23% of them have access to television and the rest which they don't have access, is just because of electricity. They don't have access to other modern media such as internet.

Figure 8: Farmers access to different media



As whole farmers of Samangan have access to print media but the type of print media and the message they receive varies. All the interviewed farmers replied positively to have access to extension messages in printed form, some farmers have access to only one type of print media and some farmers have access to many. The result shown in table 5 indicates that about 85% of interviewed farmers have access to newsletter, brochure and calendar. Some of the interviewed farmers do have access (63%) to magazine but few farmers have access to leaflet and pamphlet. The results show that except newsletters, farmers received extension messages from the remaining types of print media, mentioned in table 5. When the researcher asked about the reason for not receiving extension messages from the newsletter, most of the farmers replied that from newsletter we just found that the organization (HLP) mention about their work progress, introduce its staff, donor and activities, nothing about extension messages and those farmers who cannot read and write even don't understand what the newsletter is about. Most of the extension messages they received through brochure, magazine and calendar and few farmers received extension messages from pamphlets and leaflets as well. Farmers received newspaper, brochure and calendar free of cost from Horticulture and Livestock project of Ministry of Agriculture, Irrigation and livestock (MAIL) of Afghanistan. During interview with farmers the researcher also asked, If MAIL or some other organizations sell these printed extension messages, and inquired their willingness to pay for that. Most of the respondents replied positively regarding their willingness to pay, however they indicated that it depends on the quality, on the relevance of the agricultural messages and also on the cost of print media and the affordability. It is noticed during

data collection that one of the respondent Mr. Nawroz from Mangtash village shared this story, *"once I visited my friend's house in Kunduz province there I saw that they received very useful information about new orchard establishment and irrigation, so then I asked my friend from where you have gotten this pamphlet. He replied me that from an a NGO called Aga Khan Foundation, so tomorrow we both, me and my friend, went to the main office of the mentioned NGO and I collected few pamphlets from them. I went there and spent my money just because I found that messages very useful, so I will pay for print media if I really find it useful".*

Table 5: Access and receiving of extension messages from different type of media

SN	Type of Print Media for Extension Education	Which Print Media You Have Access to?		Which of the listed print media do you receive extension messages from?		Which of the listed print Media Distributed by HLP?		Which Print Media Do you Receive Free of Cost?		If You Pay, How much Do You Pay for Each Media?	
		[N] (n=30)	*[%]*	[N] (n=?)	*[%]*	[N] (n=?)	*[%]*	[N] (n=?)	*[%]*	[N] (n=30)	*[%]*
1	Newsletter	25	*83*	0	*0*	25	*100*	25	*100*	0	*0*
2	Brochure	26	*87*	26	*100*	16	*62*	26	*100*	0	*0*
3	Pamphlet	8	*27*	8	*100*	0	*0*	8	*100*	0	*0*
4	Magazine	19	*63*	19	*100*	0	*0*	19	*100*	0	*0*
5	Leaflet	4	*13*	4	*100*	0	*0*	4	*100*	0	*0*
6	Calendar	26	*87*	26	*100*	26	*100*	26	*100*	0	*0*

The result as shown in table 5 indicates that HLP target beneficiaries are not only receiving the printed extension messages on orchard management from HLP but they also receive from some other government and non government organizations. Apart from HLP the respondents mentioned that they received printed extension messages in different shapes from Ministry of agriculture, Irrigation and Livestock and from non government organizations (IDEA-NEW, Roots of peace, IRD, and Afghan Aid). According to the result showed in table 6 most of the respondents have received the printed extension messages as brochure and calendar from HLP and somehow brochures from other non government organization (IDEA New 27%, Roots of peace 33% and IRD 23%), some of the respondent added that some of the organization (e.g IDEA-New) give the brochures to provincial agricultural department, however the project or the organization did not work in this area, but they give the brochure in free to provincial agricultural department in order to support or help the farmers of this area as well. Out of 30 respondents 20 of them have received magazines from both government and non-government organizations, 9 of them have received pamphlet from non government organizations and very low number of respondent have received leaflets form the Ministry of Agriculture, Irrigation and Livestock. It was noticed that the reason was the distribution of limited number of leaflets by provincial agricultural extension department. Samangan provincial agricultural extension manager was received only few leaflets from MAIL, so it does not covered all the farmers only few of the farmers received that limited leaflets about IPM.

Table 6: Sources farmers received printed extension messages

SN	Type of Print Media for Extension Education	From Which Sources Do You Receive the Listed Print Media?											
		Government (MAIL)		NGO		HLP		Others					
								IDEA NEW		Roots of peace		IRD	
		[N] (n=30)	[%]	[N] (n=30)	[%]	[N] (n=30)	[%]	[N] (n=30)	[%]	[N] (n=30)	[%]	[N] (n=30)	[%]
1	Newsletter	0	0	0	0	25	83	0	0	0	0	0	0
2	Brochure	0	0	6	20	16	53	8	27	10	33	7	23
3	Pamphlet	0	0	2	7	0	0	7	23	0	0	0	0
4	Magazine	2	7	18	60	0	0	0	0	0	0	0	0
5	Leaflet	4	13	0	0	0	0	0	0	0	0	0	0
6	Calendar	0	0	0	0	26	87	0	0	0	0	0	0

It is important to mention here about the frequency of receiving the print media by farmers. The result table 7 showed that (n=?) here it means that (n) depends to the number of those farmers who received that particular print media. For example 25 farmers received newsletter and all of them have received it quarterly, so therefore the result shows in table that 100% of famers have received newsletter quarterly, because in this type percentage we cannot count those farmers who did not received newsletter, the famers who did not received this print media so how can he tell about its frequency, so naturally the (n=?) will cover only those farmers who received. As noticed that magazine and newsletter are distributed quarterly, however farmers received brochure, pamphlet and leaflet occasionally and calendar once in a year, means annually. One of the respondents, Mr. Abdul Wodood from Haji Mohammad Rasool village, said that "*I would say that I have received the pamphlet not occasionally but seasonally, because when it was trellising time I received the trellising pamphlet and when it was season for the establishment of new orchards I received the pamphlet about new orchard establishment, so that is why I would say seasonally rather than occasionally*".

Table 7: Frequency of receiving print media for improving orchard management

SN	Type of Print Media for Extension Education	Weekly		Fortnightly		Monthly		Bi-Monthly		Quarterly		Occasionally		Annually		Total	
		[N] (n=?)	[%]	[N] (n=?)	[%]	[N] (n=?)	[%]	[N] (n=?)	[%]	[N] (n=?)	[%]	[N] (n=?)	[%]	[N] (n=?)	[%]	[N]	[%]
1	Newsletter	0	0	0	0	0	0	0	0	25	100	0	0	0	0	**25**	**100**
2	Brochure	0	0	0	0	0	0	0	0	0	0	26	100	0	0	**26**	**100**
3	Pamphlet	0	0	0	0	0	0	0	0	0	0	8	100	0	0	**8**	**100**
4	Magazine	0	0	0	0	0	0	0	0	18	100	0	0	0	0	**18**	**100**
5	Leaflet	0	0	0	0	0	0	0	0	0	0	4	100	0	0	**4**	**100**
6	Calendar	0	0	0	0	0	0	0	0	0	0	0	0	26	100	**26**	**100**

The study results showed in table 8 indicate that most of the respondents received the extension messages on orchard management in time through print media, somehow replied, they received extension messages too early and few of the respondents replied that they received the extension messages a bit late. The table shows that there is not data about receiving the extension messages too late or don't need at all. Mr. Zaiudeen from Achamyli village in addition to the section not at all replied that it is better to receive extension messages in time, but if not in time, too late is also ok with me because I can use that in next season. In addition to this the researcher observed that some farmers were using two or even three years old brochures and interested to keep it with them self and to use it in the future, here it shows that print material has the reviewability quality and they use one brochure for many years it means that print media have potential impact on the enhancement of farmers agricultural knowledge.

Table 8: Timing of receiving extension messages on orchard management through print media

SN	Type of Print Media for Extension Education	Received Extension Messages in time		Received Extension Messages too early		Received Extension Messages a bit late		Received Extension Messages too late		Don't need at all		Total	
		[N] (n=30)	*[%]*	[N] (n=30)	*[%]*	[N] (n=30)	*[%]*	[N] (n=30)	*[%]*	[N] (n=30)	*[%]*	[N] (n=30)	*[%]*
1	Newsletter	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	**0**	***0***
2	Brochure	21	*81*	2	*8*	3	*12*	0	*0*	0	*0*	**26**	***100***
3	Pamphlet	7	*88*	1	*13*	0	*0*	0	*0*	0	*0*	**8**	***100***
4	Magazine	5	*25*	13	*65*	2	*10*	0	*0*	0	*0*	**20**	***100***
5	Leaflet	2	*50*	1	*25*	1	*25*	0	*0*	0	*0*	**4**	***100***
6	Calendar	1	*4*	25	*96*	0	*0*	0	*0*	0	*0*	**26**	***100***

The result in table 9 showed the specificity of the extension messages on improved orchard management practices, all the respondents who received the different types of print media agreed on the precise level of detail in the extension messages which they received from brochure, pamphlet and leaflets, however 16 out of 20 respondents those who received the messages on orchard management from magazine mentioned that extension messages were very specific but 4 of them were agreed that messages were somewhat specific, unlike majority (77%) of those respondents who received orchard management extension messages through calendar, they replied that extension messages were somewhat specific but, remaining 23% of them were satisfied from the specificity of its extension messages.

Table 9: Specificity of extension messages on orchard management contained in print media

SN	Type of Print Media for Extension Education	Extension Messages are very specific		Extension Messages are somewhat specific		Extension Messages are not specific		Extension Messages are confusing		Extension Messages are not Understandable		Total	
		[N] (n=30)	[%]	[N] (n=30)	[%]	[N] (n=30)	[%]	[N] (n=30)	[%]	[N] (n=30)	[%]	[N] (n=30)	[%]
1	Newsletter	0	0	0	0	0	0	0	0	0	0	**0**	***0***
2	Brochure	26	100	0	0	0	0	0	0	0	0	**26**	***100***
3	Pamphlet	8	100	0	0	0	0	0	0	0	0	**8**	***100***
4	Magazine	16	80	4	20	0	0	0	0	0	0	**20**	***100***
5	Leaflet	4	100	0	0	0	0	0	0	0	0	**4**	***100***
6	Calendar	6	23	20	77	0	0	0	0	0	0	**26**	***100***

4.2. Learn, Use and Share of printed extension messages

The result in table 10 shows that farmers in Samangan province learned 13 different useful orchard management practices: Pruning, fruit thinning, fruit sorting, irrigation, trellising, selection of sapling for new orchard, new orchard establishment, orchard layout, fertilizing, integrated pest management (IPM), wearing of protection cloth during spraying the chemical, grafting and harvesting from different types of print media. It is noticed that out of 30 respondent 26 of them mentioned pruning is one the most useful information they received from brochure. One of the respondents Mr.Abdul Khaliq from Noor Qashlaq village shared his story; he said "*for the first time when I received the brochure about pruning so first the extension worker showed me practically on one of the almond tree in my orchards. I did not prune my tree since I established my orchard, so when the extension worker prune one of my tree I realized and saw that he cuts many branches. I was afraid that Ohh, the extension worker cuts all the branches, this tree will not give fruit this year. He finished his pruning and gave me the brochure that read and see these pictures in this brochure and keeps pruning your remaining trees. He went out of my orchards and replied him that yes I will do for the remaining, but I did not prune because I was afraid if I prune the remaining trees so for this year I will not have yield to harvest. Therefore I ignore what he said and put the brochure in the shelf of my room, the time passed and after few weeks I realized that the tree which was pruned is looking very good and it has very nice shape than before"*. He further explained that *"finally during harvesting I realized that there is visible difference between the almond of this tree with other trees and the yield was also harvested 2.5 kg more than other not pruned almond tree what I had in my orchards. So looking to this positive change next year I use the information from the brochure which was given to me by extension worker and what I learned from him during the pruning of one tree. I pruned all my trees, now every year I am doing this practice in my orchard, because I observed its benefit and have advised many of my neighbors to do pruning in their orchards even I share and give them the brochure to use its information and now all of them are happy with practicing this practice".* The results presented in table 8 indicate that 50% of the respondents received extension messages on harvesting and IMP (Integrated Pest Management) from magazine. Farmers appreciated very much the IPM messages. They received

IPM messages on insect control especially earth warm control. The messages about IPM contain only few pictures but it has much description with written words, so it is noticed that some of the respondents who cannot read and write, take the help of their sons, relatives, neighbors or friends in order to understand or to get the message clearly. Wearing of protection cloths during chemical spraying in orchards was the message which helps the respondents, those who received this message from HLP annul calendar to protect themselves from different skin, eyes and other diseases. Mr. Gulbadeen from Haji Mohammad Rasool village shared his experience and said "*before receiving the message about wearing of protection cloth from the print media "calendar", whenever I did chemical spray in my orchard, I became sick, always felt head ace but some time with flue, cough or eyes irritation. So since I learned about the wearing protection cloth and I am using it during chemical spray I never felt sick"*. Irrigation of the orchard is the messages that almost each of the respondent received it but from different types of print media (brochure, magazine, pamphlet and calendar). Most of the respondents said that before we were using flood irrigation system in our orchards and we spoil lots of water, however we have and had lots of water shortage problems, but from these mentioned print media we learned different furrow and basin irrigation systems, which help us to save or prevent wastage of water. Out of 30 respondents 10 of them, those who have grape orchard received the message about trellising of grape vine from the brochure and 4 of them received the same message from the pamphlet, they really appreciated this practice and they mentioned about some of the benefits that they have gotten from this message are; after installing the trellising system in our orchards now it is easy to harvest and the percentage of spoiling of orchard products during harvesting decreased, easy to move around the vines, easy to do IPM practices, easy to do irrigation without wasting lots of water even now we can irrigate our orchards by using bucket. There are few other useful practices regarding orchard management which the respondent received from different print media as shown below in table 8 with the number of respondent and its percentage.

Table 10: Useful orchard management practices learned from print media

SN	Type of Print Media for Extension Education	Useful practices learned from print media																									
		Pruning		Fruit Sorting		Fruit thinning		Irrigation		Trellising		Selecting of sapling		New orchard		Orchard Layout		Fertilizing		IPM		Wearing of protection cloths		Grafting		Harvesting	
		[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]	[N] n=30	[%]
1	Newsletter	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*
2	Brochure	26	*87*	2	*7*	2	*7*	13	*43*	10	*33*	1	*3*	3	*10*	15	*50*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*
3	Pamphlet	0	*0*	0	*0*	0	*0*	5	*17*	4	*13*	0	*0*	7	*23*	0	*0*	1	*3*	0	*0*	0	*0*	0	*0*	1	*3*
4	Magazine	0	*0*	0	*0*	6	*20*	1	*3*	0	*0*	1	*3*	2	*7*	0	*0*	0	*0*	16	*53*	0	*0*	2	*7*	15	*50*
5	Leaflet	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*
6	Calendar	0	*0*	0	*0*	0	*0*	7	*23*	0	*0*	0	*0*	0	*0*	0	*0*	23	*77*	0	*0*	16	*53*	0	*0*	0	*0*
Total		26	87	2	7	8	27	26	87	14	47	2	7	12	40	15	50	24	80	16	53	16	53	2	7	16	53

The study shows in table 11 two different types of data, first section shows the information or messages on improved orchard management which the respondents have received from print media and they get used of these messages. Furthermore the table shows the number of

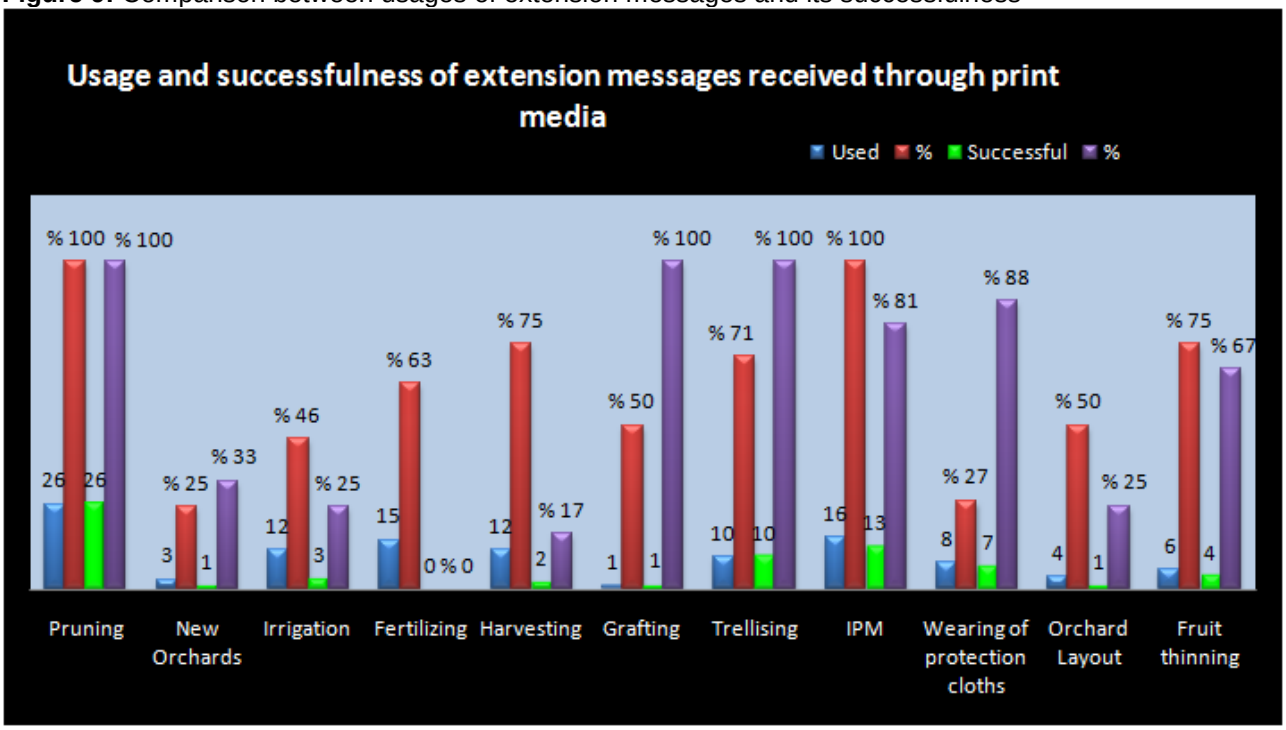
respondents who have used these improved orchard management practices. In table [N] indicates the number of farmers who received these extension messages, so this number is used here in order to get correct percentage of those farmers who used these messages. The result shows that those respondents who received the messages on IPM and pruning, they all applied these practices in their orchards. In case of harvesting, trellising and fruit thinning over 70% of those farmers who received these messages have used these practices and out of those respondents who received extension messages on grafting, fertilizing and wearing of protection cloths during chemical spraying, 50% of them have used these information only in case of fertilizing it is 63% and the remaining three practices about irrigation, new orchard establishment and orchard layout less than 50% of those respondents who received these messages have used in their orchards. Section two of table 11 shows the messages and the number of respondents for whom these messages were successful. Here [N] indicates the number of those who used the practices which they received through print media. The result shows that pruning, grafting and trellising were the most successful practices and 100% of those who used these practices reported as successful practices, wearing of protection cloths during chemical spraying was reported by 88%, IPM by 81% and fruit thinning was reported by 67% of the respondents as successful practices, unlike these, new orchard establishment, irrigation, harvesting, orchard layout are reported as successful messages by (less than) 25% of those respondents who used these practices. For getting clear picture of table 11, figure 9 shows the difference between the use and successfulness of each practice.

Table 11: Information that have been used and were successful to the respondents

Information/Messages farmers have used from print media																			
1		2		3		4		5		6		7		8		9		10		11	
Pruning		New Orchards		Irrigation		Fertilizing		Harvesting		Grafting		Trellising		IPM		Wearing of protection cloths		Orchard Layout		Fruit thinning	
[N] n=26	[%]	[N] n=12	[%]	[N] n=26	[%]	[N] n=24	[%]	[N] n=16	[%]	[N] n=2	[%]	[N] n=14	[%]	[N] n=16	[%]	[N] n=16	[%]	[N] n=15	[%]	[N] n=8	[%]
26	*100*	3	*25*	12	*46*	15	*63*	12	*75*	1	*50*	10	*71*	16	*100*	8	*50*	4	*27*	6	*75*

Information/Messages farmers have used were successful to them																			
1		2		3		4		5		6		7		8		9		10		11	
Pruning		New Orchards		Irrigation		Fertilizing		Harvesting		Grafting		Trellising		IPM		Wearing of protection cloths		Orchard Layout		Fruit thinning	
[N] n=26	[%]	[N] n=3	[%]	[N] n=12	[%]	[N] n=15	[%]	[N] n=12	[%]	[N] n=1	[%]	[N] n=10	[%]	[N] n=16	[%]	[N] n=8	[%]	[N] n=4	[%]	[N] n=6	[%]
26	*100*	1	*33*	3	*25*	0	*0*	2	*17*	1	*100*	10	*100*	13	*81*	7	*88*	1	*25*	4	*67*

Figure 9: Comparison between usages of extension messages and its successfulness

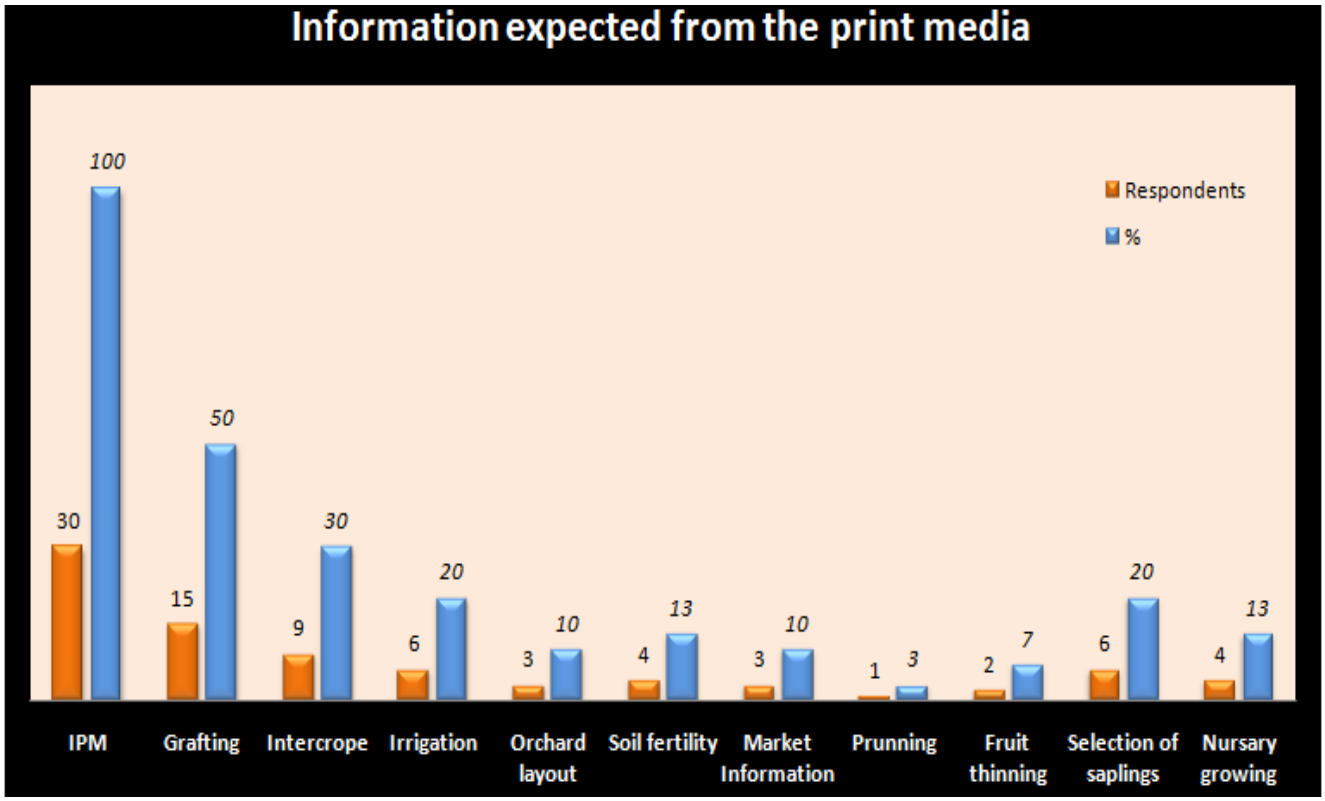


The respondents expressed concern about the pest in their orchards, as the result shown in figure 10 indicates that all the respondents were expecting the information about IPM through print media. Most respondents reported that they are suffering from the pest and insects in their orchards. Mr. Zareen bai from Gul Qashlaq village mentioned that, *"some time I use the local material (Oil, milk, water, pepper, onion, garlic and some other local products) for controlling the insects and pest of my orchards, but it is not that much successful, however I have bought some chemical drug but it also doesn't worked, because all these agricultural chemical drugs are imported from the neighboring countries, thus these drugs don't have good quality, they are producing these drugs according to what traders want not according to what farmers need, so I can say that it is just useless to buy. Therefore I expect some information about the technical control of these harmful pests through print media from the MAIL, HLP or other related organizations*". Mr. Satar Gul from Mangtash village shared his experience he said; "*this is 3rd time that I have learned from the extension worker how to prepare the lime sulfur for the dormant spray in order to control pests and insects, but every year I forgot the amount of lime/water to be mixed, because I am practicing this once in a year and I always forgot. Therefore if I have these messages in print form, so anytime I can refer to it and I can remember back how to prepare lime sulfur, this is one of the examples that I have shared with you there are so many other practices, we practice that only one in a year so we easily forgot that*". He further supported his opinion with giving the example of Eid pray, he said; "*see we are performing Eid prayers twice a year, so naturally we forget, but we refer to Mullah*[4] *or to books and we easily remember it back, because we know how to perform Eid pray, but simply we forget very few things in that, so the same situation is here if we have the IPM practices in printed form, anytime we can to refer to that and*

[4] Religious leader

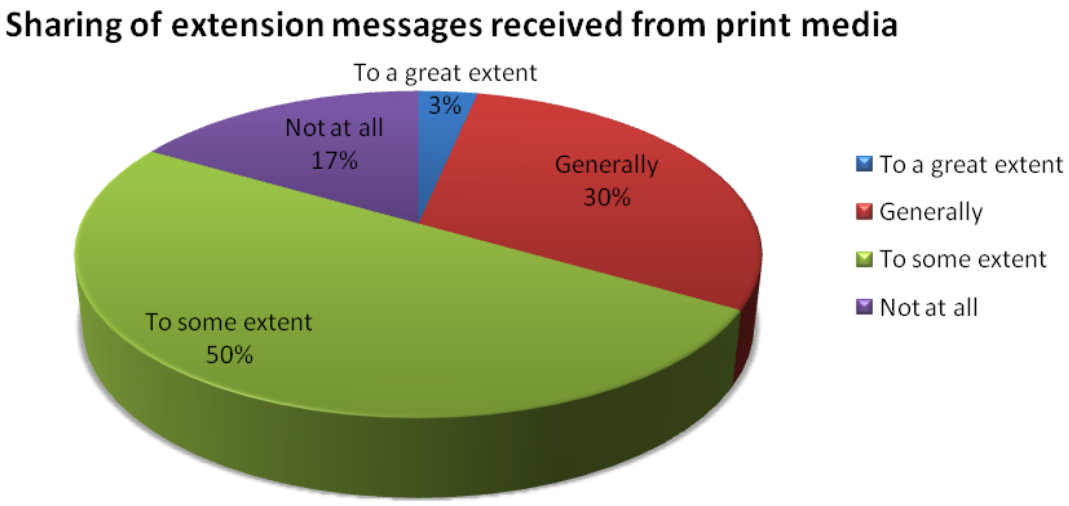
solve our orchards problem". Beside IPM 50% of the respondents were expecting grafting, 30% of them expecting information about intercrop, 20% of them were expecting information about irrigation and selection of sapling for new orchard establishment through print media. The result in figure 10 further shows that about 10% of the respondents were asking the information about orchard layout, soil fertility, Market fruit thinning, nursery growing and only 1 of the respondent ask the information about pruning through print media.

Figure 10: Information expected by respondents from the print media



The study shows in figure 11 that farmers not only process the received extension messages individually but they also share with others. The figure shows that most (50%) of them share to some extent the extension messages which they received from the print media, 30% generally and 3% of them share in a great extent, but 17% of them they don't share the messages they received. The reason for not sharing was reported as three different points, but mainly the respondents said that nobody asked for it, otherwise we would share. One person Mr.Awaz bai from Achamyli village said that; "*other farmers know more than me about these improved orchard management practices, I always do learn from them and whenever I feel problem in my orchards I always refer to them rather than extension worker because it is not easy to get extension worker right in time, but easy to contact my neighbors or my friends to help me".*

Figure 11: Sharing of extension messages received from print media

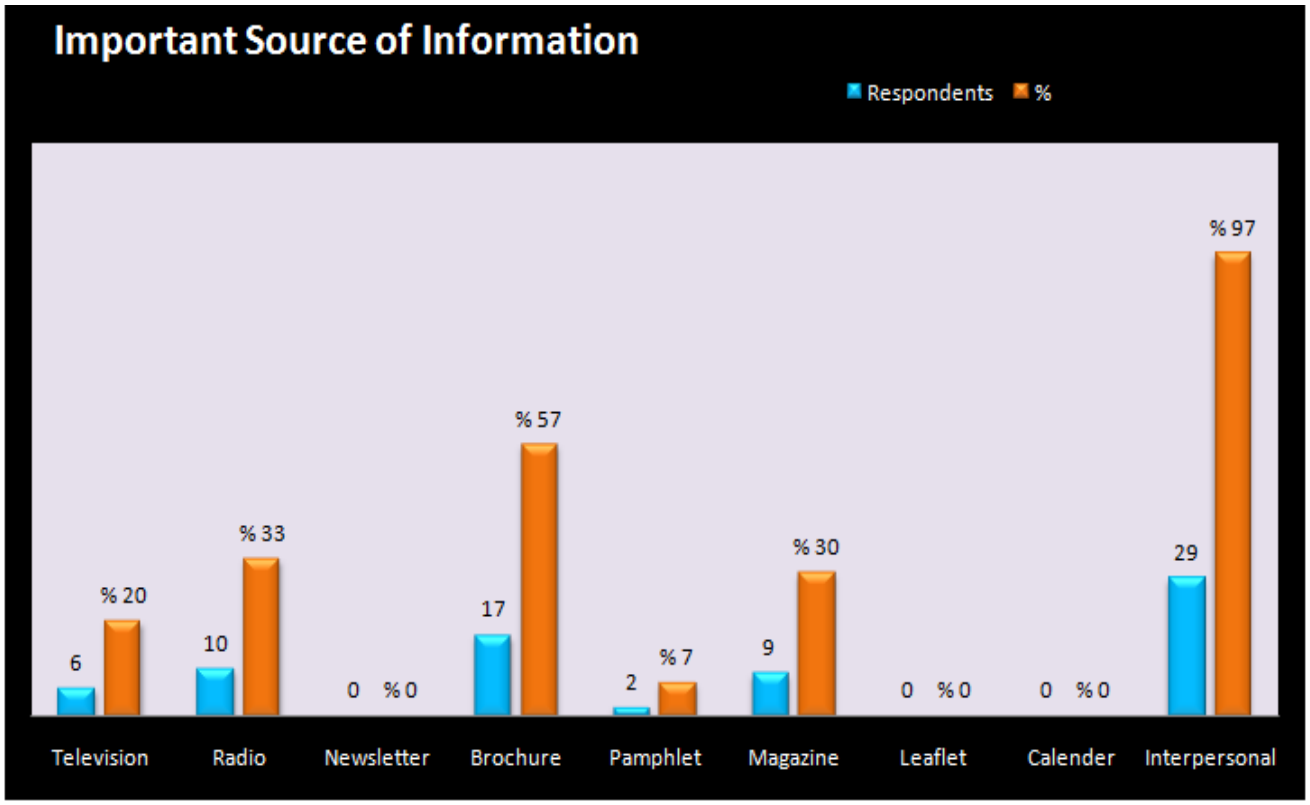


Mr. Haji Abdul Qayoom son of Haji Yousaf, one of those 50% respondents who share the extension messages to some extent, said that; *"sometimes I received an extension message which is useful for my orchard not for others, for example: I have 0.5 jerib of pomegranate orchard, no one else has in this village, so I received a message about controlling of pomegranate warm, so it was useful and interesting for me not for others so therefore I don't share that message but of course I do share the messages which are relevant or useful to others".*

The result in figure 12 shows the importance of different medium expressed by the respondents. The figure clearly shows that almost all the respondents indicate the interpersonal communication is the important source of information for their orchard management. The reason for this was told by the respondents that whenever we meet extension worker or the expert who works for agricultural development, so we ask what we feel necessary or we directly share our problems and ask for the solution, even we can share our opinion and experience and receive their feedback whether we are in right track or not. Therefore we found it very useful source of information, but the main problem here with this medium is that we don't have full or regular access to this source. It is very hard to meet them, hardly once in a month we can meet them. The second source which the respondents indicate as important source for them was print media especially brochure, 57% of the respondents beside interpersonal communication indicate brochure as important source of information for their orchard management. The reasons mentioned by the respondents were noticed that once we receive a message through brochure, we can always keep that message and whenever we need we have access to it. Secondly it is easy to understand if it is in pictorial form, we can easily understand its message and if suppose we do not get its message properly we can ask experts, friends or neighbors for making it clear to us and once we understood then it is not easy to forget because we have the brochure with our self and always refer back to that. Magazine was also shown as important source by 30% of the respondents, especially it was noticed that this source is mostly important for those who can read and write. Their reasons for selecting this tool

as important source were; we can read by detail about an orchard management practice also we read some success stories of successful farmers which always inspire us for doing the same. Leaflet, Newsletter and calendar were the print mediums which were not indicate as an important source of information. Furthermore the 30% of the respondents were happy with the messages received from radio and beside interpersonal communication with extension workers and agricultural experts; they select radio as an important source of information for the improving of their orchard farming. But their main concern about this media was that the time which they allocated for agricultural program is very short and they were asking for increasing the time of and even some of the respondents were asking for a separate radio channel/station for farmers about different agricultural programs. Meanwhile some of those respondents (20%) who had electricity in their home, they indicate television as an important source of information, some of them mentioned that we did not received any agricultural information through national channels but mostly we have received agricultural and orchard management messages from some Indian and other international channels, especially about harvesting and some common IPM practices.

Figure 12: Important source of information for orchard farming



4.3. Audience Research

The study also includes the feedbacks of farmers, about their understanding and overall about the layout and design of a specific brochure (see Annex B) which was about orchard layout and was produced by HLP in October 2009, respondents were asked below questions and the result presents the summary of their answers.

What do the pictures tell you what is happening in the brochure?

The majority of the respondents indicate that the pictures of this brochure present different stages or steps of orchard layout, the pictures show the tools for orchard layout, how it works, and few pictures show how to make a corner in order to make the line straight, so the orchard will be in good order. The last two pictures of the brochure shows the distance between two trees, and two lines of pomegranate, almond, grape and apricot orchards. Only few respondents pointed out and expressed enthusiast about the idea of using a rope for making the line straight from one corner to another corner of the new established orchard. Mr. Abdul Rahman from Gul Qashlaq village said that *"the pictures in the brochure shows the different stages of orchard layout, the first picture shows the selection of land for new orchard, in the second pictures there are some tools which are necessary during orchard layout and a big picture of straight angle (90°), which was really new to me. The next few pictures shows some people working practically and making the corner with the help of straight angle (90°) in order to have straight lines, a pictures shows that how to connect the two corners by using of rope and how to specify the places for each sapling, the last pictures show the distance between two trees of different fruit".*

What do you think of the colors that used in the brochure?

Most of the respondents replied that the colors used in the brochure are attractive, not too much bright and also not too much dark, seems like natural colors. Some of them indicate that the color of photographs seem clearly than the drawing.

What is your opinion about the size of the brochure?

The respondents were agreed about the size of the brochure and most of them indicate that brochure size is good enough, and majority of them pointed out that we are satisfied with its size but the size is not used properly, if you refer to the brochure, used much space by putting different organizations logo, they have to use the same space by putting a bit larger pictures rather than using big logos. One the respondent Mr.Abdul Hai added that *"if I were instead of the person who produce or design this brochure I would use logo only in first page rather than putting in each page which helps to save some place for bigger pictures or even for more pictures".*

To what extent you are familiar with all the pictures as presented in the brochure?

All the respondents were familiar with the pictures and they mentioned that photographs are very clear, because it's taken in the field and we always work in the field so it's very familiar to us, but

few of the respondents said that the drawings were not clear to them, in the drawing the land does not looks like land.

What do you think about the visibility of the pictures to see and understand it well?

Majority of the respondents indicate that the pictures are visible, but some of them added that some of the pictures need someone to explain to us in order to understand and it was noticed that mostly their concern was about the drawings which were observed not clear enough to some of them, they also pointed out that the pictures looks a bit disorganized and only few of them they indicate that we were not clear with the right angle tool, but afterward it was explained by the extension worker. Mr.Amir Jan from Mangtash village indicated that "*first when I looked to the drawing of the pictures I was thinking of a piece of cake than finally I realized that Ohh, this is a piece of land selected for orchard establishment. So for me I can easily understand the pictures rather than drawing or cartoon, because in pictures it looks real".*

How is the visibility of the wordings in the brochure in order to read?

Out of 30 respondents those who can read indicate that the words are visible to read and we could read it but majority of the respondents had no comment because they were illiterate could not read and write.

What is your preference between pictures and text in understanding of the brochure?

All the respondents preferred pictures, and few of them added that we preferred photographs than drawing, because the pictures look naturally and we can understand it easily than drawings, and only 3 of the respondents preferred both pictures with having text below in order to read and understand the picture clearly. In this regard Mr.Abdul Hasan who has no education said: *"for me picture is better than text because I cannot read and write, if I find the message in text form it mean that I visit Bazar (Market) see everything but could not able to buy something, so I can see the text but cannot get the message, so for me text is useless"*

Picture 1: Farmer's interview in his yard

Picture 2: Farmer's interview in his house

5. Discussion

The result shows that all the respondents have access to media but it differs to the type of media, all the respondents have access to radio and different types of print media, but only few of them have access to television. Media is a source for information so access to it is very important as (Chagutah, 2009), quoted from different literatures that the channels through which the messages are delivering must be accessible to the audience. As Afghanistan especially Samangan province has very limited access to electricity, so the media channel which needs electricity to run is not successful, particularly in communicating the agricultural extension messages. Meanwhile as mentioned by many sources that most of the population in Afghanistan lives in rural areas and have low level of literacy, so yet the Ministry of Agriculture, Irrigation and Livestock of Afghanistan could not able, because of its limited extension workers (mostly one per district) to cover all the Afghan farmers through interpersonal communication, Therefore most of the government and non government organizations are trying to reach or communicate these rural people though mass media especially print media which don't need energy (electricity) to start. As indicated by (NIAEM, 2007) that the average village level extension worker can maybe conduct two or three meetings and meet 100 to 200 farmers. However, he/she could distribute or post hundreds of leaflets, newspaper or other printed materials in a day. It is appropriate that mass media materials can supplement extension workers. Here the result of this research also shows that all the respondents have received extension messages through different types of print media (brochure, magazine, pamphlet, leaflet and calendar) from both government and non government organizations in order to improve their orchard management.

The timing and specificity of information or a message is another point to look. As mentioned by (NIAEM, 2007) that a message needs to produce desirable change in human behaviour, so it should be specific, on time, attractive, simply stated applicable and adequate. The result of this study also shows that almost all of the respondents were happy about the timing and specificity of the extension messages which they received through different print media. Although if someone receive valuable information, but not on time, so it is useless for the time being may he/she will get benefit of this information in the future in case if he/she still have or remember this information. Therefore timing is very important issue to be considered during the delivery of agricultural information or messages.

Print media helps famers to learn new ideas and practices. As mentioned in Bangladesh Agricultural Mannul (MoA, Bangladesh, 1999) that print media items can create knowledge of new idea, action or problems which farmers needs to handle right away, e.g. pest. In line with this the study result shown that most of the respondents have learned 13 different orchard management practices (pruning, fruit sorting, fruit thinning, irrigation, trellising, selection of sapling for new orchard, new orchard establishment, fertilizing, IPM, wearing of protection cloths during chemical spray, grafting and harvesting) from different types of print media. Now the question comes in mind that, whether they will use these practices or not?, so then it depends to the relevance of the information as (Morris, 2001 cited in Mokwatlo, 2005) indicated that if information does not consider the needs of the audience or target group, it will not be taken seriously by them. Also (Bembridge, 1991) mentioned that information should be relevant to the audience's problems,

concerns, needs and interest. So in this regard the study shows that some of the above orchard management practices have been used by the entire respondent but some of these they did not used. For example IPM and pruning are the practices which have been used by all the respondents who received these messages through print media, but irrigation by (46%), orchard layout by (27%) and new orchard establishment practice have been used by (25%) of the respondents. Comparing the above result with literature, it has been acknowledged that farmers learn many things from the print media messages but they only use those messages which are relevant to them. Based on the researchers' 2 years experience in the same area, most of the farmers have old orchards and they don't have more land to establish new orchards or if suppose some farmers have land for new orchards they cannot manage it because they already have big size old orchard. Therefore study result also shows that new orchard establishment practice was only used by 25% of the respondents, it means that for the rest of 75% it is not relevant and they did not use it. So the relevance of information is very important.

The result also shows the successfulness of introduced orchard management practices, the same pruning practice will take as an example, and the result shows that all the respondents who applied pruning reported as a successful practice for them, as well as for grafting and trellising. But it was reported by less than 35% of the respondents that orchard layout, new orchard establishment and irrigation practices were successful to them, even for harvesting 2% and for the successfulness of fertilizing 0% reported. So comparing the results of both (used practices and its successfulness) shows clearly that they applied all the practices which were relevant to them, but some of these practices (pruning, grafting and trellising) were appreciated very much as successful practices and some were not e.g. fertilizing. So in line with (Bettereley et al, 2000 cited in Mokwatlo, 2005) that information should be appropriate to the age, gender, educational level, ethnicity, socio-economic status and lifestyle of the target audience. It was also observed during field study that some of these practices were not appropriate for the respondents. For example fertilizing, as from one side the price of fertilizer have increased and from the other side famers are basically poor, so this practices is not appropriate for their economic status and that is why the result clearly shown that fertilizing was reported by non of the respondents as successful practice, because economically they cannot afford, so appropriateness of message/information is key issue to consider. Beside access, timing, specificity, relevancy, and appropriateness of print extension materials, there are some other factors such as process of distribution and accuracy of the messages, means messages should be realistic, exactly correct, evidence based and update. In this regard researcher tried to discuss and get information from the producer about the processes of designing, producing and distributing of printed extension materials and include it in this research, especially from the Extension Material specialist of Horticulture and Livestock Project (HLP) of Ministry of Agriculture, Irrigation and Livestock but could not succeed because of his absence, meanwhile the limited time of the research was also a factor which hinders to include the information about these processes, so it needs and gives the opportunity for further research on the processes of distributing, designing and producing of these extension print materials.

Print media items can create knowledge of new idea and problems which farmers needs to handle right away (MoA, Bangladesh, 1999). Also Hassan et al, 2010 referred to (Nielsen and Heffernan, 2006) that any update in the print media materials will enhance the understanding and knowledge of the farmers. In line with these the result of this study also showed that most of the famers have

learned a lot about orchard management by using the information received though print media and that is why the respondents were expecting more information about orchard management in order to enhance their agricultural knowledge. They gave priority to the expected information according to their needs or the problems which they have in their orchards. It was observed that farmers of Samangan province suffer a lot from pest in their orchards, so they really need information about this problem to solve or handle it. So the result also shows the same that all the respondents 100% have expectations to receive information about IPM through print media, because they need it, so information should be according to their needs.

Farmers not only learn from the experts or technicians but they learn from each others as well. (Mukute, M. 2010) indicated that farmers learn from the experts, promoter as well as among themselves, they learn by using both vertical and horizontal movement of knowledge. So in line with this, the result of this study also shows that 50% of the respondents share the received extension messages to some extent and 30% share generally and 3% of them share the received messages in a great extent. So comparing the above result with literature, it has been acknowledged that farmers not only process the received extension messages individually but they also share with others.

Naturally when somebody needs information he/she searches for a good source in order to receive what he/she needs. The result of this study shows that almost all the respondents indicated interpersonal communication especially with extension worker and expert as an important source of information, and the reason for this was noticed that because they can ask directly what they really needs or what they feel important. It is in line with the research of (Leonie, 2010), he mentioned that “Overall, smallholders mention face to face communication with direct contacts as the most helpful because it helps them to exchange information through which they understand and learn the most. But it was observed during field study and also reported by the respondents that it is not easy to meet extension workers, hardly farmers meet them once in a month or even not once in a month, because the number of extension workers are very less in the area and they cannot cover all the farmers though their interpersonal communication. Furthermore beside the interpersonal communication respondents have chosen print media especially 57% of them brochure, 30% magazine and 7% of them pamphlet as important source of information. AS reasons for the selection of print media as important source the results can be exemplified by the quote that “Once we received, we can always keep it and whenever we need we have access to it”. This confirms the statement of Bembridge 1997 cited in Mokwatlo, 2005 that print material has the ability to be used at anytime whenever it’s needed.
Most of the respondents are illiterate as exemplified by the statement “it is easy for us to understand the messages from print media through its pictures” which coincides with (NIAEM, 2007) that pictures have the ability to tell the audience more than what words can ever do. In addition, pictorial messages help people learn faster and remember things for longer periods of time. Furthermore, a good picture draws the viewer’s attention and arouses his interest in the subject matter. In line with Leonie (2010) that during small holder meetings some experts are using photographs to simplify, clarify and to support verbal communication in this research it was also observed that most the brochures and pamphlets which farmers received from different organization were in pictorial form. As this research has a part in result section named audience research from a brochure about a specific practice (orchard layout), here it is noticed that farmers

appreciate pictures very much than words. The brochure contains both photographs and drawing, it was observed that farmers were a bit confused with its drawing, and they were not clear enough with its message, but looking to the next photographs below the drawing they understand what exactly these drawings are about. They appreciate the colors used and its overall layout, but somehow they were not agreed with the arrangement of the pictures, because much of the space was covered by the different organizations' logos. So finally it's observed that before publishing print materials or before distribution of print materials it is necessary to pre-test it and get audience feedback on it, in order to improve further, because maybe the designer of print material understand what he designed but may the audience could not able to get the exact message, what they are suppose to get.

Based on this study it is acknowledged that relevancy, timing, appropriateness and simplicity of printed extension massages on improved orchard management are very important to consider in order to get the audience interest and it should be attractive, because they will never use the information which is not relevant and appropriate to their situation. based on this study it is noticed that farmers really appreciate the messages which they received through brochure and especially the messages which are pictorial, means which are shown in pictures with having text below it really helps them to enhance their agricultural knowledge, mainly they really liked the photographs than drawing, because it is noticed that photographs give them the real picture of a practice. It is also noticed that farmers also like the printed orchard management messages, because they always have access to them once they received and they review it whenever they need. As observed during data collection that some farmers have been using the information or messages from brochures which they received two or even three years ago. Also looks to the farmers' expectation from print media, here we can say that farmers are willing and interested to have extension messages in printed form and they can keep it for long time with themselves, so it is nice to conclude that print materials have potential use on the enhancement of Afghan farmers' agricultural knowledge. Beside this they share these printed messages with other fellow farmers, not only with male farmers but indirectly it has influence on female farmers agricultural knowledge. As I know and also indicated in many references that most of the rural population in Afghanistan lives together as joint family means they are not living individually. So it is not possible that a male receive something and did not share with his wife, sister or daughter, thus we can say that print media also have influence on the enhancement of female farmers agricultural knowledge. During audience research it is observed and noticed that before finalizing and publishing the print materials, it is very necessary and important to pre-test it and get the audience feedback on, because they will evaluate it from their own prospective as an audience not as a designer. So their feedbacks will help the designer or expert of print media to fulfill the audience needs.

Reliability of the Data:

In this study the some issues are outlined regarding the reliability of the data:

- As most of the respondents were illiterate and they call all the development organization "*MUSESA*" means the organizations which have donation to them, so they may not have mentioned the correct name of the organization which distributes agricultural extension printed materials in the area or may they received printed materials from one organization and named other.
- As Afghan farmers are not familiar with the name of different print media such as brochure, pamphlet, and leaflets because in their national language they don't have specific name for these, so may they receive these materials but could not answered properly e.g. they may received pamphlet but answered for brochure. However the researcher has tried to use samples of these printed materials during this study in order to have reliable data.

By realizing the above points about the reliability of the data for this study, there is no guaranty of 100% accurate data.

6. Conclusion and Recommendation

6.1. Conclusion

Based on the discussion and the result from 30 HLP target farmers in 6 villages of Aybak district of Samangan province, it has been acknowledged that all the respondents have access to print media, radio and somehow to TV. They have been receiving extension messages through different types of print media (brochure, magazine, pamphlet, calendar and leaflet) from both government (HLP and MAIL) and non government organizations (IDEA-New, IRD, and Roots of Peace). However, most of the respondents were illiterate but they understand the messages of print media through its pictures or even sometime take the help of their sons, friends or neighbors. It has been noted that most of the respondents were happy from the timing and the specificity of the printed extension messages. Through different types of print media farmers have learned 13 different orchard management practices (pruning, irrigation, fertilizing, orchard layout, selection of sapling, new orchard establishment, fruit sorting, fruit thinning, wearing of protection cloths during chemical spray, IPM, trellising, grafting and harvesting). Although they learned above practices but, they have only used the practices which were relevant to them, pruning was learned by 26 respondents and all of them applied this practice, but irrigation was learned by 26 respondents, but only 12 of them applied this message, so relevance of the message is very important for the audience, if information is not relevant to their situation they will not take it seriously. Meanwhile some of the printed extension messages were not appropriate with farmers' economic status, because several respondents have used some messages for example fertilizing but none of them have been voted as successful practice, because of fertilizer high price in the market and their poverty they cannot afford, therefore these types of messages are not appropriate for them. However farmers have received some extension messages about orchard management, but they are keen to receive more relevant information through print media and mostly they were expecting messages about IPM, grafting and intercrop. It shows that print media have potential use on the enhancement of farmers' agricultural knowledge. Beside access, timing, specificity, relevancy and appropriateness of print materials, there are some other factors such as accuracy of the print media messages (messages should be realistic, exactly correct, evidence based and update) and also the processes of producing, designing and distribution of print media which this paper does not include so it needs and gives the opportunity for further research on the processes of distributing, designing and producing of these extension print materials.

It has been also acknowledged that farmers not only receive, learn and use the extension messages but they also share these messages with others. The result also showed that farmers prefer interpersonal communication (with extension workers) as an important source of information, but meanwhile it is not easy to meet extension workers regularly, because of small number of extension workers in the area. So beside the interpersonal communication 57% of the respondents' select print media (brochure) as important source of information for them, because most of them they cannot read and write but they appreciate the pictorial messages through which they understand the message easily, meanwhile they added that once we receive the messages in print media we can always review that. During audience research it was observed that most of them were agreed about the color, pictures visibility and the messages, but somehow they were confused with its drawings. Most of them appreciate photographs than text and drawing, it has

been also acknowledged that the feedbacks from audience can improve the quality of print media, because they are looking to it from their own prospective and the designer of the print materials looks to it from his own prospective not as audience, so it is better to pre-test and get audience feed back before publication in order to have attractive and interesting print materials.

6.2. Recommendation

Based on the results and conclusion of this study the researcher would like to share and indicate the following points:

- Ministry of Agriculture, Irrigation and Livestock and other development organizations may consider to include or to give priority in print media to those messages which are relevant to the farmers' needs and problems.
- As most of the Afghan farmers are illiterate the value of pictorial messages cannot be under estimated and the balance of text and pictorial information needs to be considered. Pictorial information may need further investigation as for example this study suggests the use of real photographs for each message of orchard management practices.
- Ministry of Agriculture, irrigation and Livestock and other development organizations have to introduce those orchard management practices which are appropriate to the farmers' socio-economic status, means which they can afford.
- The designers of extension printed materials may realize that receiving feedback from farmers will facilitate their work to produce interesting, attractive and understandable information, so better to pre-test the developed print materials and get the audience feedback before it goes for real publication and distribution.

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Annex A: Questionnaire for Data Collection

Van Hall Larenstein University
Management of Development-Rural Development and Communication
Research Project Questionnaire for Data Collection

Interview Date: _____ Interview Period: Started at _____ Ended at _____

(A) General Information:

Name of farmer: _____ Father Name: _____ Mobile No: _____

Village: _____ District: _____ Province: _____

Age:

i. 15-25 ☐
ii. 26-35 ☐
iii. 36-45 ☐
iv. 46-55 ☐
v. 56-65 ☐
vi. 66- above ☐

Marital status:

1. Married ☐ 2. Single ☐ 3. Window ☐ 4. Divorced ☐

Literacy Level:

1. Can't read and write ☐
2. Can read only ☐
3. Can read and write ☐
4. Higher (specify) _____

Orchards:

Do you have orchard? a) Yes ☐ b) No ☐

If YES, please answer by checking (√) against the each of the fruit type and specify the area with *jerib*:

1. Almond ☐ _____Jerib
2. Apricot ☐ _____Jerib
3. Grape ☐ _____Jerib
4. Pomegranate ☐ _____Jerib
5. Other (specify)_____ _____Jerib
6. Other (specify)_____ _____Jerib

(B) About media:

(I) Which media do you have access?

1. Television ☐
2. Radio ☐
3. Print media ☐
4. Others (specify) _____

(II) Do you use the extension messages in printed form? a) YES ☐ b) NO ☐

If YES, please answer the questions in the following table by checking (√) against the each of the applicable items in the listed print media:

SN	Type of Print Media for Extension Education	Which Print Media You Have Access to? Check (√)	Which of the listed print media do you receive extension messages from? Check (√)	Which of the listed print Media Distributed by HLP? Check (√)	Which Print Media Do you Receive Free of Cost? Check (√)	If You Pay, How much Do You Pay for Each Media? [Enter Unit Cost in Afs]
1	Newsletter					
2	Brochure					
3	Pamphlet					
4	Magazine					
5	Leaflet					
6	Calendar					
7						
8						

(III) From which sources do you receive the printed extension massages?

SN	Type of Print Media for Extension Education	From Which Sources Do You Receive the Listed Print Media ?					
		Government (MAIL) [Check (√)]	NGO [Check (√)]	HLP [Check (√)]	Others, please specify and Check (√)		
1	Newsletter						
2	Brochure						
3	Pamphlet						
4	Magazine						
5	Leaflet						
6	Calendar						
8							

(IV) How frequently do you receive these printed massages?

SN	Type of Print Media for Extension Education	How Frequently Do You Receive the Listed Print Media?					
		Weekly [Check (√)]	**Fortnightly** [Check (√)]	**Monthly** [Check (√)]	**Bi-monthly** [Check (√)]	**Quarterly** [Check (√)]	**Occasionally** [Check (√)]
1	Newsletter						
2	Brochure						
3	Pamphlet						
4	Magazine						
5	Leaflet						
6	Calendar						
7							
8							

(V) What type of information you have received from the printed media on orchard management?

SN	Type of Extension Print Media	Type of Extension Information Received on Orchard Management		
		Useful Information # 1	**Useful Information # 2**	**Useful Information # 3**
1	Newsletter			
2	Brochure			
3	Pamphlet			
4	Magazine			
5	Leaflet			
6	Calendar			
7				

(VI) Farmers like you need timely information for carrying out the orchard management information to be able to carry out orchard operations in a timely manner. How timely do you receive the extension messages?

SN	Type of Print Media for Extension Education	**Timing of Receiving Extension Messages on Orchard Management through Print Media** [Check (√) all applicable]				
		Received Extension Messages Right in Time	**Received Extension Messages Too Early**	**Receive Extension Messages a bit Late**	**Receive Extension Messages Too Late**	**Do Not Needed Extension Messages at All**
1	Newsletter					
2	Brochure					
3	Pamphlet					
4	Magazine					
5	Leaflet					
6	Calendar					
7						

Why you do not receive the needed extension messages timely?

a).

b).

c).

(VII) To what extent the extension messages contained in the print media are specific (not confusing)?

SN	Type of Print Media for Extension Education	**Specificity of the Extension Messages on Orchard Management contained in Print Media** [Check (√) ***ONLY ONE*** for each print media]				
		Extension Messages are Very Specific	**Extension Messages are Somewhat Specific**	**Extension Messages are Not Specific**	**Extension Messages are Confusing**	**Extension Messages are Not Understandable**
1	Newsletter					
2	Brochure					
3	Pamphlet					
4	Magazine					
5	Leaflet					
6	Calendar					
7						

What are your reasons for saying the extension messages are not specific and thus confusing and not understandable?
a).
b).
c).

(VIII) Can you give me the example of information you have used?

(IX) What messages you have used were successful to you?

(X) What other information do you expect in print media for improving your orchard management?

a).

b).

c).

(XI) To what extent do you share the extension messages contained in print media with other farmers?

1. To a great extent ☐
2. Generally ☐
3. To some extent ☐
4. Not at all ☐

If not at all (why)?

(XII) Which one of the following is the most important source of information for your orchard farming?

1. Television ☐
2. Radio ☐
3. Newspaper ☐
4. Brochure ☐
1. Pamphlet ☐
2. Magazine ☐
3. Leaflet ☐
4. Calendar ☐
5. Interpersonal ☐
6. Anyother (specify)_____

Why did you select the extension media as most important?

Audience research: Attractive questions will be asked through a brochure (Annex 2).

1. What do the pictures tell you what is happening in the brochure?
2. What do you think of the colors that used in the brochure?
3. What is your opinion about the size of the brochure?
4. To what extent you are familiar with all the pictures as presented in the brochure?
5. What do you think about the visibility of the pictures to see and understand it well?
6. How is the visibility of the wordings in the brochure in order to read?
7. What is your preference between pictures and text in understanding of the brochure?

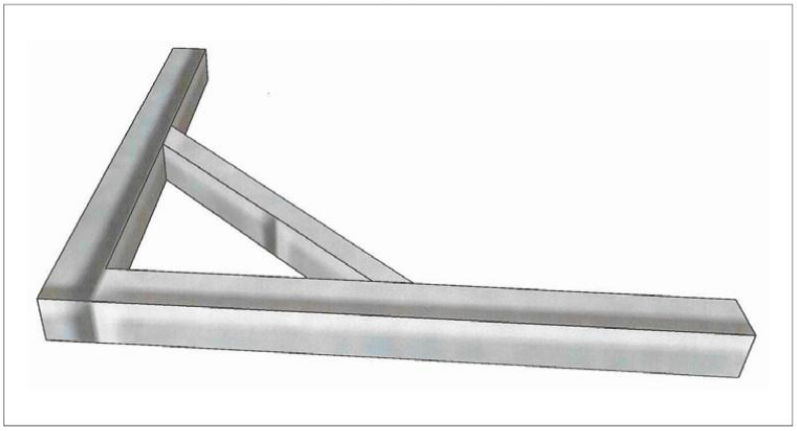
Annex B: **HLP Brochure used for Audience research**

نقشه گذاری زمین

بعد ازاماده ساختن خاک مرحله نقشه گذاری زمین فرا میرسد وباغدار باید تصمیم گیرد که ازکدام سیستم نقشه گذاری استفاده نماید. نقشه گذاری زمین به شکل زمین، سیستم ابیاری ان، سیستم زاکشی و نوع درختانیکه در نظر است انحصار مییابد.

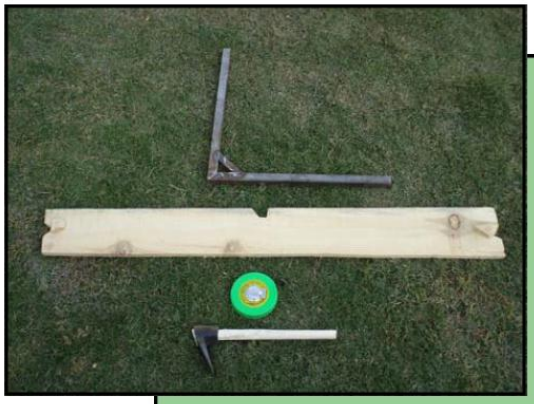
یک خط مستقیم را در یکی از کناره های زمین کش شود که ان را خط اساسی یا بیس لاین گفته میشود.
وقتیکه بیسلاین تاسیس شد، قدم بعدی این است که بر سر ان یک زاویه قایمه تشکیل گردد کنج زاویه را توسط یک میخ چوبی نشانی کنید.
دو اضلاع زایه، که یکی ان درختان اول قطارها و دیگر ان درختان اول در قطارها نشان میدهد.
به اساس این جاهای درختان اول قطارها ودر قطارها میتوانید ادامه داده جاهای درختان بعدی را تعین نمایید.

Step 1—Setting up the base line



Triangle to set up straight angle (90°)

Orchard layout



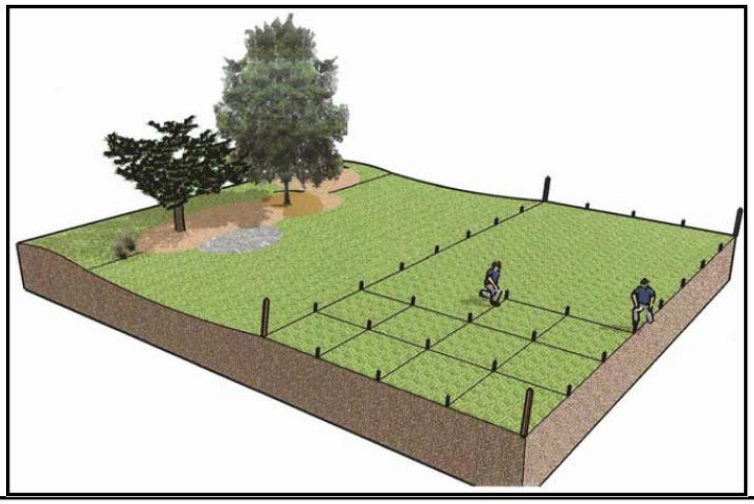
Tools for orchard layout

Step 2-Set up the straight angle

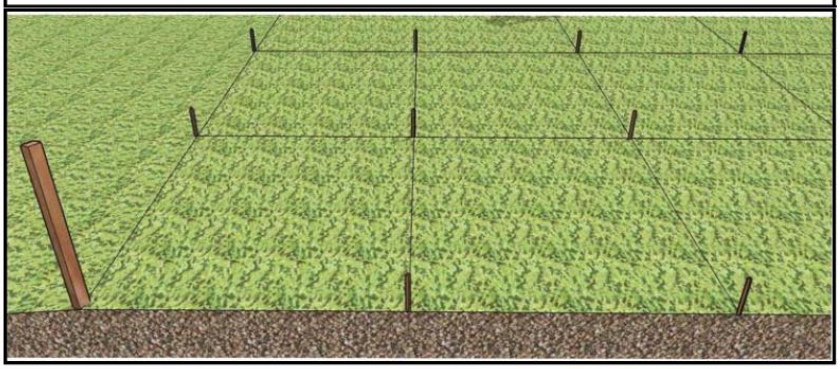
Orchard layout

Step 3-Set up 2nd base line

Orchard layout

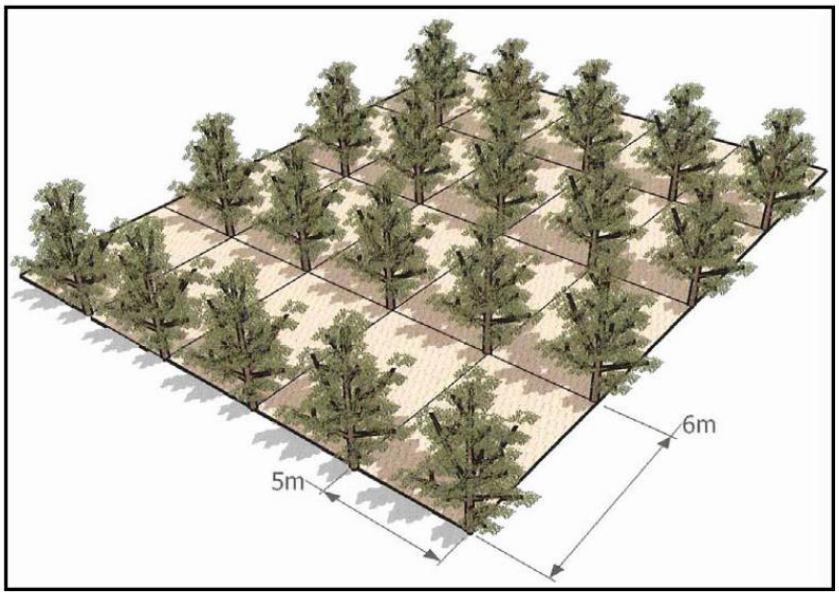


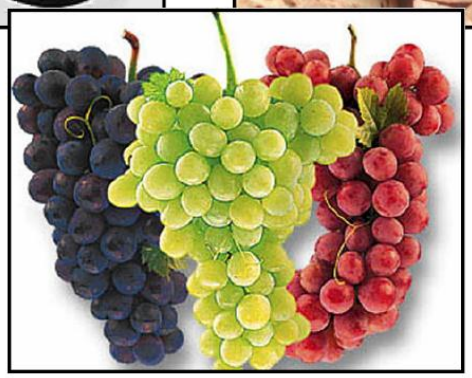
Step 6-Set up the place of the trees



Using the base lines as reference points, a tape is stretched along one line and pegs are put the desired intervals of tree spacing.

Orchard layout

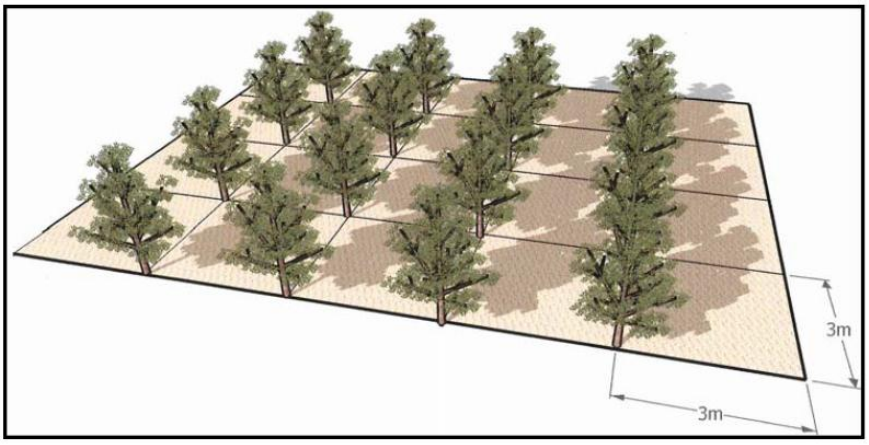




Rectangular layout system for:

- Apricot
- Almond
- Grape

Orchard layout



Square layout system for:

- Pomegranate