Kurdistan Region of Iraq
Ministry of Higher Education & Scientific Research
University of Sulaimani
College of Agricultural Sciences Engineering

AGRICULTURAL EXTENSION TRAINING EFFECTIVENESS IN THE KURDISTAN REGION/IRAQ, DURING THE PERIOD OF (2013 –2017) FROM THE TRAINEE'S POINT OF VIEW

Dissertation
Submitted to the council of the college of
Agricultural Sciences Engineering-University of Sulaimani
In Partial Fulfillment of the Requirements for the Degree of PhD.
in Agriculture Extension-Extension Training

By
Mohammed Omer Mohammed Sakina
B. Sc. in Agricultural Economic and Co-operation Department
University of Mosul
1992

M.Sc.in Agriculture Extension University of sulaimani
2009

Supervisor
Dr. Abid Ali Hassn Al-Dosky
Professor

2720 Kurdish 2020 A.D

Supervisor Certification

I certify that this dissertation was prepared under my supervision at the University of Sulaimani, College of Agricultural Sciences Engineering, as partial fulfillment of the requirements for the degree of Doctor Philosophy in (**Agribusiness and Rural Development–Extension Training).**

Dr. Abid Ali Hassan Al-Doski

Supervisor

Professor

23/12/ 2019

In view of the available recommendation, I forward this Dissertation/ for debate by the examining committee.

Dr. Rozhgar Mustafa Ahmed

Assistant Professor

Head of Biotechnology and Crop Science

College of Agricultural Sciences Engineering

23/12/ 2019

Examining Committee Certification

We chairman and members of the examining committee have read this dissertation and discussed the candidate **(Mohammed Omer Mohammed)** in the content on (16/ 2/ 2020). According, we found this dissertation is accepted as a partial of the fulfillment of the requirement for the degree of Doctor of philosophy in **(Agribusiness and Rural Development– Extension Training).**

Dr. Aamel Fadhil Khalil Al-Abbassi
Professor
College of Agricultural and Forestry
University of Mosul
/ / 2020
(Chairman)

Dr. Sahab Ayid Alajeeli
Professor
College of Agricultural
University of Tikrit
/ /2020
(Member)

Dr. Najimalddin Abdulla Saleem
Professor
College of Agricultural and Forestry
University of Mosul
/ / 2020
(Member)

Dr. Ali Ghadib Al-jboori
Professor
College of Agriculture
University of Tikrit
/ / 2020
(Member)

Dr. Rezhen Harun Mohammed
Assistant Professor
College of Agricultural Sciences Engineering
University of Sulaimani
/ / 2020
(Member)

Dr. Abid Ali Hassan Aldusky
Professor
College of Agriculture Engineering Sciences
University of Duhok
/ / 2020
(Supervisor-Member)

Approved by the Council of the College of Agricultural Sciences Engineering

Dr. Karzan Tofiq Mahmood

Assistant Professor

/ / 2020

(The Dean)

صدق الله العظيم

سورة طه الآية (١١٤)

Dedication

Dedication

This thesis is dedicated to….

My supervisor Dr. Abid Ali Hassn….

My dearest teachers, (Dr. Aamel Fadhil Al-Abbassi)

My lovely family……

With my deep gratitude for their support and patience

Mohammed Omer Mohammed Sakina

Acknowledgements

Foremost, I want to thank God for giving me the strength to finish this study.

I would like to express the deep appreciation and special thanks to my supervisor Dr. Abid Ali Hassan who has the attitude and substance of genius and an excitement in regard to teaching. Without his guidance and persistent help this dissertation would not have possible.

Great thanks also to the presidency of Sulaimani University and the College of Agricultural Science Engineering especially the Dean of the College Dr. Karzan Tofiq Mahmood.

Grateful thanks to Dr. Aamel Fadhil Khalil Al-Abbassi to his great help and encouragement he offered during my research work.

Special thanks to Dr. Rezhen H., Dr. Hashim S., Mr. Hemin N., Dr. Ibrahim M.

I also extend my gratefulness to Dr. Anwar Director of General Directorate of Agricultural Extension; also Mr. Xasraw Director of Agricultural extension; also Mr. Mariwan R., & Mr. Alan T., Directors of the Agricultural Extension Department of Sulaimani; also Mr. Abdulmasih, Director of Agricultural Extension Department of Erbil, and Mr. Shex Sabir Director of Agricultural Extension Department of Duhok, finally Mr. Star & Mr. Ahmad Directors of Agricultural Extension Department of Garmian Administer .

Finally I wish to appreciate the efforts of my best friends, Dr. Xasraw M.,Dr. Tahir L., Mr. Dara A., Dr. Kazm A., Mr.Kawan S., Mr.Bandi A., Mr.Omed R., Mr.Rebaz R., Ms.Bayan A., Ms.Kazhan J., Ms.Chawan M., Ms.Khansa H., Ms.Bekhal K., Ms.Deber A., Ms. Sara B., Ms. Saya F., Ms.Sumaia M., Ms.Hawal I.

Mohammed Omer Mohammed Sakina

SUMMARY

This study aimed at determining the effectiveness of the agricultural extension training in Kurdistan Region of Iraq from the trainees point of views in general, and in each aspect of the training, determining the differences in the effectiveness of the training according to the trainee's some characteristics and identifying the main problems are facing the extension training in the targeted area.

The research included 148 trainees of extension workers and a random sample of (303) farmers who participated in training courses in all governorates in Kurdistan region during the period of (1st January 2013 – 30st December 2017). The data was collected through personal interviews. A questionnaire was prepared for this purpose.

To measure the validity, the questionnaire was reviewed by some experts. The reliability coefficient was calculated by Cronbach's alpha coefficient, and its value was (0.92) for extension workers and (0.81) for the farmers.

The results showed that the level of the extension training effectiveness from extension workers point of views was medium tends to low, but the estimation level of the extension training effectiveness from farmers point of views was medium tends to high, and the trainer's ability estimation of extension workers occupied the first rank, giving the interesting percent of (56.37%), but the (training results) aspect occupied the first rank for the farmers, giving interesting percent of (88.85%).While the methods of selecting the trainees occupied the last rank for both groups of respondents, recording the interesting percent of (53.18%) for the extension workers trainees and (80%) for the farmers trainees . The results revealed that there are significant differences in the total estimation of training according to the following extension workers characteristics (location of the work, number of training courses, duration of the training courses, extent of training usefulness, attitude towards training, job satisfaction, problem-solving ability) While no significant differences were found in extension training effectiveness and each of variables (age, gender, provenance academic achievement, Specialization, total service duration, extension service duration). But the results from the farmers point of views indicated that there are significant differences in the extension training effectiveness and each of (age, social status, number of training courses, extend of training usefulness, attitude towards training, job satisfaction, problem-solving ability). While no-significant differences were found in the extension training effectiveness of each (gender, residence, academic achievement, the period of training). Depending on the results obtained the total degree of the extension training problems is medium tends to high. Extension

workers problems aspect are rated the first rank, giving the interesting percent of (57.26%), while the problems of planning and evaluation of training were occupied the last rank, giving the interesting percent of (51.59%).

The researcher recommends activating the training efforts based on the principles of planning, execution and evaluation, in addition to formulation a suitable and logical mechanism to select the trainees for training courses according to their needs and problems during the workplace, increasing the number of training courses and the period of training.

Working to reduce and solve the problems and obstacles which are hindering the extension training efforts; also provide all material and human resources and increasing incentives and budget to implement training activities in the light of their training needs.

LIST OF CONTENTS

List of Tables

List of Figure

List of Appendixes

List of Abbreviation

LDCs	least-developed countries
GDP	Gross domestic product
FAO	Food agriculture organization
ICARDA	International Agricultural Research Center in the Dry Area, Syria
KRG	Kurdistan region government
krd	Internet code of Kurdistan
KRSO	Kurdistan Regional Statistics Office
N/A	Not available
MSc	Master of Science
Ph.D.	Philosophy of Doctor
Std. Dev.	Standard deviation
F	Analysis of variance
t-test	significant difference between the means of two groups
MRT	multiple range test

CHAPTER ONE

INTRODUCTION

1.1.Preface:

Human development represents the main issue for the overall growth in developing and developed countries (Al-Abbassi, 1998). Human development is one pillar of the development which is continuous process for helping and brings better condition for (individual, family household and society). Rural development is a strategy designed to improve the social and economic life of the rural poor in order to improve productivity as well as increasing the employment and income of an entire nation. Therefore more importance is given to the rural development programs and projects in the recent years (Ezeano, 2012). Keeping up with scientific and technological progress is the true gateway to development, because it's a genuine venue to construct the future of the nation, through the experience of its members of this age, and search for the best solutions that hindering development plans, as well investment of their energies and human abilities in a best way (Salah *et al.*, 2010).

Agriculture could be referred to as the production, processing, promotion, and distribution of agricultural products. Agricultural sector is at the heart of the economies of the least-developed countries (LDCs) and the backbone of the economic system of every country around the globe, in addition to providing food and raw material, agriculture also provides employment opportunities to a very large percentage of the population (www.agriculturegoods.com). Agricultural it accounts for a large share of gross domestic product (GDP), and employs a large proportion of labor forces , represents a major source of hard foreign currency, Thus, significant progress in promoting economic growth, reducing poverty and enhancing food security cannot be achieved in most of these countries without developing the potential human and productive capacity of the agricultural sector and enhancing its contribution into the overall economic and social development(www.fao.org).

Agriculture was represents one of the most important sectors of the Iraqi economy (including Kurdistan region), and even considers the top first sector in view of its role in the national economy. Over the past several decades' agriculture's role in the economy has been heavily influenced by Iraq's involvement in military conflicts, particularly in the 1980-88 Iran-Iraq War, the 1991 and the 2003 Gulf Wars, and most notably by the destruction of villages and the internal displacement of people during the Anfal campaigns of 1988.

The Agriculture sector's contribution to GDP declined from about 14 percent in the mid of 1980s to 9 percent in 2002 to 3.3 per cent in 2008 and 3.6 per cent in 2009. However, the agriculture sector is still a major source of livelihood for the poor and the largest source of the rural employment. It remains the second largest contributor to the Iraqi GDP after oil revenues and has the potential to play a key role in reducing poverty and unemployment in Iraq if significant and concerted efforts are made towards its rehabilitation (AL-Rekibi, 2014).

It has been agreed that the agricultural development focusing basically on the human ability (Arshidat, 2002). Training is a process aiming at bringing positive change in the knowledge, skills and attitudes of the trainees (Maher, 2008). Training is an attempt to improve the current and future performance of employees by increasing their ability into high achievement (Ivan, 1995). If the training is necessary in all sectors, certainly in the agricultural sector is a more urgent necessity due to the backwardness of the agricultural sector in Iraq and Kurdistan Region. Therefore, training is an urgent necessity for all workers in the agricultural sector whether they are government employees or farmers and rural leaders (Al-Tanubi, 1996). In the process of agricultural development the training and agricultural extension as a central mechanism considered and this role has done in many countries to respond appropriately (Shakouri, 2006)

Training effectiveness is fundamentally an evaluation that inspects the level to which training enhanced the employee's skill, knowledge, and behavior inside the organization. The perception of training effectiveness is a series of many factors on the situation of the pre-training stage, training stage, post-training stage and personal factors (www.researchgate.net). Efficiency is the amount of the resources being deployed to achieve the organization goals which is effectiveness indicator (Daft, 2000). Despite the training being as an active way to achieve efficient functions, its effect will not be accurate if there is no progress in evaluating the outcome. It has been mentioned that there is no possibility to judge the range of the training program benefit and its action without a reasonable evaluation. This evaluation cannot be investigated in the absence of clear principles and evaluation standards (Swailim, 1998). Effectiveness of the training is the degree of experience gained by the trainees from the exercise of training activity with significant gains, measured by comparing the output of the training activity in terms of human resources costs (Raab et al., 1991). Despite the importance of measuring the effectiveness of the agricultural extension training programs for the agricultural extension workers, however it has not received enough attention from officials or institutions concerned with agricultural extension training. Consequently, it becomes

important to evaluate the effectiveness of the training programs for the agricultural extension workers, through training them in their workplaces in an advance in order to evaluate the validity of various aspects of the training process for the needs and the factual circumstances of the trainees. And determine the extent of their abilities to perform outreach activities of the training after their return to their fields.

It's clear the importance of extension training for the workers of any extensional organization (especially agents whom are working at the local level) for the importance of their role to acquire developing in agriculture, because the trainers are responsible for transferring all kinds of agricultural technologies and modern information based on the scientific research results for the farmers and encourage them to apply these technologies through the training program (Al-Radi, 2003). The better trained farmer is quicker to adopt profitable new processes and products since, for him, the expected payoff from innovation is likely to be greater and the risk likely to be lower and smaller (Padhy and Jena, 2015).This situation requires to train workers academically, technically and professionally, and continuously by providing them with modern knowledge and skills for new technologies and innovations, on the other hand qualifying the training process of agricultural staff represents the main factor of succeeding the extension structure (Al-Samawi, 2004).

Raising and improving the level of performance of agricultural extension agents depends on what they have learned in the training courses, specialized technical knowledge, skills and attitudes in their work in field with farmers, as training courses are one of the most important activities for the extension centers to improve their professional levels and to achieve development (Al-Mashhadani, 2006). Agricultural Extension depends a lot on research centers as a source of new information and agricultural innovations which are changing from time to time. In light of this result, it will be necessary to evaluate and follow these changes, also extension workers need ongoing and continuous training to keep pace with the changes and development which are occurring around the globe. Therefore workers should get in agricultural extension on a substantial share of training sessions in order to increase the organizational effectiveness in the agricultural extension of different parts (Taqi et al., 1997). The results of studies and research have shown a difference in time between the discovery of new ideas and their application, this refers to the existence of obstacles to diffusion of the modern ideas and their application, thus it became necessary to shorten the distance between the emergence of new ideas and integrating them into practice and using them in solving problems. This leads into the need for training as an effective mean for the development of the

labor force in the agricultural sector. Training can help farmers properly to adopt the agricultural innovations and use them efficiently and then speed up the implementation of development plans (Al-Jboori, 2000).Hence the training importance for the agricultural extension workers to enable them to play a mediate role between the research center and the rural community who benefits from the agricultural extension services. This can be achieved by raising rural community knowledge abilities, activating and renewing their professional experiences, although the training programs for agricultural extension workers efforts aims into making or bring a change, which the agricultural extension organization seeks via it to achieve its goals and objectives. It is necessary to monitoring and evaluates the training activities to estimate the extent of compatibility or satisfying the trainees regarding their training needs which is sketched to improve the trainees' ability to perform training activities which aimed to change their cognitive behaviors, skills and attitudes (Al-Saidi, 2006).

The shortage of experienced and well trained agricultural extension workers in Kurdistan region of Iraq has been the subject of many workshops and conferences in the past years. Active steps to address the shortage of extension workers in the Kurdistan Region through designing effective and integrated programs is of priority to have efficient, qualified and well-trained personnel who are able to convey extension messages.

The extension organizations spend efforts and funds from their budget and programs in training courses, and use many experiences and effort in the preparation and implementation of training programs. As this money which spends annually on training courses is considered as a large part of the extension institution inputs, therefore, it is necessary to know the benefits and outputs of this investment and its returns on the performance, production and development of this organization. Here comes the role of the evaluation, which requires inquiring about the effectiveness of spending and the return achieved (Al-Mashhadani, 2006).

From the previous display, the research problem formulated through the following questions:

1. What is the estimation degree of extension training effectiveness from the workers and farmers trainees' point of view in general?
2. What is the estimation degree of extension training effectiveness from the workers and farmers trainees' point of view of the various aspects of the training programs in terms of (training objectives, trainees selection methods, duration and timing of training, capabilities of the trainers, content of the training, methods and means of training, facilities and capabilities of training, training results?

3. What are the differences in extension training effectiveness according to some characteristics of the trainees such as socio-demographic and functional characteristics including: (age, gender, residence, provenance, academic achievement, academic specialization, social status, total service duration, extension service duration, location of the work, number of the training courses, duration of the training courses, place training courses, training usefulness, attitude towards training, job satisfaction, problem solving ability)?

4. What are the extension training problems from the worker trained workers point of view of the various aspects in general?

5. What are the extension training problems from the trained workers point of view in all aspects including (extension training basis, possibilities and equipment, areas and activities of training, extension workers, planning and evaluation of training, training methods and technology transfer)?

1.2. Research objectives:

This research aimed at estimating the effectiveness of extension training in all governorates of Kurdistan region through the following sub-objectives:

1- To estimate the degree of extension training effectiveness from the workers and farmers trainees' point of view in general.

2. To estimate the degree of extension training effectiveness from the workers and farmers trainees' point of views regarding each aspect in terms of (training objectives, trainees selection methods, duration and timing of training, capabilities of the trainers, content of the training, methods and means of training, facilities and capabilities of training, training results).

3. To determine the differences in extension training effectiveness according to some trainee's characteristics such as socio-demographic and functional characteristics including: (age, gender, residence, provenance, academic achievement, academic specialization, social status, total service duration, extension service duration, location of the work, number of the training courses, duration of the training courses, place of the training courses, training benefits, attitude towards training, job satisfaction, problem solving ability).

4. To detect and arrange the main extension training problems from the workers point of views regarding various aspects in general.

5. Arrange the main extension training problems from the trained Extension workers point of views regarding each aspect in terms of (extension training basis, possibilities and equipment, areas and activities of training, extension workers, planning and evaluation of training, training methods and technology transfer).

1.3. Research importance:

Conducting the study of the extension training effectiveness for each of the extension workers and farmers of the training activities which they were trained after they return to their work, and this will be very useful to determine the validity of agricultural extension activities, also to identify the strengths and weaknesses of training programs and its impact on the work in general, as well as to avoid the lack of extension research in Kurdistan region of Iraq. This study is concerned with evaluating the training courses during five years 2013 -2017, in order to help building a proposed model for agricultural extension training in the Kurdistan region of Iraq. This study is one of the few studies that examined the evaluation of training programs for farmers, and address the problems of extension training, which were not addressed in the previous studies. The results of this study may also help to identify the extent of relationship between some factors with extension training effectiveness.

1.4. Research hypothesis:

2. There is a significant difference in the mean of total estimation of extension training effectiveness according to (age, gender)

3. There is a significant difference in the mean of total estimation of extension training effectiveness according to (residence, provenance).

4. There is a significant difference in the mean of total estimation of extension training effectiveness according to (academic achievement, specialization).

5. There is a significant difference in the mean of total estimation of extension training effectiveness according to social status.

6. There is a significant difference in the mean of total estimation of extension training effectiveness according to (location the work, total service duration, extension service duration).

7. There is a significant difference in the mean of total estimation of extension training effectiveness according to (number of training courses, duration of training, place of training courses, benefits of training courses).

8. There is a significant difference in the mean of total estimation of extension training effectiveness according to attitude toward training courses.

9. There is a significant difference in the mean of total estimation of extension training effectiveness according to satisfaction of the work.

10. There is a significant difference in the mean of total estimation of extension training effectiveness according to problem solving ability.

1.5. Procedural definitions:-

2. Training: An educational process to provide individuals expertise, skills and attitudes that make it valid for the execution of the work.

3. Extension training: Educational process through which provides information, skills and attitude for the workers and farmers related to agricultural activity.

4. Extension training effectiveness: Methodological way to evaluating the extension training courses after completion, as well as to measure the results obtained by the trainees through evaluating various aspects of the training program from the trainees' point of view .

5. Extension workers: All workers who participated in training course, that working in the field of the agricultural extension, and they have certificate of agricultural graduation.

6. Farmers: All farmers who participated in the training courses in the field of agriculture including (male and female).

CHAPTER TWO

LITERATURE REVIEW

Part 1: Theoretical Framework

2.1. This section deals with the review of some theoretical writings, and some previous studies, related to the subject of the research, which the researcher was able to view and constitute the reference reviewing. This Section has been organized into three chapters. The first chapter is about agricultural extension training. The second Chapter contains the effectiveness of training, and the third and final chapter contains the results of some previous studies, related to the evaluation of the training programs efficiency in the field of Agricultural Extension.

2.1. Training:

2.1.1. Preface: Training is one of the most important activities that must be given a special attention by the various departments, and governmental and non-governmental institutions, because through training we can recognize modern methods and pursuit various quick changes that take place in all areas of life (Radi, 2003). Nowadays, Training has increasingly been gaining its high value. Most superiors and employees are convinced that training is the most effective and critical element creating differences in workers' performance and enhancing their productivity (FAO, 1997).

2.1.2. Definition of Training:

"Training is a process of acquiring specific skills to perform a better job" (Jucious, 1963). It helps people to become more qualified and proficient in doing some kinds of jobs. Usually an organization facilitates the employees' learning through training, so that; their modified behavior contributes to the attainment of the organization's goals and objectives. Training is the process of teaching, informing, or educating employees: (i) to become well qualified as possible in doing their job, and (ii) to become qualified in performing their positions duty and responsibility (Jucious, 1963). There are several definitions of the training concept that was developed by numerous experts in this field. Flippo stated that "Training is the act of increasing an employee's knowledge and skill for doing a particular job" (Flippo, 1965). Dunn says "Training efforts can aim in providing information and knowledge for the worker, which leading to acquire skills or to develop the workers skills, knowledge and experience towards intensifying the efficiency of the current and future of the individual" (Dunn, 1979). Weather

declares "The training is systematic process to change the behavior of employees towards the development of the organization's objectives at present and future" (Weather, 1982). IRRI defines training as "Training is a powerful strategy process for creating competent individuals and institutions, by supporting men and women to acquire the necessary knowledge and skills" (IRRI, 1990). It is defined by Alsamarri as "An educational process for teaching staff and educate them to be qualified to carry out more difficult functions and responsibilities (Alsamarri, 1990). Training is defined by the oxford dictionary "Move the person to a desired level of skills both of the education and practice" (Allen, 1990). Training was described by Al-Tanobi "Socio-economic and technological process, necessary and renewed to format new behaviors or modify the behavior of the trainee to increase his/her efficiency and productivity, done through training situation based on the participation of trainee's themselves" (Al-Tanobi, 1995). Evan perceives that "Training is an attempt to improve the current and future performance of employees by increasing their ability to deliver" (Evan, 1995). Schermerhorn said "Oriented activity that earns and improves work-related skills" (Schermerhorn, 1998). Ziadi mentioned that "Training is an activity that aims to provide the trainees with the knowledge and skills necessary for their development and refinement of their experience to raise the level of their performances and to change their behaviors and attitudes in a desired direction for the benefit of an individual, organization and society" (Ziadi,1999). Donnelly said "Continuous process to help employees perform their tasks from the first day of their working at a high level" (Donnelly *et al*, 1998). Maher believes that "Adaption with the work or change psychological and mental attitudes of the individual towards the work through providing knowledge and raising the skills of the individual in the performance of work" (Maher, 2001). Mohammed said "An educational effort planned and structured and sustained , its primary purpose is to develop the individual's behavior in an organization to be suitable for the business, entrusted to him or her to be carried out in the future with the least physical and moral effort" (Mohammed, 2009). Maher argued that the definition of training can be crystallized in four main areas:(I) Training is a process aiming at a positive change in the knowledge and skill-building and attitudes of the trainees.(II) Training is an organized and planned, process based on rational analysis of training needs of the trainees. (III) Training is primarily an educational activity in which different methods of consultation and education are used. (IIII) The training does not halt improving the current conditions of the trainees, but extends its advantages to meet the responsibilities in the future by training the trainees to perform their work which is expected to be done in the future at high standards(Maher, 008).

In the light of these previous definitions for the training, it can be concluded that the concept of a mass training consists of these main elements:

1. An educational process or educational activity is designed to improve or change the individuals' knowledge, experience and behavior attitudes.

2. Continuous process does not terminate or stop the training needs because refection of the work-duty generates other training needs

3. An organized process requires planning, preparation or arrangement.

4. Aims to develop and improve the functionality and performance of the individuals in the organization.

5. It aims to change, modify or develop desirable patterns of cognitive and directional behavior of the trainee.

6. It earns the trainees some specialized skills and technical or systematic experience in their competent.

7. It improves the individual's ability level to perform the work he does it

8. It assists in achieving the overall goals of the organization and the society.

2.1.3. Importance of the Training:

Training is extremely important for developing and elevating the effectiveness of the labor force as well as its positive effects on achieving the organizations objectives in many aspects. Therefore, the importance of training is highlighted for the following reasons:-

1. The individuals who refrain or have difficulty at first in the workplace need to be trained to do their jobs.

2. Development of the modern science and technology requires new methods to the use various applications in the workplace.

3. Functions and duties of the employees change during their services at workplace, and they do not perform only one task, but they move between several functions.

4. Creating new sections and departments within an organization requires certain skills to available.

5. Training is necessary when style of production and means requested a change.

6. Training is essential for an individual when he wants to specialize in his or her work.

7. Training is needed for developing attitudes of the workers to achieve the goals of the organization.

8. Training is obligated to reduce the time, needed to learn and to achieve performance suitable level (Mohammed, 2009).

2.1.4. Principles of Training:

Training process is based on many principles that must be observed when preparing the training program. Samrrai (1978) said that (Flippo 1972), (Chruden, 1963), (Scott, 1972), (Harris, 1976), (burei, 1968) and (Shawqi, 1975) agreed on the following training principles:

1. Motivation: The trainee who feels he or she needs the training interacts with the trainer and educational material more heavily than others

2. Reinforcement: Learning increases when the information, skills and attitudes are reinforced that the trainees learn by the means of reward and punishment.

3. Principle of Individual Differences: Attention must be paid to the individual's differences among the trainees, where each of them differs from others in the personal characteristics.

4. Principle of Doing: The acquisition of knowledge, skill and attitude are going to be at best when practiced by the trainee.

5. Transfer of Training: One of the manifestations (demonstration) of training is the degree to which the education materials can move to the actual work which is performed by the trainee.

(Tannobi, 1996) clarified some principles reinforcing the training policy as follows:

1. Trainees' participation in a training program.

2. Training must compile new things and trainees favorites to assist developing their performances at workplace.

3. Focusing on the field and the practical aspects of training along with theoretical aspects.

4. Diversifying the ways and methods of training and the use of appropriate training aids for the training position.

5. Necessity of the training program has to fit the size of the resources' availability.

6. Continuous evaluating and following-up the trainees.

2.1.5. Objectives of Training:

Training aims to achieve goals, focusing on the individual trainee and the organization. (Al-Samrrai, 1990) & (Flippo, 1963), and (Alshdaida , 1999) elaborated that the Training aims to:

1. Develop the individual: convey the desired changes in the behavior by providing him/her with new information or modifying the misleading information he/she has.

2. Increase Productivity: Increase the skill level which usually leads to improve the quality and quantity of a production. The increasing technical nature of today's workplace requires a systematic training to achieve the required level of business completion.

3. Heighten Morale: If the individuals feel that their needs being satisfied through the training and this will elevate their enthusiasm to perform the work and increase their sense of belonging to the community

4. Reduce the Spain---- supervisory: When individuals are inefficient in the workplace, there will unintentionally generate a wide range of mistakes and malfunction in the completion of their works. This necessitates the presence of a large number of supervisors, while in the case of training the staffs and raising their efficiency will make each of them does their job better than what is in the first case, and this reduces the need for high supervision.

5. Reduce Accidents: The causes of accident are the lack of the workers efficiency and defect in their performance; therefore appropriate training will improve the accuracy of the use of the equipment and work performance, which reduces the accidents at the workplace.

6. Increase Organizational Stability and Flexibility: Stability means the ability of the organization to enhance its effectiveness in spite of the absence of high authorizes. Flexibility means the ability of the organization to balance the duty of its employees when cutting down the size of the work occurs.

(Nizal, 2001) classifies the training objectives into three categories, or main types:

1. Regular Objectives: These include traditional objectives, such as training of new employees, training of vendors and training of supervisors to apply new methods of work.
2. Problem Solving Objectives: These objectives are primarily to find solutions to specific humanitarian or technical problems, that an organization experienced it, by training individuals who are being able to deal with the problems.

3. Creative Objectives: These objectives are related to trying to achieve extraordinary and innovative results. And this intensifies the level of performance in the organization towards areas and prospects that have not been reached in order to meet the environment requirements and to achieve an excellence and progress high standards similar to other organizations or competitions.

2.1.6. Agricultural Extension Training:

Agricultural Extension Training is not differing from training in general in terms of the method of preparation and the contents of the process or the final results which have been achieved by the trainees in the field of agricultural extension and behavioral changes. The difference is in the specificity of the training areas and in the content of the educational material that the trainees receive the information from. And the knowledge and skills related to the agricultural extension and the educational activities that are being carried out by the trainees (Al-samrrai & ALjadri, 1990). Certainly understanding the process of agricultural extension training and understanding the psychological factors that underlie its success requires the identification of the nature of this vital process and its characteristics. Agricultural extension training is essentially a learning process that aims at acquiring the skills, knowledge, experiences and facts associated with the agricultural extension profession (Alradi, 2003).

2.1.7. Definition of Agricultural Extension Training:

There are several definitions of agricultural extension training. These definitions are different in terms of form, but all agree, to a large extent, in content. Kamath defines "Educating agricultural extension workers with the philosophy of community development and the meaning of the content of agricultural extension and knowledge of the expected results due to the correct use of extension, and full knowledge of how to use the extension methods and how to evaluate the activities" (Kamath, 1961). As Sanders mentioned "Education and educational experiences designed to make agricultural extension worker appropriate to extension service and thus able to fully fulfill the requirements of the extension work as determined by the changing needs of members of the leadership" (Sanders, 1966). In this regard Abdul-Ghafar, mentioned that agricultural extension training is the kind of extension and organization in the profession or function of the agricultural agent, which aims to increase the abilities and skills of the trainee, giving him/her a greater performance in the work. And it is a kind of applied

education that is related to the skills being necessary for the work (Abdul-Ghafar, 1975). Saleh, defined it as "the process by which agricultural extension workers obtain the knowledge, skills, awareness and positive extension necessary to perform, improve and accomplish the tasks assigned to them" (Saleh, 1979). Extension training, as defined by Al-Samarrai, "the process detected by the organization of agricultural extension and through which assist professional extension workers to be more efficient in their ability of concurrent business and their future services by developing a range of skills, information and attitude through integral training program" (Al-Samarrai, 1990). Al-Rafi defined it as "an educational process through which trainees can obtain the skills and abilities that are necessary to perform and improve the performance of certain agricultural extension work"(Al-Rafi, 1992). Sweilem says "Educational organized process through which it provides expertise, information and skills related to agricultural work and all employees for their performance or improve certain agricultural business" (Sweilem, 1998).

By reviewing most of the previous definitions, all have noted that agricultural extension training is an educational process that seeks to achieve specific goals by making desired behavioral changes for the trainees, and the concept of agricultural extension training includes four basic elements:-

1. Educational Systematic continuous process through which information and skills related to agricultural activities are provided.
2. Conducted within the organization in the workplace or outside in specialized training centers.
3. Providing information and skills in agricultural fields
4. General targets to achieve efficiency of agricultural production, through developing the technical capacity of the of agricultural extension workers.

2.1.8. Importance of the Agricultural Extension Training:

The efficiency and success of any organization, specifically of the agricultural extension organization depends on the ability of the workers to adapt with the changes and the varied rapid developments, and their ability to develop training programs to meet the new conditions and rapid changes (Al-abbasi, 1998). Agricultural agent is a central person for success or failure of the educational process of extension due to that it is one of the most important elements of the educational situation in the agricultural extension work, therefore,

development of this work of the agricultural extension through training courses in-service is one of the important things (Arab Organization for Agricultural Development 1994).

(Megginson *et all*, 1983) stressed that employers or business owners usually pay the cost to develop their workers in practice, even in the form of informal training programs. This agreement to develop these workers is, of course, an alternative to what high prices that they will pay for another poor work. Thus, the extravagance has no waste, and the grievance, and absenteeism, and a decrease in the rate of the labor turnover. The agricultural extension agent is a key factor in the success or failure of the educational extension process because he is one of the most important elements of the educational situation in agricultural extension work. Therefore, the development of agricultural extension workers skills through in-service training is very important (FAO, 1994). Agricultural extension organizations are distinguished from other educational institutions because they use variety of methods, mainly based on field demonstration and education through practice, and this requires the precision in selecting and training a number of these workers and rehabilitating them technically and rationally (Al-emmery, 2002). Though agricultural extension training as one of the basic means of changing an individual's behavior and it is an ongoing process aiming at increasing the individual's knowledge, building and developing his/her skills and abilities, and changing his concepts and attitudes in a way that enables him to perform his or her work efficiently. Therefore, there is a continuing need for training and re-training in accordance with the needs of the workers and who will bring them many benefits (Abubakr, 2002.

(Abdul Wahab, 2000) mentions that successful training program can achieve some advantages for agricultural extension workers, including the following:

1. Strengthening the social responsibility of individuals towards their communities.
2. Enhancing the ability of the individuals to guide and lead a larger group with higher efficiency.

3. Strengthening self-confidence, self-esteem and developing the individual's ability to carry out greater tasks.

4. Improving the working relationships and decreasing the rates of turnover, absenteeism, delay, accidents and injuries to occur.

5. Keeping abreast of the technical developments and increasing the overall efficiency of the organization and all its departments by helping employees to change positively and increase productivity through applying new systems.

(P. Oakley and C. Garforth , 1985) pointed out two other important issues which are the types of knowledge that an agent must have, and the personal skills that are required from the workers to do their jobs effectively. Again, in extension practice throughout the world, there is considerable diversity on these two issues which, reflects the variety of situations in which agents work. How the knowledge and personal skills required by the agent are influenced by the role the agent performs will be considered.

Adding them all four main areas of knowledge is very important for the extension agents and forms the basis of agricultural extension training.

1. Technical: The agents must be adequately trained in the technical aspects of his/her work and have a good working knowledge of the main elements of the agricultural system in which they are working on.

2. Rural life: This includes anthropological and sociological studies of the rural area where the agents are working, local traditions, practices, culture and values.

3. Policy: The agent should be familiar with the main legislation of the government or other institutional policies which affects the rural areas, development programs, credit programs, and bureaucratic and administrative procedures.

4. Adult education: Since extension is an educational process, the agents must be familiar with the main approaches of adult education and group dynamics, and with the techniques of developing farmers' participation in extension activities.

(Abdul Wahab, 1995) has pointed out the importance of training for extension workers in: (I) Increasing the educational and communicative efficiency of the extension agent by acquiring the skills of the communication process and extension education; (II) The efficiency of the use of extension methods and aids; (III) Rising the agents efficiency and their knowledge to do their job effectively and properly in a sufficient assigned time. (IIII) overcomes the agents' shortfalls, such as the inability to innovate and problem solving, (IIIII) Raising the morale of the extension agents and strengthening the spirit of work and improving the relationship between employees and their bosses.

2.1.9. Importance of training in agricultural work and social life of the trainee farmers:

The impact of peasant training on agricultural work and social life is evident in the following areas (Al- abbssi, 2014):

1. Specialization in Agriculture: The trainee farmer tends to focus his/her efforts in cultivating a particular crop or field instead of scattering his efforts in multiple agricultural activities.
2. Taking agriculture as a basic profession: The trainee farmer knows that agriculture is a profession that requires precision in making of decisions, taking risks and applying scientific methods instead of believing that agriculture is to meet the family's need for food only.
3. Farmer as a researcher: The trainee farmer is ready to experience new varieties or cultivate new crops in his/her field, use machines and equipment, and create field demonstration.
4. Readiness to change: Agricultural extension aims to improve the material aspects of the farmer as well as to change his/her knowledge, skills and attitudes, means changing the knowledge framework.
5. Increase the role of rural women in agriculture: The trainee farmer will be more equipped to involve his wife in making decisions related to the agriculture and increasing her role in the farm management.
6. Change the pattern of production: The trainee farmer tends to invest his/her capital in agriculture instead of using it for non-productive investment as well as aspiring to increase the cultivated areas and educate his/her children and improve their standard of living.
7. Cultural openness: Training influence the farmer attitudes toward the life with a new perspective, and to does his/her work by the developing ways and seeking to develop high standards of social, economic and cultural.
8. Increased stability: The training helps and encourages the farmers to invest his/her capital in agriculture, which helps him to keep the farmer on his farm and increases the stability of the agricultural work.
9. The trainee farmers is a source of information: Trainee farmers is a source of information being trained for his/her relatives, and he is a motivating elements for other farmers to participate in the training course.

(Tnoubi, 1996) mentions that the most important areas that must be trained by extension officers as follows:

1. Advancement of agricultural production (plant and animal).

2. Planning and implementation of agricultural extension programs.
3. Local rural leadership development.
4. The use of methods and techniques of communication and agricultural extension.
5. Adult literacy programs.
6. Coordinating with other local formal or informal organizations and institutions.
7. Rural youth development.
8. . Marketing of agricultural products.
9. Theoretical principles and philosophy of agricultural extension.

(Qshta, 2013) confirms that the reality of agricultural extension and the performance efficiency can be improved by opening training courses in the faculties, colleges and schools of agriculture, where continuously being updated on the agricultural science and techniques for the agricultural extension agents in short training courses, which might be less than a week, and repeating these courses once every three or five years to improve the agents performance. This demonstrates the needs for training in the agricultural extension for all the employees starting from the head of work to include all facility employees.

2.1.10. Levels of Extension Training:

The specifications, characteristics and qualifications of agricultural extension workers differences depend on the level of technical and administrative positions which they occupy in the extension organization; therefore, there are several different levels of extension training (Radi 2003). It has been classified :by (Maunder 1972; Omer Et All 1973; Abdul Gafar 1976), (Omer 1992) ,(Aladly 1973) ,(Namir 1983) ,(Swanson 1990) , (Swailm 1998) , (Abu-Suod 1987) ,(Tanuby 1996), (Khuly 1984) ,(Al-Remawy 1995) ,(Al-Lala 1987) , (Al-Omer 2012) , (Muhalhil -1972;Al-Samray 1990) , (Qshta 2013;Chang 1963;Omar 1979;Maunder 1972)into the following levels:-

2.1.10.1. Pre – Service Training:

Pre-service training is a more academic training method which is offered by formal institutions with definite curricula and syllabuses for a certain duration to offer a formal degree or a diploma (M.G. Olujide 2016).This type of training provides the initial work training, continuous promotion of staff through in-service training and it is also necessary to ensure coping with the work changes and the varied needs of the clients (Hamagaraj 2016). (Alsamarrai, 1990) defines Pre-service training as a kind of the training which is provided by the educational institutions through their curricula that cover all the basic science and

agricultural extension science in addition to other sciences during the whole their study periods either at colleges, or institutes or agricultural vocational school. The aim of this level of training is to provide individuals with knowledge, skills and basic attitudes for their future work (Al-lila 1987).

(Moreover, Olujide, 2016) also mentioned that, pre-service training is a process through which individuals are being made ready to hold a certain kind of professional job such as agriculture, science or commercial. Students have to attend regular classes in a formal institution and need to complete a definite curriculum and courses successfully in order to be eligible receiving a formal degree or diploma. Iin other words these students are not entitled to get a professional job unless they earn a certificate, diploma, or degree from the appropriate institution. Pre-service training contents emphasize mostly on technical subject matter such as crops, animal husbandry and fisheries as well as pedagogical skills to prepare the students to work in agriculture (Olujide 2016).

According to (Olujide, 2016) there are two types of pre-service training available for agricultural staffs:

1· Degree level: (at least a bachelor's degree in agriculture or related field), which is usually offered for four years by a university or agricultural college.

2· Diploma level: which is mostly offered by the schools of agriculture for a period of two to three years. The entry point for the former is normally twelve years of schooling and for the latter ten years of schooling.

2.1.10.2. Objective of pre-service training level:

(Al-lila 1987; cited in, (Mohammed, 2009)**:**

1. Developing positive attitudes of the agents to work with people.

2. Understanding of agricultural extension's aims.

3. Understanding the extension organization and responsibilities of their employees.

4. The skill of the uses of agricultural extension methods.

5. The skill of identifying problems and solving them.

6. The skills of building the extension programs.

7. Recognizing the sources of information.

2.1.10.3. Induction Training:

This type of training is given to newly employees before commencing their actually exercise their supervisory responsibilities. In other words, induction training is the training given to newly extension workers after they have being employed and before being an assigned to work in a particular area, usually as an assistant agent or advisor, and they all need special training to be prepared for their particular jobs. Moreover, they have to comprehend and understand of what the agricultural extension is, regarding its principles, objectives and philosophy, and methods of teaching the improved practices which might be recommended by the extension service to the farm people (Maunder 1972). This training takes a period of time which determined by the organization's environment and their extension work conditions, and it is the first training procedure after completion of the academic study (Al-Samrrai, 1990). Training is given to the newly graduates of the agriculture students colleges to be prepared for the field of extension career after being employed (Al-Adli1973).

(Swanson, 1990) emphasis on the importance of training agricultural extension staff before starting in providing the basic skills in the following broad topics:

1. Specialized technical subjects in the various agricultural fields.
2. Organizing and operating the Agricultural Extension Department regarding its objectives, functions and policies.
3. Human resource development, through participation of the farmer in a program planning and development, group behavior, and the relationship between staff and people.
4. The process of developing programs, starting with identifying the problem and estimating the needs to design, to implement and to evaluate the programs.
5. Educational skills, through the process of teaching and learning adults and youth (male and female), aged between (15-45) years.
6. The necessary media strategies to implement the programs, by taking advantage of modern and local media systems.
7. Evaluation methods to determine the efficiency of agricultural extension programs and their value to its beneficiaries.

The most important goals that this type of training is (Abdul-Maksoud, 1988):

1. Gives the graduates a wide knowledge of the nature, purposes and field of extension service.
2. Obtains the necessary information and skills to perform their works efficiently.
3. Develops the graduates' understanding of their functions and role as an agricultural guide.

4. Develops sense of belonging and loyalty to the extension system.

5. Understanding the methods and means that can help them to be a successful agents and how to choose, use and evaluate these methods and means.

This type of training is divided into three major sections (Al-Radi 2003):
1. Courses and theoretical lectures related to the structure of agricultural extension services, methods of work, reporting, agricultural production, home economics, and appropriate teaching methods for different types of education and skills.

2. Field Visits: to research centers and distinguished farmer fields.

3. Supervision and field training: providing an experienced supervisor for each new trainers for a period of time that commences from 6 months to one year aiming to teach all activities regarding agricultural extensional activities (work under supervision).

2.1.10.4. In–Service Training:

There are many definitions and different points of views about the concept of in-service training. Khouli reported that the essence of in-service training is to allow the agricultural agents to learn from the experiences and to keep them fully informed and updated of the changes and new techniques in agriculture (Khouli, 1984). Omar described it as "The training provided by the organization to its employees including all categories of workers in the agricultural extension throughout the period of their employment, which aims to fill the gap or fill the deficit resulting from the previous training programs" (Omar, 1977).. Swanson described it as a program that organizes learning opportunities for extension workers to enhance their abilities and improve their performance at the workplace (Swanson.1990). Samurai, defines it as "All the levels and types of training, which the individuals participate in as an extension worker starting after completing Induction training and will continue as long as working in agricultural extension sectors" (Samurai, 1990) This type of training should be based on existing problems and benefiting the trainees. Tnobi, reported that the in-service training is determined based on the full professional responsibility in the career center being occupied by the workers with a view to high energy indicative extension and broaden understanding of the agricultural extension philosophy, methods and to deal with farmers (Tnobi, 1998). Basically, In-service training is a problem-centered, learner-oriented, and time-bound series of activities which provide an opportunity to develop a sense of purpose,

broaden perception of the clientele, and increase capacity to gain knowledge and mastery of techniques (Halim & Ali 1998).

In general, this training is carried out for the agricultural extension workers that have direct contact with their work place local environment to make them aware of agricultural and social sciences regarding the principles, philosophy, objectives, policies and regulations of the agricultural extension. In addition to that, the training strengthens their ability to apply their gained knowledge and skills practically on the field to educate the individuals and teach them how to diagnose problems, find solutions, make a plan and evaluate their extension programs.

Training programs in the practice of extension profession aim at achieving the following (Al-Tnobi 1996):

1. Closing the educational and academic gaps in agricultural fields, as much as possible.

2. Keeping the agents updated with knowledge through keeping them contacted with new agricultural scientific researches and technological development.

3. Diagnosing the problems that might extension work and find solutions to them.

In order to ensure the success of the in-service training process, the following points should be taken into consideration (Al-liyla 1987):

1. Number of trainees and their levels and training needs.

2. Personal characteristics of for trainers, their preparation and their training abilities.
3. The budget: funding is an important factor which is necessary to implement the training programs and achieve its desired goals.

4. Time: Dedicated times is required throughout the year for the preparing and implementing of the training programs.

5. Training venues: Training places have a great impact on the size of the training activities and the number of trainees.

6. Curriculum and training programs: The training programs should fulfill the training needs scientifically.

7. Training means: allocating specific amount of budget is allocated for the training means that facilitating for the trainee to use more than one sense during his/her training, and more excitement.

(Abdul-Ghafar, 1976) added that it is necessary to train the extension workers in the following areas:

1. Agricultural extension objectives and philosophies.

2. Knowledge about the specialized agricultural science and techniques.

3. Understanding agricultural research as a source of the new knowledge.

4. Educational extension performance in order to supervise educational extension and elevating efficiency in delivering experiences and educational attitudes.

5. Discovering and training local leaders, as well as, organizing team works to achieve high efficiency in meeting farmers' needs.

6. Awareness of position, profession and responsibility in the extension organization.

7. Managing and training of employees starting from the specialized extension agent through supervising the assistants.

8. Data Analysis and reporting the results

In-service training is categorized into five different types: (i) Induction or orientation training, (ii) foundation training, (iii) on-the-job training, (iv) refresher training, and (v) career development training. All of these types of training are needed for a proper development of the extension staff throughout their service life at the workplace (M.G. Olujide 2016). (Bohlander & Sherman, 2001) stated that in-service training takes multiple forms, which should be based on specific criteria for achieving results and consistent with the general plan for the preparation of extension workers as following:

1. Annual staff conference : This type is held annually for all levels of the workers in the agricultural extension service, where some of these conferences continue for a period of one week at work, Usually it sits in the area where the University gives the opportunity to benefit from university professors as speakers. The program consists of four parts; the first part contains discussion of administrative issues and questions related to agricultural extension policy. The second part is to motivate the workers to participate in the agricultural extension programs. The third part of the program is related to the agricultural extension activities, improvements to the new roads, discussion of the topics that help workers to understand and motivate the rural population. In addition to that to review the results of recent studies and researches in the field of rural community development that helps attracting farmers to

participate in the local extension program. The fourth part of the conference program includes training in modern rural development.

2. Local area training courses: These courses are offered for agricultural extension workers at the local level for a period of time ranging from half a day to one week, where specialized specialist issues are used for application, for example, the government veterinarian explains the required system, "What is done?", "Why it is completed?", "How it is accomplished?", and "What is the educational role?" is being done by the local extension agent.

3. Short courses: These courses are offered for a period of one to two weeks in the educational institutions in all agricultural vocational schools, agricultural institutes, agricultural colleges or extension training centers. These courses focus intensively on one topic or on the most important topics in the field of agricultural extension. The specialists from the research station present the results of the studies of the various topics related to a specific field, thus providing suggestions on how the field supervisor uses the information from the short curriculum Specific field.

4. Refresher courses: The duration of these courses varies from four to six weeks for covering the main and secondary topics. The training course includes the main technical subjects such as field crops, horticulture, pest and insect resistance, household economics, and the main extension topics such as extension methods and extension program planning. The extension agents are selected in these courses at the regional level, which are practical experienced components in the field, and they have the skill in human relations, they have capability intelligent to learn new ideas and have the ability to adopt leadership position and supervision responsibilities.

5. Training courses : agricultural extension device organize and prepare training courses during the practice of agricultural extension profession , according to the needs of its new employees and graduates in the agriculture field who have gained little experience in studying methodological courses of agricultural extension methods, and after a short period of time ranging from two weeks to four weeks of training, At the beginning of practicing the guiding profession to deal mainly with the organization and effectiveness of the extension services and how they are expected to serve as extension assistants during the six months or the year. This type of training provides the basis and principles of the extension methods being used in the rural areas where they have started their jobs.

6. Workshops: a meeting at which a group of people engage in intensive discussion and activity on a particular subject or project (www.languages.oup.com), where workshops are commonly held as a means to introduce individuals or groups to specific concepts or skill sets, in this type of training participant can bring their own professional problem that they wish to solve them at the work with the help of the participants, workshop members need to be from highly qualified extension workers. (www.quora.com)

7. Field trips: The field trip is one of the practical methods of presenting the results of the successful extension projects. The results can be clearly seen through the practical applications recommended. It is considered a useful educational tool for the training of the agricultural extension workers while practicing in the professional training program.

8. Seminars: The seminar is organized by a specific group of agricultural extension workers in an appropriate place to discuss one of the important topics in the extension program. The extension agents are divided into groups of 10-15 agricultural counselors. Each agricultural instructor can take his or her role in the training and without being absent from their extension positions for the period of time. The seminar is led by qualified persons in various aspects of the subject studied by the extension agents through their reading of the desk. After giving a picture of the subjects to be discussed, each member of the group will be assigned for one or more than one topics to prepare it, and a report will be submitted to the group at a designated time.

9. Foreign participant training: Many developed countries offer and fund the training programs to cover the shortage of facilities in under developed countries in order to provide training for extension workers. Besides offering scholarships and bilateral programs of technical assistance for the training of a limited number of the extension workers, which it is expensive, therefore, the workers have to give up their duties to join these training courses at one time. Examples of agencies that provide such training are food and Agriculture Organization of the United Nations Organization, and Center for international training and Extension at the University of (Wageningen) in the Netherlands programs, as U T Agricultural Extension and Rural Development Center of the University of Reading in the United Kingdom where they four training courses annually.

10. Fortnight Training: (Both Swanson, 1990) and Omar1992) said that the Fortnight Training Courses are the main tool for continuously upgrading the professional and technical skills of the agricultural extension workers who visit the farmers. This method is

characterized by a combination of training and visitation model. This type of training gives opportunity to the extension agents to the actual application of new skills and knowledge in teaching and training farmers over two weeks. This integration of the training and extension work provides the agricultural extension agents and strong motivation to learn through these training courses.

2.1.10.5. High academic training:

This type of training, prepares the agricultural agents to obtain the degree of high Diploma or Master or Doctorate in agricultural extension. This kind of education and training is offered in agricultural colleges in the universities (Mohammed 2009). This type of specialized training is very specific in preparing expert extension officers who specialized in a particular subject and it is confined to research on a specific problem using scientific methods and finding its causes and at the end proposing appropriate solutions (Abdulgafar 1976). The program of graduate studies for both Master and PhD degrees in agricultural extension includes the extension curricula related to the agricultural extension; in addition to that it prepares the research related for one of the field agricultural extension problems (Al-Tnobi 1996). (Radi, 2003) emphasizes that the performance of the extension workers after servicing and for a period of time in the field of the extension work and who show high efficiency in their work and feel that they need to have more education and specialization in academic training, either to improve the efficiency of their performance or to be qualified for a promotion to perform future work and new responsibilities, or to be experts In the field of extension work.

2.1.11. Characteristics of successful extension training programs:

Success of the training activity must be planned, systematically and continuously, aiming to change the behavior of individuals to achieve the objectives of the Agricultural Extension Organization, it is necessary for the training programs to have some characteristics.

(Hussein, 1984) explained the equation for a successful training and the factors affecting it as follows:

The actual study of the training needs + the correct training plan in the light of these needs + the selection of trained trainers scientifically and practically + selection of appropriate training methods + availability of demonstration tools and training aids + availability of equipment suitable for use during the training process + objective and final evaluation of the training + negative training = the highest limit of successful training.

2.1.12. Extension training planning:

The major failures and mistakes that occur in the training courses are the result of conducting the training session without thinking and expecting the framework of the training process. Planning comes as an attempt to avoid these problems and to facilitate the tasks of training staff and trainers (Alsamrai, 1978).

Al-Hiti (2005) said that the basic successful planning of the training process stages of the program includes:

1. Planning of Training Process: Emphasis on the identification of training needs at three levels (individual, job, organization).

2. Organization and follow-up training program: This stage includes the following activities:

a. Determine the objectives of the training program.

b. Determine the course topic.

c. Identify training methods.

d. Determine the appropriate time to implement the training program.

e. Select an appropriate place for implementation the training program.

3. Evaluation of training efforts: This stage focuses on the achievement of the program objectives.

(Al-Samarai, 2002) explains three chronicle and integrated parts in a framework these parts impact one another for the training process (Figure 1.2).

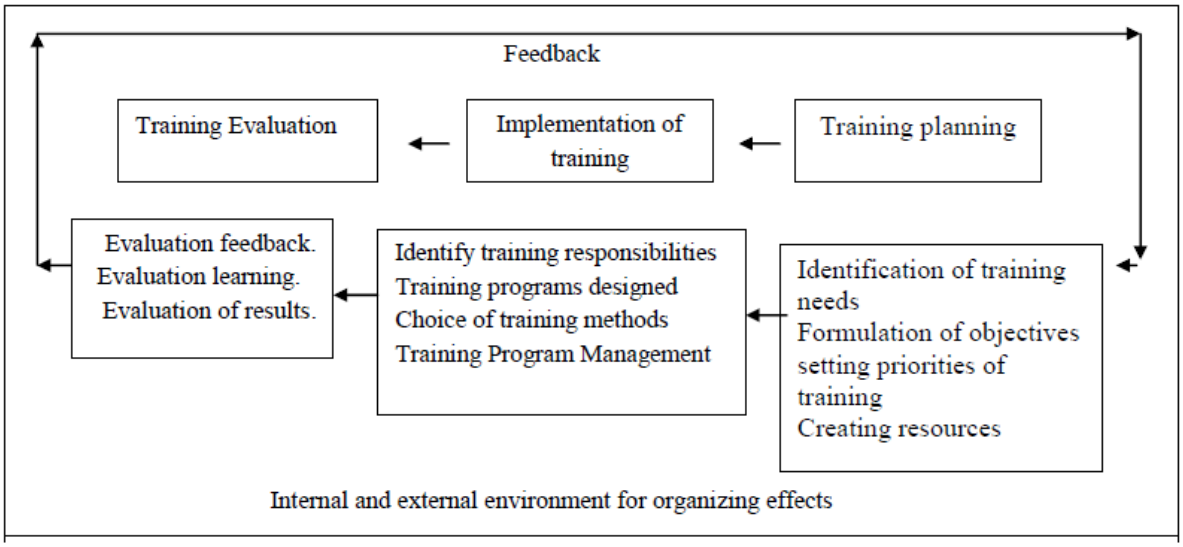

Figure (2.1): Model Al-Samarrai for the training process (Al-samarrai, 2002)

But for the training system he explains three axes that are integrated to form the clear picture to understand the concept of this system (Figure 2.2).

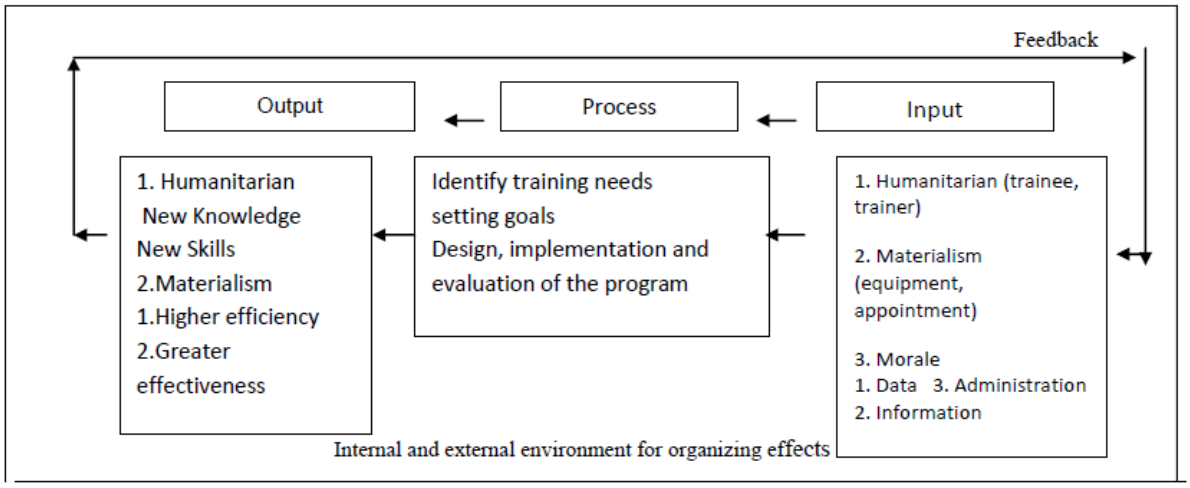

Figure (2.2) Model Al-Samarrai for the training system (Al-samarrai, 2002)

(Issawi, 1996) illustrated there are several means that lead to the success of effective training programs. Those means are:

1. Goals and purposes clarity and easiness to achieve.

2. Success of the training depends on the availability of the tools, equipment and apparatus required for the training program.

3. Success of the training program depends on the availability of expertise trainers with technical, psychological and educational experiences for transfer the information to the trainees.

4. Success the training program depends heavily on the personality of the worker to be trained and the suitability of the training subjects.

(Abdul-Ghaffar, 1975) mentions that the agricultural extension training program should be advantageous with these characteristics:-

1. Climate: Good training requires an acceptable climate for the trainee.
2. Continuity: Effective training requires continued work permanently until its objective is being achieved.
3. Practical operation: Good training requires the appropriate opportunity for practice under actual and field supervision.
4. Follow-up: Good training requires having permanent strengthening of the review to suit the changing circumstances.
5. Balance between elements: Good training in different structures requires a proper balance between theoretical and practical aspects.
6. Trainers: Good training requires familiar trainers with the level of current or prospective trainees, and the subject to be trained, and have the ability to perform their role in this field.
7. Scientific Research: The training programs should be planned and implemented in according to the organized scientific method, in terms of training areas, number of trainees and preparation of the programs.
8. Reward: Training benefit and objectives will not be achieved unless the trainees feel that the training will provide them a noticeable benefit.
9. Evaluation: A good training program should be evaluated, and should reveal the amount of change, deficiencies and negativities to be avoided them.
10. Group training and team: This type of training is better than the individual training, the experience of two or more teams suitable for the consolidation and integration of ideas.
11. Introducing the principles of working with people: Principles both community development and agricultural extension.

2.2. The Efficiency of Training:

2.2.1. Preface: In the fields of technology innovation, economic development, business management, and public policy planning, economic, social, educational or training, as well as in everyday life, efficiency is a pivotal criterion that guides the behavior of both individuals and institutions (Dictionary.com, 2018). The term "efficiency" is used as a standard for evaluation of programs in various fields. On this basis, an efficiency evaluation can be conducted for any stage of the training program in the preparation phase of the program before executing. In this case, the efficiency reflects a phased evaluation. But if the efficiency is being evaluated on the stages of the program after execution, the efficiency here is one of the program's effectiveness indicators, where a final evaluation is conducted immediately after the program is completed to assess the validity of the different aspects of the training activity with realistic conditions of the work (Radi, 2003).Therefore, it is important to discuss the concept of efficiency in general, and the efficiency of training in particular, the relationship between the efficiency and effectiveness, and the importance and objectives of measuring the efficiency of the training.

2.2.2. The efficiency concept:

There are several definitions of efficiency in its widest scope, the most common usages that define the efficiency as a ratio of results to the resources. Alternatively, it is define of ends to means or outputs to inputs. An activity, process, design, or system is said to reach maximum efficiency if (1) a desired result (output) is obtained through the use of the minimal possible amount of resources (input), (2) the maximal amount of results from a given resource is obtained, or in general (dictionary.com, 2018). Efficiency indicates how well an organization uses its resources to produce goods and services. Thus, it focuses on resources (inputs), goods and services (outputs), and the rate (productivity) at which inputs is used to produce or deliver the outputs. To fully understand the meaning of "efficiency", it is necessary to understand the following terms: inputs, outputs (including quantity and quality), productivity, and level of service illustrated in (Figure 2.3) (Oag-bvg.gc.ca, 2018).

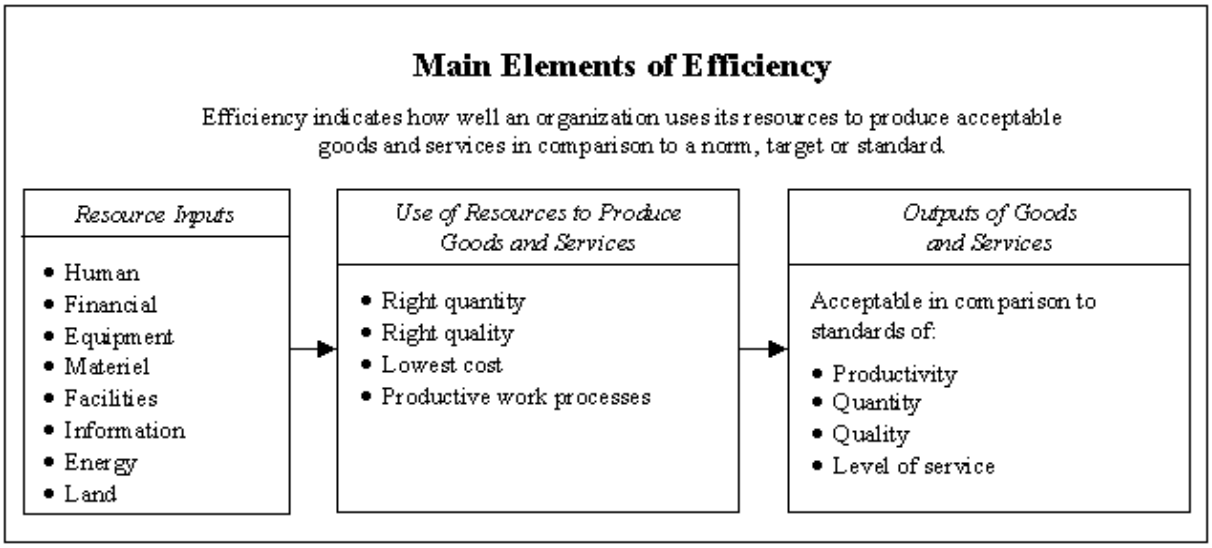

Figure (2.3) main elements of efficiency (Oag-bvg.gc.ca, 2018)

Efficiency is the case or quality of being efficient, or able to accomplish something with the least of time and effort waste; competency in performing or accomplishing for having the ability to accomplish a job with a minimum expenditure of time and effort (Dictionary.com, 2018). In Dictionary for administrative terms efficiency means the status where the individual can perform his duties or status where the individual is able to achieve the desired results (Ali 1984). As (Houston & Housem, 1982) stressed that the efficiency is possessing of required information and capabilities. (Abdul-Ghaffar, 1976) sees efficiency as a technical ability to perform the job successfully, or organization's ability to represent the attitude of their employees and get them to the abundance of their production.

(Griffin, 1996) mentioned that efficient is the judicious use of resources in a Cost-effective way, and effective is the completion of the right decisions and successful implementation of them. Figure (2.4) shows that management in organizations depends on administrative activities such as Planning, Organizing, Leading and Controlling, and through the managers who take these responsibility in bring together all of the human resources, financial, physical, and information efficiently and effectively and working towards achieving the objectives of the organization.

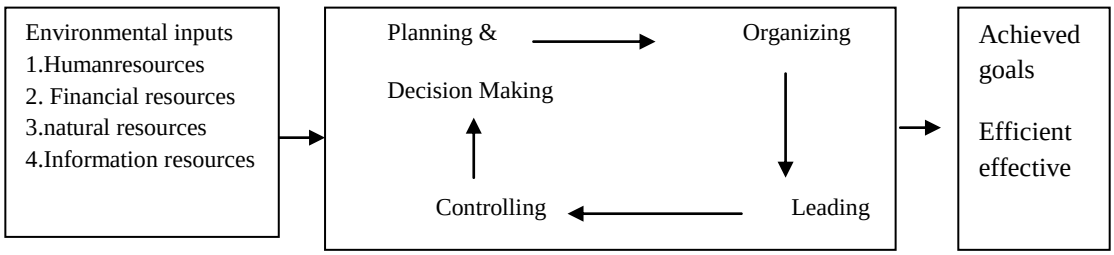

Figure (2.4) Administrative activities in organizations and their relation to resources and final objectives (Griffin, 1996)

(Daft, 2000) outlines efficiency as an amount of resources that achieve the goal of the organization, which depends on the amount of raw materials, funds and individuals required to produce a certain volume of output, and calculate efficiency through the amount of resources used to produce a good or service. Efficiency is the best use of available resources. (Shahib & Raghib, 1992). (Tawfiq, 1994) emphasizes on efficiency as the method of measuring goals achievement and whether achieving goals has been achieved with minimal costs, time and effort. (Radi, 2003) declares that efficiency in its inherent form and in the context of the preparation of the extension agent is a capacity that includes the full range of skills, knowledge, concepts and attitudes required by the agent's work to perform the ideal performance, and how is being formulated in the form of goals describing the behavior, thus determining the performance demands that should Performed by the Agricultural Agent.

2.2.3. Definition of training efficiency:

According to **(**Badawi, 1989) Training efficiency is a result being obtained by participants in programs or training courses, which indicates the proportion of appropriate costs and achievement to the level of education and methods used. United Nations considered the efficiency of training as one of the methods that reflects the general purpose of the training. (Rossi & et al, 1979) defined the efficiency of the training program as the achievement of goals and their relationship with realistic program costs, and it is measured by the style of cost - effectiveness analysis. (Ghaith , 1983) noted efficiency is one of the effectiveness indicators of the training program that helps in judging to the program, and determining the level success or failure in achieving its objectives, and it is measured by comparing results of the program to other programs in terms of financial costs, human and temporal and public persuasion, Accordingly efficiency is the ratio between effort and performance divided on the cost (cost-effectiveness ratio). (Abu Saud, 1987) stated that efficiency is a comparison of the extent or amount of the results achieved by the end of the training program value to the

amount being invested in the possibilities and costs. (Swanson 1984; Raab et al, 1991) agreed that the efficiency of the training is the degree of experience gained by the trainees from the exercise of training activity with significant gains, measured by comparing the output of the activity cost in terms of human resources, and financial efforts. (Tawfiq, 1994) mentioned that efficiency of the training process means the cost and the return calculations for the management of this process. This is a standard that is determined by the acceptable performance by the trainee must achieve in his performance. This standard sets the minimum level of performance requirements for the job or profession. (Xarat, 1996) said the efficiency of the training is a continuous methodological evaluation of agricultural extension training programs and activities. This evaluation is a phase-out which aims to identify and remedy deficiencies during training activities as a final evaluation aimed at determining the value of the successful activity in its final form.

2.2.4. The difference between efficiency and effectiveness:

(Nyarko, 2014) describes efficiency and effectiveness as inter-related management tools. Companies' main target is profitability, actual achieved employees' work efficiency and effectiveness should be adhered to ensure profitability. Working with pace, creating space and being organized are important elements help remaining abreast to the current trend of the organizations' work demand, the following figure (2.5) illustrates this.

Figure (2.5): concept of efficiency and Effectiveness (Nyarko, 2013)

Schermerhorn (1984) declares that efficiency and effectiveness are two components of productivity, and they are fundamentally criterion for measuring the organization's ability to achieve its objectives by converting the input to the output required at the lowest cost, as show in the figure (2.6) below.

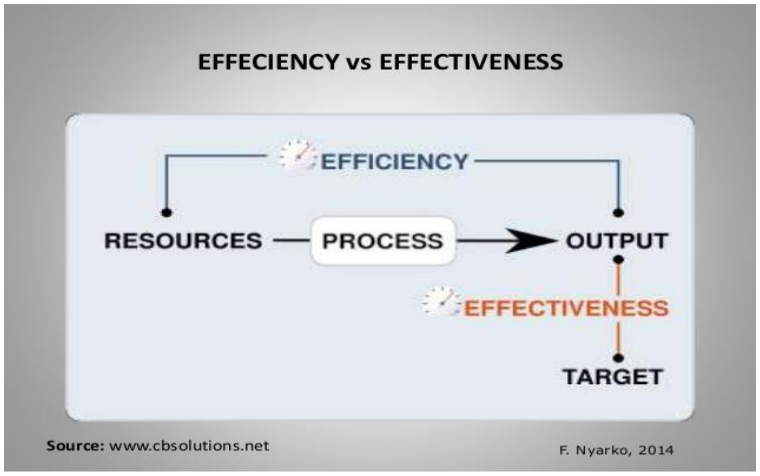

Figure (2.6): Difference between efficiency and Effectiveness (Nyarko, 2014)

Thus, productivity includes two aspects: achieving the goal, which is called effectiveness; and good use of resources, which is called efficiency. The following figure (2.7) shows that relationship.

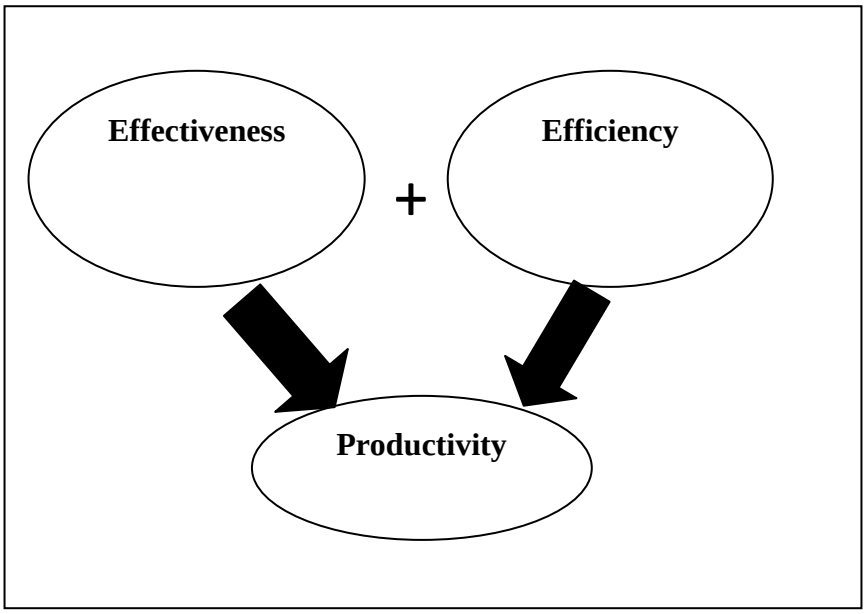

Figure (2.7): Productivity components (Schermerhorn 1984)

Megginson et al (1983); Certo (1997); and Shermerhorn (2001) agreed on that the evaluation of any training program is based on two criteria: effectiveness and efficiency, and that there are several possibilities for achieving them together, and the best one when it is achieved with a high degree in terms of their ability to achieve the goals of a program and its ability to proficiently utilize the resources to its maximum possible degree, the following figure (2.8) illustrates the relationship between efficiency and effectiveness

.

Figure (2.8): The possibility of achieving efficiency and effectiveness together (Certo, 1997)

2.3. Evaluation of training programs:

Evaluation is an integral part of the training process. Evaluation of training programs is a continuous and systematic process for assessing the value of this program and making the appropriate decision to determine the success of the program. Evaluation is also used to develop future training programs. The effectiveness and efficiency of the training program depends on the extent to which the program affects the trainees and increases their knowledge and experience (Muraris 2004). Evaluation of training programs is one of the most difficult stages of the training process because the training officials and experts in the organization are obliged to develop the skills and performance of the employees by providing those training opportunities, and they are required to prove the benefits of training through evidence, statistics and numbers (Bn-Aishi 2012).

2.3.1. Definition of Training Evaluation:

Kirk Patrick defines the training evaluation as "a process aimed at measuring the effectiveness and efficiency of the training plan and the extent to which it achieves the goals and highlights the strengths and weaknesses" (Nasrallah 2002). Herberd defined it as "procedures used to measure the efficiency of the training program and its success to achieving the objectives, and measuring the efficiency of trainees and the extent of the changes in the training, as well as measuring the efficiency of trainers who carried out the work of training" (Salim, 2002).

It is necessary to distinguish between the terms of follow-up and evaluation. Follow-up is a process aiming at monitoring the implementation of the plan to ensure that it follows the prescribed method and the time set for completion of its stages and the budget prescribed for it to achieve its objectives (Muharram 1970).

2.3.2. Training Evaluation Objectives:

Evaluation of the training process has a several objectives (Hanan 1983; Taani 2002; Shawish; Hassanein 2005) as following:

1. To identify the gaps that occurred during the implementation of the training programs in terms of preparation, planning and implementation.
2. To determine how well trainers are performing throughout the training.
3. To see the extent to which the training plan has been achieved and its objectives.
4. To measure the validity of the training program and the training methods in meeting the training needs.
5. To estimate the efficiency of the trainees and the benefit gained from training.
6. To report strengths and weaknesses of the training programs.
7. To identify the direct and indirect benefits to their institutions.
8. To determine the continuity or discontinuation of the training programs.
9. To verify the relationship between effectiveness of the program and its cost.
10. To improve the evaluation procedures and tools.

2.3.3. Objectives of measuring the Training Efficiency:

Training must have goals and results to justify the efforts, funds and possibilities that have been spent on it; therefore, it is important to follow-up and evaluate the efficiency of that a

training. (Abdul-Wahhab, 1976) noticed that the main purpose of evaluating the efficiency of training is to recognize the success of the training program into providing the trainees with the skills, abilities and knowledge that we want to equip them, as well as to what extent the trainees have retained these skills, abilities and knowledge after the completion of the training program.

(Salma, 1985) also observed that by measuring the efficiency of the training that can conclude the following:

1. Determine whether the methods and procedures and following the training have actually led to achieving the required change in the behavior of the trainees.

2. Determine whether the results of the training have a clear impact on the ability of the project or the program to achieve its objectives.

(Maher, 2001) reported that we can differentiate between three objectives to evaluate the efficiency of the training by knowing the following:

1. Level of achievement of the Organization objectives: Any organization seeking to achieve its goals from training programs, it may be to promote organizational or productive indicators or to resolving problems facing it the organization. Therefore, the focus of the evaluation process is on whether the training has improved and increased the productivity indicators, or that problems are facing the Organization have been addressed after training.

2. Degree and gain new learning experience: The goal of training may be to acquire new behavior in individuals in their work. In this case, the process of evaluating training focuses on the ability to display individuals working on what they have learned from the skills of efficiency or acquire new behavior.

3. Reactions of the participants or trainees: it is very important to take the opinion of the trainees or their reaction to the training program into consideration, in addition to the opinion of the trainers or program's supervisors.

2.3.4. Stages of measuring the efficiency of training:

Training programs are monitored and evaluated in order to measure their efficiency or suitability to meet the training needs of the trainees who are represented by the main axis of the training process. The evaluation is carried out in four stages: Evaluation the training

program before execution, and during execution, immediately after execution and termination (Follow-up) (Radi 2003). The following figure (2.9) illustrates the different stages of the evaluation of the training program.

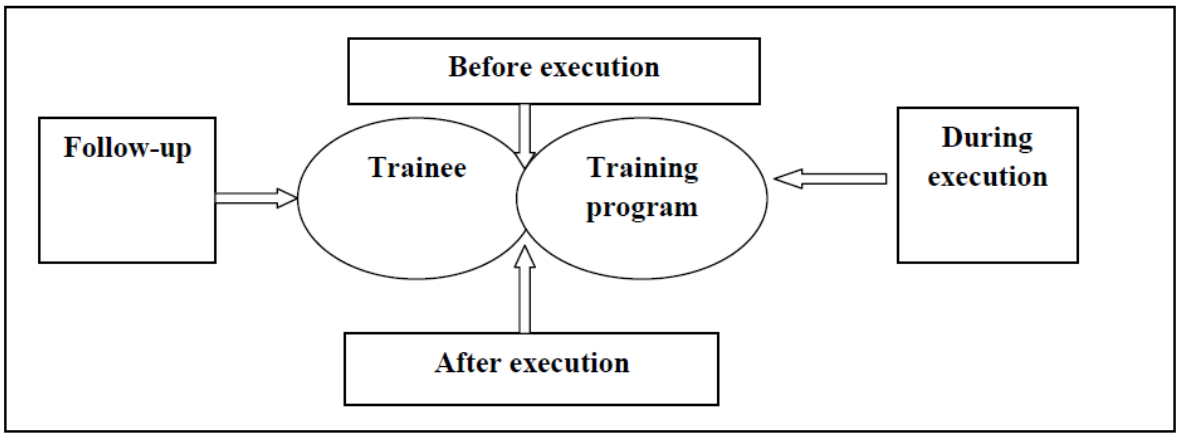

Figure (2.9): Different stages of evaluation of the training program (Abdul-Jalil 1994)

While the following describes the analysis of each of these stages and their relation to the elements that are evaluated for their efficiency in the training programs and trainees involved:

2.3.4.1. The first stage: Evaluating the efficiency of training programs before execution:

This type of evaluation deals with the identification and use of the facts, information and opinions related to physical and human elements and examined so it can be appropriate training methods that can be chosen from the available ranges of the training methods. This phase aims to identify the deficiencies in the knowledge, skills and attitudes to be developed and evaluated or modified, and all these things are done when identifying the training needs, in addition to, identifing the training objectives this phase requires, designing the appropriate training program and details of its subjects and selecting the appropriate place for training and the method followed in the training (Yagi 1986). This stage is preparation the training plan and the design of the training programs in order to satisfy the training needs. Besides it can follow up and evaluate the efficiency (Main subjects, sub-subjects, specialized hours, type of training, training methods, logical sequence of the subjects, audiovisual aids, the point view of the trainees, and their expectations and desires, administrative arrangements, selection of candidates (Bashat 1978).

2.3.4.2. The second stage: Evaluating the efficiency of training programs during execution:

This phase deals with evaluation of training efficiency during execution in terms of the training program, design, organizes, continuation the training process and results that have been achieved by the program goals (Radi 2003). The aim of evaluation the training program during execution is to ensure that the conduct of the training program as planned and promote aspects and avoid entirely positive and negative aspects modify the path towards achieving planned goals (Bashat ,1978) and (Abbasi, 2019) explained that this stage aims to evaluate each step of the training during execution to make sure that the training process is proceeding according to the planned program which was prepared in the previous stage, and at this stage the efficiency of the following is evaluated:

1. Extent of completion of the management readiness to execution the training program, in terms of providing a comfort environment for the trainees and provide the requirements for audio and visual illustration and physical facilities such as ventilation, lighting, temperature and noise prevention.
2. Extent of obligation to the scientific and practical materials that related with the subject of training and extent of the interest of the trainers.
3. Extent obligation with the time allocated for each training topic and appropriateness of the time being allocated to the subject elements.
4. Careful to take into observance the sequence of program topics.
5. Extent Successful training methods are used to attract the attention of trainees, and extent of their interaction with them, and did these methods achieved the goal of the program?
6. Were the demonstrative training provided from audio and visual aids and the references that have been used adequately, and whether the modern and relevant used in the proper scientific manner?
7. Are the trainers having the necessary level in terms of their ability to achieve the training message by transferring its information, knowledge, expertise and skills to the trainees?
8. Are all the subjects covered in the training program?
9. The extent to which the training program benefited from the total training hours.

At this stage of the evaluation, the interaction of several elements is identified to convey the training effect and the training objectives. These elements (trainer, training content, training

objectives, equipment and tools, training devices), All must be an objective correlation between them is based on the systems theory; furthermore, any imbalance of one of these elements will affect for the other elements (Al-abassi, 2019). Evaluation during execution includes both the trainees and training program according its objectives, design, conduct training process and the results achieved. With regard for the objectives training program it is to make sure the conducted as planned goals, and that the efforts of trainers are directed towards these goals, also that the goals are clear to the trainers and trainees, as well that the trainers have used appropriate training methods to achieve the specific goals of each training session. The evaluation of the training program according to a designed organization, are noted the suitability of design subjects of the program, and whether the topics are consistent with the goals and training needs, extend suitable time and place, and the extent and an appointment of the training courses . In addition to that, the actions ensure that the trainees' regular programs are the right selected people, and that the trainers are also suitable in conveying the training message. With regard to the conduct of the training process, the purpose of the assessment is to identify the extent of the success of several aspects the training, including the sequence of the subjects of the training and the integration of its contents. Besides, it identifies the comprehensiveness and contains information and practical experience which are necessary for the trainees and its relation to the needs of the trainees. In addition to that identify the commitment of trainers to these subjects, and the diversity of the methods used in the presentation, and the regularity of the trainers and their eagerness to attend the training courses, as for the evaluation of the results being achieved by the program, includes the information, concepts and trends that the program was able to provide the trainees or change or develop or modify (Alabassi, 2019).

There are several methods that can be used to evaluate the efficiency of the elements of implementation of the training activity (yagy 1986, abudy 1997, Al-zayadi 1999):

1. Conduct oral and written tests for the trainees 'information by the training officer to evaluate the trainees' information and practical experience at periodic intervals during the implementation of the training program.
2. Surveying the trainees' views using questionnaire forms and models to be answered after each day or every training session to assess the trainee benefited from the training process and to record their observations and suggestions on the course of the training session, subject, and presentation and training tools.

3. Recording the trainers' accurate observation about the trainees' concerns of the subject and willingness to discuss and accepting the opinions of their colleagues, and the trainers point of views.

4. The actual observation of director or coordinator of the training program in the training courses, or a sample of them and recording their observations on the interaction of the trainer and the trainees in terms of the extent of interest of the trainers in the subject and the presentation and the extent of use of training methods, make sure to understanding of the attendees and raise the interest of the trainees in the subject and their questions and their discussion.

5. Conduct regular meetings between training specialists and trainers during the implementation of the training program in order to review the course of the training and its content and the quality of teaching and training methods and to identify their opinions and suggestions and their interaction with trainees.

6. Presentation theoretical or practical research by the trainees in some topics related to the training program, where research is considered one of the successful means to evaluate the training program efficiency because it is characterized by several specifications including: leave freedom for trainee to choose search or topic that are genuinely interested in, do not feel the trainee while writing search or topic allergies that you may feel in all other tests, It is a way to reveal the trainees' abilities, along with their knowledge and experience.

7. Self-evaluation method through distribution questionnaire form, containing a set of questions, for each question there are possibilities or answers and ask the trainees, to choose the probability that applies, and every probability of a certain degree and the trainee collects scores obtained by and through which the trainee can to evaluate himself.

8. Practical application of the training programs theoretical foundations covered by the method is asking the trainees to present some practical examples of the work in which it operates perimeter, is considered a good way to see how the trainee is able to link the theoretical to practical side.

9. Attendance ratio during the implementation of the training program is evidence of the increased interest in training by the trainees and their sense of the need.

2.3.4.3. Third stage: Evaluating the effectiveness of the training program after execution directly:

Niqash (2009) mentions the objectives of the evaluation of training after Execution:

1. Detecting the mistakes in the design of the training program.

2. To reach the fundamental amendments in the scientific material for training and practical applications.
3. Develop and modify training methods.
4. Detecting deficiencies in the means of demonstration.
5. Modification of timings for the training program.
6. Upgrading the administrative aspects of the program.
7. Modification and development of the system tests and basis of trainees' evaluation.
8. To determine the adequacy of scientific references necessary for trainees to prepare their research.
9. Any development or modification contributes in increasing the efficiency and effectiveness of the training program.

Evaluation of the training program after execution includes:

1. Level which achieved by the trainees in understanding the subjects of the program in general.
2. Performance level of the trainers' point of views, and their reactions to the program.
3. Performance level of the supervisors of the training program.
4. Measuring the extent of learning gained by the trainees through the program.
5. Measuring the effectiveness of training and impact that the program left on the trainees' behavior.
6. Measure the income on the investment in this program. (Al-Huri, no date).

The objective of this evaluation is to ensure that the objectives of the training program are achieved through the use of an appropriate measurement tools. It also aims at understanding the practical application of trainees from the training program as well as the knowledge, skills and attitudes they have already acquired (al-abbassi 2019)

(Radi, 2003) says this type of evaluation means measuring the results of the training or training outcomes, by defining objectives, standards and methods to measure these results in order to measure the effectiveness of the training. As the educational, behavioral and organizational objectives of the training program are an attempt to develop the behavior of the trainees, the evaluation of the effectiveness of the training program after execution in general means to recognize the extent to which the trainees' behavior have changed in terms of the degree and direction desired.

(Salama, 1970) divided the criteria by which to evaluate the effectiveness of training and its success into two types: -:

1. Non-Behavioral standards: Based on trainee knowledge about the subject of the training which includes the types of activity carried out during the training such as regularity in attendance, contribute in discussions, fulfilling the required duties of reports and research and applications.
2. Behavioral standards: Related to the actual performance of the trainee in his work after the training, and the extent of the change that has occurred, and is the trainee's career after training changed or not changed as they were? These standards are more important than non-behavioral standards.

Yaghi 1986 believes that measuring the effectiveness of training seeks to achieve the following objectives:

1. To identify the extent of what has been accomplished from the training plan
2. To identify the extent of success in applying the principles and training outlining in the training programs that have being implemented.
3. To statement of strengths and weaknesses in the training programs.
4. To identify the direct and indirect benefits that accrues to the devices and institutions as a result of their participation in the training programs.
5. To identify the extent to which the trainees contribute to the application of the experiences they have learned and the skills they have acquired in their realization.
6. To identify the changes that occurred in the behavior and habits of the trainees after completing their training and measuring their reaction towards training programs.
7. To identify the obstacles facing the implementation of the training programs and work to reduce them in order to ensure the achievement of its objectives in the future.

There are four levels or logical steps to evaluate the effectiveness of the training program by assessing the extent of the changes in the objectives of the training program after execution generality:

1. The reaction level: The reactions of the trainees, Identify their feelings about the training program, Trainer, program content, quality of training, and training methods, meaning are the participants rejoiced in the training program? (Al-abbassi, 2019). (Al-Naqash , 2009) indicates that the reactions are done through collect the data about trainees feeling for program after the program or during the training process and this level of evaluation is not sufficient to indicate the efficiency and effectiveness of the training program. The reaction of the trainees towards the training is usually positive and satisfactory with the program, subjects and trainers (Abdul-wahab, 1981).

There are several methods can be used to measure the reaction of trainees towards the training program, including:

1. Interview with trainees.
2. Accurate observation of trainees during training by trainers.
3. Design a questionnaire to get as much as information as possible, this method is better than other methods. (Al-Abbassi quotes Yaghi 2014)

2. The learning level: It means the degree of trainees benefit from the training program by increasing their knowledge, skills, attitudes, experiences, and modifies work trends and the possibility of taking advantage of these aspects in the daily life, or the application in practice facts? Did the trainees learn from the program? (Radi, 2003).

3. The job behavior level: There is the difference between a person's theoretical acquisition of information and its application in practice, the measurement of information indicates the type and amount of knowledge gained by the trainee through the training program, but this measurement does not determine the extent to which the trainee practices this knowledge. Evaluations the trainee's behavior after training is a difficult task, to be measured by the trainee's behavior before and after training in comparing the both cases. The study of the trainees' behavior after the training program becomes more meaningful when compared with the behavior of another group that did not receive the training. Therefore, the difference can be credited to the training which was obtained by the first group (AlAbassi 2019). Job behavior level means the degree of the trainee's knowledge being used, skills, experiences and attitudes in the practical application. And this means degree of the performance for the job in the field which the trainee is being trained for if there was a change in participants' behavior on the bases of which they were trained for it. The job behavior is the impact of the training being transferred to implementation? (Radi 2003).

4. The results level: Evaluation of this level aims to identify the impact of the training on the performance of the trainees at the actual work sites in the organizations in which they work. It also means the impact of the training on the organization in terms of: Has the training left the expected impact on the Organization's activities as planned? Radi 2003. (Peter 1986) believes evaluating the effectiveness of the training program immediately after completion means having immediate training results and includes changes in each of the three training aspects: knowledge, skills, and attitudes that can be evaluated immediately after the training program.

2.3.4.4.Fourth stage: Evaluating of the effectiveness of training program after a certain period of execution:

Sometimes it called follow-up training results, and it may be appropriate after a certain period of (six months or a year, for example) to re-evaluate the trainee's behavior and performance in his/her work. Comparing the results of evaluation that obtained after accomplished the training program directly to identify the degree of persistence the impact of training over time, (Al-Abbassi, 2014). (Abdel Wahab 2000) suggested that we should recognize the impact of the training program on the behavior of the trainees in their jobs, The trainee may learn new information, but probability their behavior in the job does not change, indisputable that the measure of behavior change is much more difficult to measure the information collected by the trainee in the training program, Therefore, the training authorities must take into consideration when measuring the behavior of the trainee after the training program that collects information about his performance before the starting of the training program and after.

Both (Al-zayadi, 1999) and (Dixon, 1990) mentioned that It is preferable to measure the performance of the trainee after a period of time after the training program is over by one to two years in following the trainees after returning to their work in order to know the extent to which the objectives of the training program are achieved.

The most appropriate ways to follow the results of training after the end of the program are:

1. Contact with the trainees and their supervisors after a period of the completion the training program completion to verify (through a questionnaire) some things such as: the type of work performed by the trainee and whether it corresponds to the training he received, and the extent of progress achieved after training as well as behavioral changes to the behavior.
2. Invite trainees to visit the training center and discuss the impact of training on them.
3. The trainers or other specialists in the training center should visit the trainees at their workplace either by personal interview or by actual observation.

(Nichols, 2000) notes that most of the training is carried out in specialized training centers to meet the cognitive and technical needs of trainees appearing in the workplace. The following figure (2.10) illustrates the relationship between training and the workplace.

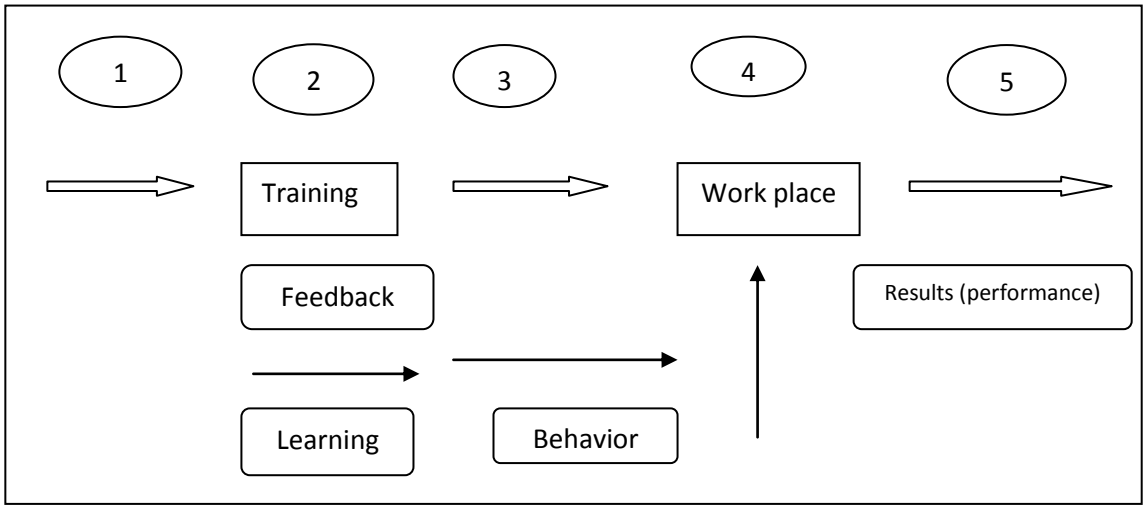

Figure (2.10): relationship between training and work place (Nichols, 2000)

Evaluating individuals' performance during the work within organization after completion the training program period of one to two years is an important indicator to measure the effectiveness and success of the training on workplace in front of the organization management. In order to complete the full effectiveness of the training program, it is necessary to measure the efficiency of the training program output through some quantitative and qualitative indicators in an attempt to assess the benefits achieved by the trainees after completion the program and their return to work and attempt to apply their training. (Radi, 2003). Salma confirmed despite the difficulty of measuring the output of the training program in the field of Humanities, but it can identify concrete results related to the different aspects of the individual work performance ,and can estimate the efficiency of those results by relying on certain indicators such as observing the quality of the work performance, increasing productivity, mobility, promotion, low cost ratio, low turnover and absenteeism, drop-outs, high morale, job satisfaction, increased cooperation and coordination, Responsibility, and etc.(Salma, 1985)

2.3.5. Methods and tools of evaluating training:

The first step of evaluating training process determines the elements or structures of training that need evaluation. Then select means and tools which are used in the evaluation process. Considered selected tools and means of the evaluation by the evaluator is the most important station. There are some criteria and considerations that affect to the decision of the evaluator to choose the tools (Hassanen, 2005):

First: Criteria which relates to trainees:

1. Number of the trainees.

2. Cultural level of the trainees.

3. Tardiness's age.

4. Genders.

5. Provenance.

6. Attitudes, habits and traditions.

7. Experience level

8. Academic achievement.

9. Training needs of the trainees.

10. Functional level.

11. Trainees language.

Second: Criteria which relates to evaluator.

1. Position and scientific specialization.

2. Gender

3. Age

4. Attitudes

5. Level of scientific experience

6. Subjectivity motivation level and incentives.

7. Extent of performance to select the evaluation method.

8. Previous experience and evaluation tools.

Third: Criteria which relates to the training program.

1. The goals that the program seeks to achieve.

2. Duration of the training program.

3. Training content.

4. The number of daily hours the program needs.

5. Evaluation systems.

6. Results of previous evaluation of the training program.

7. Methodology and entrance are used of training.

8. Degree of Privacy and confidentiality.

9. Methods and tools which are used.

Fourth: Criteria which relates to training management:

1. Availability of the administrative and financial facilities and incentives.

2. Training program costs.

3. Availability of the training means.

4. Availability of provisional experiences.

5. Policy and philosophy of training administration.

6. Follow-up the evaluation system

Fifth: Criteria which relates to financier:

1. General and special Financier conditions
2. Amount of funding.
3. The type of information required for the financier

In order to evaluate results based on scientific and objective basis, the evaluation methods and tools should have the following characteristics (tanobi 1996):

1. Validity: Means that the evaluation tool measures the thing to be measured.

2. Objectivity: No influence evaluation results by differently evaluators.

3. Being practical: Means the ability to apply the tool and interpret, analyze its results by the evaluator.

4. Simplicity: clarity and specificity

5. Reliability: means ability of the tool to give the same results if reused under the same conditions.

2.3.6. Approaches of evaluating the training effectiveness:

There are several methods and approaches for evaluating the efficiency of training based on the criteria which are used in the evaluation process. (Abdul-Wahab, 1976), (Salma , 1985), (Tawfiq,1994) and (Abdul-wahab, 2000) all agreed that there are many ways to measure the efficiency of training, including objective and subjective methods, direct and indirect, intermediate, general and specific methods.

1.Objective and subjective methods: Objective methods reflect on the individual's behavior and depend on specific quantitative measures and indicators such as specific production quantity, specific quality level, and specific time of production, performance rate, and cost and return index, but the subjective methods reflect the views, attitudes and beliefs of the trainees, presidents and supervisor's faith.

2.Direct and indirect methods: direct method is used to measure the effect of training without intervention of other external factors, and depends on the measurement of the individual work or result of this work, sense efficiency training for the individual. While indirect methods are related to measuring the impact of training in case of intervention of other factors, it is an attempt to evaluate the performance of the individual work through its influence of others works.

3. Intermediate methods: The use of this method requires the criteria available in the short time periods of the project time because in most cases we cannot estimate the value of the final contribution of the individual in achieving the objectives of the project, when it requires a long time.

4.General and specific methods: General methods are used to measure the behavior and performance of the individuals in general, while the specific methods measure the impact of training on a part of the performance.

2.3.7. Methods and tools which used in training evaluation:

1. Questionnaire: It is a form comprises a set of questions or phrases require an answer, divided into aspects where each one of them measures certain objective (Al-abbasi 2019)

2. Attitude survey: One type of a poll to collect the trainees opinion in a certain position related to the subject of the training program, the most important thing that must considered in this survey is to make sure that the direction to be measured is determined precisely (Alhurri, nd).

3. Personal Interview: It is a meeting face to face between an evaluator and the trainees individually or in group have been surveyed (AL-Muaita 2008).

4. Observation: One of the most appropriate methods to evaluate trainers and trainees and circumstances surrounding of training process, and should be observed the following aspects (Al-Tanobi 1996).

a) Determine the behavior that will be observed.

b) The observable behavior should be measurable.

c) The data should be recorded during and after finishing the observation.

d) The process should be carried out by specialists, and then training the participants to do this work.

e) The ability of observation to explain the observed behavior.

5. Evaluating performance: Evaluates the performance of the trainee or the trainer through performance tests focusing on measuring the psychomotor skills (performance skills), by some special measuring tools that is called estimating lists and estimating scales (Alabbasi 2019).

6- Cognitive tests: It is used to measure the extent of the information and knowledge obtained by the trainees in a training program containing a set of questions related to the training content (Alabassi 2019).

SECOND PART

PREVIOUS STUDIES

1. Hoda Mohamed Mahir study (2008)

Educational Effects of an Extension Training Program on Training of Trainers of the Members of Farmer's Development Associations in Upper Egypt

The central purpose of this study was to identify the educational benefits of an extension training program in the field of training of trainers for the members of farmers and their families' development associations in Upper Egypt. Two approaches were used in this study. First, the learning measurement approach was used to identify the degree of educational benefits the trainers gained, in terms of knowledge and skills, from the offered training program which was revealed by 45 educational items. Second, the reaction measurement approach was used to identify each of the following: (1) Trainees opinions related to the important dimensions of reaction measurement process of the studied training program. (2) Trainees opinions related to the future improvement of the training program. (3) Trainees opinions related to their training needs. The data were collected from 64 trainees participated in the studied program represent development associations in Upper Egypt. Main statistical methods used for data analysis included: frequencies, percentages, means, and range by comparing the knowledge and skill educational items before training with the knowledge and skill educational items after training, it was clear that the studied training program was very effective in increasing the trainees' knowledge in the field of training of trainers when compared with trainees' skills in the field of training of trainers. The results of this study should be regarded as a basis for designing and implementing similar programs in the future.

2. Aamel Fadhel Khalil Al-Abbassi and Bassam Harth Aziz Al-Naqash study 2010

Evaluating occupational training in Nineveh center for agricultural extension and training from the trainee's point of view

Abstract

The main objectives of the present research are to evaluate occupational training in Nineveh center for agricultural extension and training from the trainees point of view in the following aspects: objectives of training course, selecting the trainees, training content, methods and training aids, requirements of implementation and training environment, trainers efficiency and training results, to identify differences in training results according to some personal and vocational characteristics of the trainees. The number of trainees was 89 which participated in nine occupational training courses held on Nineveh center for agricultural extension and training during1/march/2007upto 30/June/2008. The data were collected through questionnaire, included personal and vocational characteristics of trainees and 7 aspects for training evaluation. After collecting the data following statistical methods were used (means and percentage weight, Mann-Whittney test and Kurskal-Wallis test). The results showed that more than 80% of the trainee's evaluation of occupational training in Nineveh center for agricultural extension and training was medium to high, and the aspect of trainer's efficiency came in the first rank when arranged by the trainees with percentage weight 82.233%, while the aspect of methods and training aids came at last 72.066%. The results also showed no significant differences in training results according to: academic qualification, years of employment, pre-training in course subject, occupation ambition and desire to innovativeness, while difference was found in trainee's specialization in training course subject.

3. Jwad fadil dahsh study (2010)

Evaluation of training effectiveness in improving the level of agricultural services in Iraq and future requirements (Directorate of Agriculture in Baghdad governorate) case study applied for the period (2000 - 2010)

Activity Training for all workers in agricultural field is a strong pillar in achieving agricultural development by developing the capabilities of the employees and raising the level of performance of their work in general and improving the overall performance of their work. The research population included the staff working at the headquarters of the Directorate of Agriculture in Baghdad governorate and its branches (the agricultural divisions) which are located in Baghdad governorate. The sample of respondents include (40) trainees who constituted 17% of the employees participating in the training courses for the study period. The results show that (78%) of the trainees see that the duration of a month and more than is enough to cover the curriculum of the course, especially the technical courses, and that (40%) of the trainees emphasize that the period from (three weeks to a month or more than) between (good and very good). The research proved that the degree of correlation is relatively weak between the subject of both of academic achievement and job working. Also the results showed (30%) of the trainees were selected for the courses according to their desire, and (70%) of the trainees were nominated according to the need of the directorate of those courses. Through to review of the obstacles during the training period showed that 80% of the trainees opposed the work in the Directorate with the training, because of the lack of full time for the trainee to not replace them. Therefore, their full discharge leads to the accumulation of work. Intensive and brief information, while (68%) of the trainees to the difficulty of transportation and communications and high costs. The research included a number of proposals related to the development of training courses that will increase the efficiency of the work of the directorate in the future.

4. Salah J. Amin* Khattab A. Mohamad* Khattab J. Mohamad study (2010)

Evaluation of some training course elements for technicians and agricultural extension agents in Kirkuk center for agricultural extension and training from trainee's point of view.

The research aim was to evaluate some elements of training course for technicians and agricultural extension nests in Kirkuk center for extension and agricultural training for duration 5/4/9002 to 2/4/9002. The research consisted all of (99) trainees working in Kirkuk agriculture directorate. The data collected using questionnaire as a tool which consisted of two parts the first one specialized in personal characterizes, the second part contained four main elements: trainers, training content, training methods and aids and the general climate of the course. Each element consisted of ten statements appropriated for each element with five respondent levels (weak, mean, good, very good and excellent) given values (1, 9, 3, 4, 5) respectively. The mean and percentage weight were used in analyzing the data. The results showed that the majority of trainees were old and median in age and most of them participated in a few course majorities of them were plant protection and the main cause of participation in training course is acquisition of knowledge. The results also showed that the percentage weight for trainer's evaluation (39.436) training content (31.36) training methods and aids (51.56) general climate (356) and the mean of percentage weight for all the elements forgathered (30.256) with mean (3.05).

5. Mohamed, Y. A. H. study (2012)

Variables associated with benefits trainees Egyptian participants in the extension training program to prepare an agricultural specialist in farm irrigation which hold at the University of California – Davis

This research aims at determining the degree of trainees' benefit of training subjects and practical activities, which included in the training program. In addition, to identifying the views of trainees in some elements of the training program studied, namely: trainers, training content, methods and training aids, management training. The research population consists of all trainees who participated in the extension training program of Farm Irrigation Management which was carried out by the Council of Agricultural Research and

Development in collaboration with the University of California - Davis in 2009 and 2010 (60 trainees). Most important results are summarized as follows:

1- The degree of trainees' benefit of the training program tends generally to be high.

2- The highest degree of benefits was for topics related to training agricultural extension namely: extension aids and methods, presentation skills and irrigation.

3- The results showed that each of the following elements of the training program was high: coaches as well as methods and training aids.

4- There was a positive and significant relationship at 0.05 levels between the overall degree of trainees' benefit of training subjects and practical activities, and each of the following variables: the trainers, training content, and training management, while there was significant negative relationship at the level of 0.01 between the dependent studied variable and the age of respondent.

6. Aamel F. Al-Abbassi& Aabid A. Al-Douski& Zahraa M. Al-Busso (2013)

Evaluating training courses of agricultural extension workers in Duhok province and its Relation with some variables

The study aimed at determining the level of training form the trainees point of view in general, in each dimension of evaluation, and determining the differences in training level according to trainee's some characteristics. The population included all the agric. extension workers in Duhok who were participated in training courses held at the extension training center of Malta during 2008–2009. A random sample of trainees consisted of 85 out of 242 was selected and the data was collected through a questionnaire after testing its Validity and reliability, and then analyzed by using means, Mann–Whitney test, and kruskal–Wallis test. The results showed that the level of training level was high, and the dimension of trainers efficiency occupied the first rank order while the dimension of training methods and aids occupied the last rank order. Also the results revealed that there were no significant differences in the level of training according to educational qualification of the trainees, years of extension employment, previous training, vocational ambition, and the desire to change. The researchers recommend the necessity of using variant training methods and A. V. aids and conduct other studies to evaluate farmers training by using a variety of evaluation methods.

Key words: training evaluation.

7. Aamel Fadhel khalil. AL-Abbassi and Bassam Harith Azeez Al-Naqash study (2013).

Evaluating Trainers Efficiency According To Trainees Perceptions In Nineveh Center For Agricultural Extension & Training And Its Relation With Certain Trainers Personal And Vocational Characteristics

This study aimed to evaluate the efficiency of the trainers from the perspective of the trainees at the center of Nineveh extension and agricultural training and its relationship with some of the characteristics of personal trainers and functional. Then determine the variation in the level of efficiency of the trainers from the perspective of the trainees as a child according to their characteristics. The research community include of 22 trainers and 89 trainees participated in 9 training courses and functional for the period from 1/3/2007 until 30/6/2008. And collected the data by tow application questionnaire first included the characteristics of personal trainers and functional and the second private trainees included the area to evaluate the effectiveness of the trainers, and after the data were collected and analyzed using weight percentile and testing of Mann-Whitney test Kruskal–Wallis. The results showed that the item commitment to specific times when coaches came to them the first prize arithmetic average of 2.685 and a percentage of 89.50%. The item that was the last rank is trained to use appropriate aids arithmetic average of 2.685 and a percentage of 74.50%. Also the results showed the existence of differences in the efficiency of trainers according to the variables of the following: academic qualifications for trainers, length of service careers, the trend towards training, the degree of motivation achievement, the degree of ability to solve problems of field study also revealed the lack of variation in the efficiency of the coaches, according to the number of years of work training.

8. Sahab A .AL-Ajeeli and Firas Ibraheem Rhaim . Al-heby study (2013)

Evaluating Occupational Training In Sllahaldain Center For Agricultural Extension And Training From The Trainees Point Of View

Abstract

The main objectives of this study are to evaluate the functional training in Sallahaldain center for agricultural extension and training through the trainee point of view in the following fields (training objectives, selecting of the trainees, methods of training, training aids, training content, environmental of training, trainer's qualification and training results). Also to identify the differences of the training results according to the trainees point of view (as additional

factor) according to their functional and personal characteristics. This study has covered all the trainers and trainees whom participated in the training courses which achieved by Sallahuldain center for agricultural extension and training from 19/9/2011 to 5/9/2012. The numbers of trainers were 109. The data were collected through personal interview using application forms of question naira, while the second included the functional and personal characteristics of the trainees, and (g) fields for training evaluation, in addition to the participant of the research in the training courses. These criteria have been submitted to some experts to check the external and content validity, and after deleting, the reliability was measured by two methods which were. Split – half method then corrected by (Spearman – Brown) and (Alpha Crobach). Data were collected and statistically anal zed through the use of some statistical means as : percentage weight , Pearson's correlation coefficient , Spearman , Mann – Whitney test and Kurskal – Wallis test , and the field of efficiency came tending in the first rank with percentage weight (85.9 %) , while the field of trainees test came at the last rank with percentage weight (72.866 %) The result also showed no significant differences in the result of training according to (academic qualification – a pre-training course, the desire to innovativeness and motivations of training) . The result also showed significant differences in the result of training according to (sex, age, the specialization in the training course subject, -training course, and occupation ambition). In the light of such results, the researcher, and making use of trainers who are qualified and have enough time for training. It is also, the center administration of extension has to put accurate criteria included the specifications of selecting and domination of the trainees to participate in the training courses. According to their training needs specialization and the desire to be trained.

9. Aamel.F.AL-Abbassi and Ro'aa M.AL-Galabey, study (2014)

Evaluating vocational Training at the International Center for Agricultural Research in the Dry land Areas (Icarda) from the Trainees Viewpoint

The objectives of the research were to evaluate the vocational training which was held at ICARDA Center Aleppo-Syria for the period 2004 – 2010, from the trainee's point of view, then to determine the correlation between training evaluation and some characteristics of the trainees, and then to diagnose of the trainees, and then to diagnose the obstacles and suggestions. The search population consisted of 134 trainees from Nineveh governorate. The data with collected 80 trainees throw questionnaire consisted of three parts: the first parts included personal and vocational of formation will the second part consisted of 48 criteria to

evaluate the training while three parts included two open questions to recognize the obstacle this suggestions. The results showed (68.8%) of the trainees see that level training in ICARDA was medium, and the area of training content occupied the first rank in the training evaluation, while the trainers efficiency occupied the last rank. The results also showed a significant correlation between the evaluation of the training and the academic specialization and the previous training, while there was no significant correlation with age, qualification, type of work and job experience of the trainees. The results also showed some of the obstacles facing the training, then included results and some suggestions for its development.

10. Alunas Maxwell Mwamakimbula, (2014)

Assessment of the factors impacting agricultural extension training programs in Tanzania

Many studies conducted on extension have identified problems and the failure of various approaches that are meant to help farmers in agricultural advancement. This study was designed to obtain the ideas of the main clientele group in the extension sector and that is, of course, farmers. Farmers probably make up the largest Extension clientele group in many African countries. This study aimed to identify the perceptions that farmers have of extension services in Kilolo district, Tanzania. In addition, the study sought to identify farmers' preferences of the extension approaches used and to identify factors that motivated their participation in extension training. This study was based on input from 120 interviewed participants in the Kilolo district of Iringa region. Researcher developed interview schedule was used to collect the data. According to this study, most farmers are motivated to attend extension education training to learn new ways of doing things in order to improve production, and farmers prefer to learn by doing through demonstration. Despite the eagerness that farmers have for learning new ways of farming, most farmers are discouraged with the poor organization and coordination of extension training programs in their areas. Most farmers know the importance of extension services in improving their production, but they are not satisfied with the way these services are being implemented. The other factor that the study identified is the lack of a participatory approach among extension agents, which leads to the inability to meet farmers' needs. Additionally, the study found that poor support by the government for the extension sector also lowers the effectiveness of the extension agent. In most cases, extension agents live far from their assigned villages due to lack of housing.

There is also a lack of transport ix for extension agents, which seems to be another reason for not helping farmers in their workstations.

11. Mohamed, G. M. G. study (2016).

Analytical Study to Benefit Agricultural Agents from the Training Course on the Techniques of Managing and Utilizing the Natural Resources to Maximizing Saline land Production

The research was done to identify the degree of respondents' benefit for the training program contents, to recognize the degree of the feasibility of the studied training program, to determine the relationship between feasibility of the different aspects of the training program and the degree of benefit from the training program contents, to determine the relationship between some of the personal and professional characteristics of the respondents participated in the training course and the degree of benefit from the contents of the studied training program. Data were collected using a questionnaire form via interviewing the respondents – agricultural agents-after being exposed to the training program, the sample totaled 38 respondents, to present the results and data, the following statistical methods were used: Frequency table, the Percentage, the Arithmetic Mean, Person's Simple Step-Wise Multiple, Correlation and Regression. The most important results were as follows:1- Around 42.1 % of respondents considered the studied training program was highly feasible from all the sides, followed by 39.0 % was moderately feasible and 18.4 % was low feasible. 2- Around 63.15 % of respondents came under the category of high benefit, 23.7 % were of the average benefit category and the rest of the low benefit category. 3- There was a constant significant relationship at significance level of 0.01at significance level of 0.01 between the feasibility of different aspects of the training program and the following: the venue of training program, illustrations and aids used in the program, the program efficiency to resolve the agricultural problems, the scientific material, trainer evaluation, the total degree of the program feasibility and the degree of respondents' benefit from the training program contents, whereas the relationship was significant at level 0.05 in terms of the time and duration of the program. 4- There was a relationship between : the age and work satisfaction and the degree level of 0.01, whereas the relationship was significant at level of 0.05 in terms of the education qualification, membership in organization and the source of agricultural information and the degree of agricultural agents benefit from the program content meanwhile the values of the correlation coefficient were insignificant between the degree of respondents' benefit from the training program contents and their aspiration level. 5- The independent variables of

significant contribution in respondents' degree of benefit from the training program contents were: the total degree of program feasibility, the program efficiency to solve the agricultural problems, the scientific material and the performance of trainers, the all the variables contributed with 0.73 from the total variation of the subordinate variable.

12. Sakina, Mohammed Omer Mohammed study (2017)

Evaluation of some training courses in Agricultural Extension Department - general Directorate of Agriculture in Sulaimani governorate during the period of 1st January 2014 – 1st February 2015 from the trainee's point of views

The aim of this investigation was to determine the level of evaluation of some training courses in some disciplines, finding the relationship between the evaluation levels of the training courses as a consequence variables and some independent variable .The research involved 83 trainees with different specializations. They were participated in some training courses carried out in training unit of the Extension department of general Directorate in Sulaimani Agricultural during the period of 1st January 2014 ‐ 1st February 2015. The data was collected throughout personal interviews, using questioners forms prepared for this purpose. To confirm the reliability structure and the contents the form were reviewed by some experts .The validity coefficient of criteria was found by using half separation of Spearman brown equation. The results showed that evaluation level of the training courses respondents was medium tended to rising and the trainers' evaluation occupied the first rank, giving the interesting percent of(58.18%).While the training Evaluation aims occupied last rank, recording the interesting percent (53.18%). The results indicated a significant correlation between each of (academic achievements, participation in specialized training, period and the place of training courses), while non- significant correlation was found between each of the (age, candidate policy, and the number of training courses). The author is recommended to activate the training efforts adopted on the principle of Planning Implementation and good Evaluation. It also recommended the adoption of suitable and logical mechanism in selecting of the candidate to the training courses under the light of their needs and problems during the work, and urging the trainees' participation in drawing the objectives and training topics. The researcher also concerns about all employees, especially those of lower academic degrees, and attempt to organize practical training courses in the work sites or outside the office in the field instead of conventional theoretical courses.

13. Abid Ali Hasan Al-Doski study (2018)

Evaluating training courses of non-governorate organizations (NGOS) workers in Duhok province in 2014

The main objective of the study is to determine the level of training from the trainees' point of view in general and in each dimension of the evaluation then determining the differences in training level according to some characteristics of the trainees. The research population included all the Non-government organization (NGOs) staff in Duhok governorate that were participated in training courses Organized by Iraqi Kurdistan NGOs Office in 2014. A random sample of trainees consisted of 103 out of 240was selected and the data was collected through a questionnaire after testing its Validity and reliability. Percentages mean scores Mann–Whitney test, and kruskal–Wallis test were used in data analysis. The findings of the study indicate that the level of the training was high, and the dimensions of trainers' efficiency and training environment occupied the first rank order while the dimension of trainees' selection and training methods and aids occupied the last rank order. Also the findings indicated that there were no significant differences in the level of training according to trainees age, Sex, educational qualification, years of working, administrative occupation , previous training,. The researchers recommend the necessity of dedicating annual budget for NGOs building capacity, selecting trainees due to their needs and conducting other studies to evaluate training courses arranged in Erbil and Sulymania governorates.

Key words: evaluating training, non-governorate organizations. 2018

14. Asmaa Z.Y. AL – Hafidh study (2019): *Evaluation of The Training Course Carried Out by ICARDA in The Conservation Agriculture for Some Agricultural Employees in The Northern Region- Iraq*

The research aims to evaluate the level of training in general from the point view of the trainees representing some of the agricultural employees working in the northern region. To evaluate the level of training in each of the field of training : trainees' competence - the subject of conservation agriculture - training methods and aids - the environment of the implementation of training and in each criteria of each field criteria, and then finding the effect of all trainees' characteristics in the evaluation of training level, to determine the differences in the level of training and finding the effect of all trainees' characteristics, as well as identify the problems that facing trainees at the course, and the suggestions made by the trainees. The research included all the trainees in the ICARDA training course on the subject

of conservation agriculture, which is 25 trainees data were collected through a questionnaire after verifying its validity and reliability then analyzed by using the Regression, the Mann-Whiteny test, the Kruskall-Wallis test, the results showed that the level of training was high in general and that the field of competence of trainers came in first rank with a percentage of 56%, while the field of conservation agriculture ranked last with 89.5%,and the impact factor for the all trainees characters is 16% .The results showed no significant differences in the evaluation of training level according to the different characteristics of the trainees for each one, and the most important problems encountered by the trainees in the training course: the short period of reporting by the date of the beginning of the course, shortened the number of days of the course. The most important proposals of the trainees: the establishment of training courses in places where the technology is already applied focuses on the participatory approach used in the course and continued use it in the next courses.

Summary of previous studies:

After reviewing a number of previous studies in the same field of this research, there are a number of observation that have been employed and utilized in this research:

1. Benefiting from the previous studies in formulating the objectives of this study, as well as the research methodology, measurement and criteria that were used.
2. Study of some aspects and independent variables were not addressed by previous studies.
3. To compare some of the results obtained from this study with the previous studies results.
4. In general the previous studies followed descriptive approach to achieve the objectives of the studies, through a questionnaire form, the previous studies have addressed to determining relationships between evaluation of training courses and some independent variables, and some statistical methods were used.
5. This study examined a sample of farmers to evaluate training courses, which is slightly addressed in previous studies.
6. Address the problems of extension training, which are not addressed in the previous studies.

MATERIALS AND METHODS

3.1. Geographical Characteristics:

3.1.1. Location of the Research:

The research area is located in the Kurdistan Regional Government (KRG) in Iraq. The Republic of Iraq is in the South West of Asia it forms the Eastern frontier of the Arab countries. Lies between latitudes 29°5' N - 37°22' N and longitudes 38°45' E - 48°45' E; border with Turkey to the North, Iran to the East, Jordan, Syria to North East and the Kingdom of Saudi Arabia to the West and the Arab Gulf, Kuwait and the Kingdom of Saudi Arabia to the South. The total area of Iraq is 438,317.000 km2 (Omer, 2011).

The Kurdistan Region lies between latitudes 34°42' N - 37°22' N and longitudes 42°25' E, - 46°15' E. The area of the Kurdistan Region is 42,812.000 km2, and area ranks is (115^{th}) among the world's countries (Harun, 2014). The Kurdistan Regional Government (KRG) is located in the Northern part of the Federal Republic of Iraq; mainly lengthen across from Zagross Mountain in North up to the Taurus Mountains in Turkey (Harun et al., 2015). System of The government is federalism was established in July 1992, and the Kurdistan Regional Government administers the three governorates of Erbil (Hawler), Sulaimani and Duhok, with Garmian administrative, Erbil is the capital City of Kurdistan region, and recently proclaimed Halabja as its fourth governorate (Pring, 2015). At the beginning of February 2015 Halabja proclaimed as a fourth governorate of the Kurdistan Regional Government (KRG) (Kurdistan Parliament, 2015) (Legislation No.1). The official language is Kurdish. The official currency is the dinar, the internet code krd, and the telephone code +964.

Kurdistan's climate belongs to the north moderate zone, which is continental and semi-tropical. Rainwater pattern is influenced by the Mediterranean climate (FAO, 2003). In Kurdistan Region precipitation (rainfall and snow) as internal water is the most important renewable water resource (Harun, 2014). The Region is divided into three areas of assured rainfall area (over 500 mm); semi assured rainfall area (350-500 mm); and un-assured rainfall area (less than 350 mm) (MoP, 2012). The climate of Kurdistan Region is determined as a semi-dry area climate and characterized with large temperature differences between day and night and between winter and summer. In summer, the temperature reaches beyond 45º in daytime at the Southern boundaries of the two governorates; the hottest months are June, July

and August while the coldest months are December, January and February (Harun, 2014). The arable lands in the target region is around 6,425,752 donum, of which 5,120,036 donum are dry lands and 1.305,716 donum irrigated lands and the total area of forests land is about 5,057,152 donum . (KRSO).

It has a population of (6.033.814), (3.003.925) are males and (3.029.889) are females and approximately 18.59 percent of the total population live in rural areas. It comprises of four governorates (Duhok, Erbil and Sulaimani, Halabja), and Garmian administrative, (33) districts and (138) sub-districts. 40% of the total population is below 15 years, (www.krso.net), as it is clarified through the maps below:

Figure (3.1): The population of Kurdistan region at governorates, level 2019 (www.krso.net)

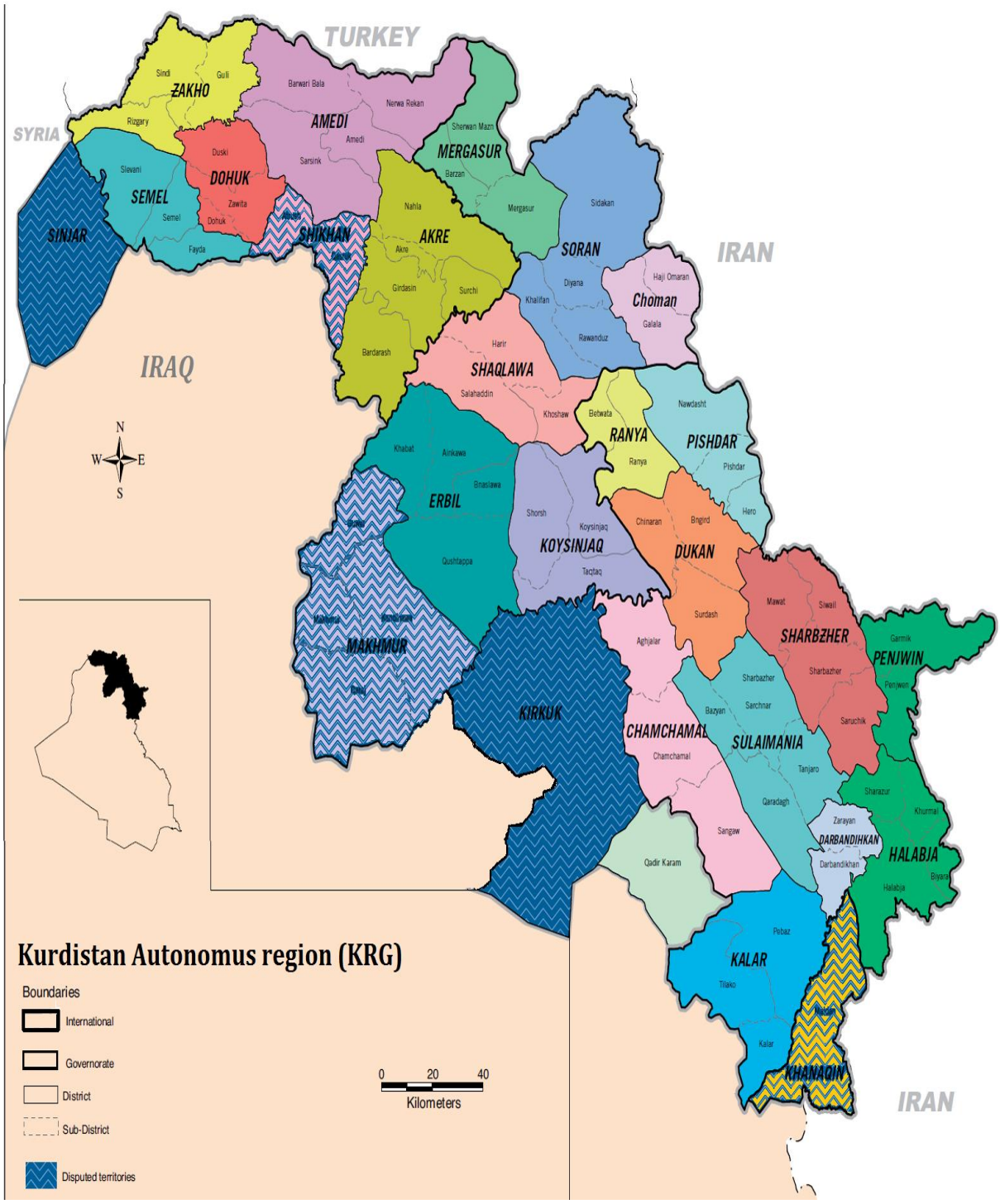

Figure (3.2) Districts of Kurdistan Region (www.krso.net)

3.2. Research Methodology

This research comes as the framework of the diagnostic research within the descriptive approach. This approach is based on a detailed description of the fact or phenomenon or specific topic in a qualitative or quantitative form, and it is interested in a situation in a specific time, as well as to the study of public correlation between different phenomena (Al-Abassi 2018).

3.3. Outlines of Research

3.3.1. Geographical Span:

This research conducted in all governorates of Kurdistan region-Iraq (Duhok, Erbil, Sulaimani, and Garmian administrative).

3.3.2. Human Span:

The research population included all the extension workers in the agricultural extension organization and the farmers who participated in the training courses during (2013 –2017) in the Kurdistan region of Iraq. They were (178)* extension workers who spread over (4) extension department and (46) agricultural extension centers, and (3030)* farmers. The sample of the farmers include (303) respondents representing 10% of the population, taken by a simple random sampling method, and for the extension workers sample include (148), is representing 83% of the study population after excluding (30) respondents covered by pre-test and the questionnaire reliability measure and disregarding some incomplete forms as shown in table (3. 1), (3.2) below.

* The information gets from the Ministry of Agricultural & water resource – general Directorate of Agricultural Extension, and all Extension Departments in governorates.

Table 3.1.The population and study sample of the extension workers

City	Population	Sample	Percentage
Duhok	35	30	20.27%
Erbil	49	40	27.03%
Sulaimani	82	70	47.29%
Garmian	12	8	5.41%
Total	178	148	100%

Table 3.2.The Population and study sample of the farmers

City	Population	Sample	Percentage
Duhok	618 Sosna	60	9.71%
	312 Bagirat	28	8.96%
Erbil	726 Qushtapa	76	10.46%
	516 Dashty Hawler	53	10.27%
Sulaimani	362 Sharbazher	34	9.39%
	371 Sharazor	39	10.51%
Garmian	56 Kalar	6	10.71%
	69 Khanaqeen	7	10.14%
Total	3030	303	10.02%

3.4. Research Questionnaire:

Numbers of sources were used to obtain the study data, such as (Ministry of Agriculture, General Directorate of Agricultural Extension and the Agricultural Extension Departments in all governorates of Kurdistan Region). The data collecting process was conducted through two basic stages: first stage is preparing and designing the questionnaire, and the second stage is pre-test and data collection.

3.4.1. Questionnaire Preparation stage:

The questionnaire was prepared as a tool to collect the data about the subject of the research and to make it appropriate for the research methodology. Questionnaire is considered as a convenient tool to get the information, data and facts; it gives more objective data than other data collection methods to achieve the objectives of the research (Malham, 2010). The questionnaire consists of three parts and was prepared as following:

First part: Included a number of questions related to the independent variables regard to the extension workers such as (age, gender, provenance, academic achievement, specialization, total service duration, extension service duration, location of the work, number of the training courses, duration of the training courses, extent of training benefits, attitude towards training, job satisfaction, problem solving ability), but the variables with regard to the farmers such as: (age, gender, residence, academic achievement, social status, attitude towards training, job satisfaction, problem solving ability).

Second part: Estimating of extension training effectiveness: This part included eight aspects for the estimation (training objectives, trainees selection methods, duration and timing of training, capabilities of the trainers, content of the training, methods and means of training, facilities and capabilities of training, training results), comprising of 81 items as follows (10, 10, 10, 14, 12, 9, 9 and 7), respectively for the extension workers, and 80 items as follows (10, 11, 8, 14, 12, 10, 8and 7), respectively for the farmers. These items were arranged and purified depending on the literature, and views of specialist perspectives in the training subjects and depend on the previous investigations on the entire subjects. To evaluate each aspect giving the total number of (81),(80) items number to estimate the training course. Five alternatives were assigned to each item as an indicator to determine the level of the achievement of the item. The alternatives of achievement levels (weak, fair, good, very good and excellent) were detected with the scores of 1, 2, 3, 4 and 5, respectively. The determination of training effectiveness levels was done by collecting the digital values of the evaluated items that determined to extension workers be 81- 405. While for the farmers three alternatives were assigned to each item as an indicator to determine the level of the items achievement. The alternatives of achievement levels (weak, fair, Good) were detected with the scores of 1, 2, 3, respectively. The determination of training evaluation level was done by collecting the scores of the evaluated items that determined to be 80- 240.

Third part: Identify the main problems of agricultural extension training: This part includes six aspects of problems (extension training basis, possibilities and equipment, areas and activities of the extension training, extension workers, planning and evaluation of training, training methods and technology transfer), comprising 74 items as follows (10, 14, 14, 14, 11, 11) respectively. These items were arranged and purified depending on the literatures, and views of specialist perspectives in the training subjects and depends on the previous investigations on the entire subjects .To evaluate each aspects giving the total scores of 74 items to estimate the extension training problems. Five alternatives were assigned to each item as an indicator to determine the level of the items achievement. The alternatives of achievement levels were (N/A, Little, Medium, Big, Huge) were detected with the scores of (0, 1, 2, 3, and 4) respectively. Training problems levels was done by collecting the scores of evaluated items that determined to be 0- 296.

3.5. Validity:

To achieve the face validity the questionnaire was delivered to a group of specialists in the fields of agricultural extension, psychology, measuring and evaluation. Depending on their views, the items were reformulated.

3.6. Questionnaire pre-test:

3.6.1. Reliability:

Refers to how dependably or consistently a test measures a characteristic. If a person takes the test again, will he or she get a similar test score or a much different score? A test that yields similar scores for a person who repeats the test is said to measure a characteristic reliably (https://hr-guide.com). Reliability was measured through the exploratory sample of 30 respondents from each sample during the period (13/8/2018 – 25/8/2018). Using (Cronbach's Alpha) method, this method gives the minimum value of the estimated coefficient of reliability (Al- Abassi, 2018). It appeared that the scale had a mean value above than 0.70 which is indicating the high reliability, as shown in the table (3.3).

Table 3.3. Reliability of the scales

S	Scale Type	Reliability Coefficient (Cronbach's Alpha)	Validity Coefficient
1.	Estimation of extension training aspects of extension workers	0.922	0.960
2.	Estimation of extension training aspects of farmers	0.812	0.901
3.	Extension training problems	0.927	0.962

3.7. First: Digital measurement of the independent variables:

1. Age: was measured according to the number of years.

2. Gender: was measured according to male and female by giving the digital codes of (1 and 2) for males and females.

3. Residence: was measured by giving the digital codes (1, 2, and 3) according to the current place staying of farmers (district, sub-district, and village).

4. Provenance: was measured by giving the digital codes (1 and 2) according to the longest period of extension workers' life (urban, rural).

5. Academic achievements: was measured by giving the grades (1, 2, 3, 4, 5 and 6) according to the degree level obtained by extension workers (, high school, diploma, bachelor, high diploma, MSc and Ph.D.), respectively, and codes (1, 2, 3, 4, 5, 6 and 7) were given according to the degree level obtained by farmers (illiterate, read and write, primary, intermediate, high school, diploma, and bachelor), respectively.

6. Social status: was measured by giving yes or no according to the number of participations in five social status (a member of farmers union association, government employee, a prominent in clan, chairman of the village council, a prominent member of a political organization)

7. Academic Specialization: was measured by giving the digital codes of (1 and 2) according to the academic specialization of the extension workers (agricultural extension and other departments).

8. Total service duration: was measured by the years, the respondents had spent in total service.

9. Extension Service duration: was measured by the years had spent in extension service.

10. The location of the work: was measured by giving the digital codes of (1, 2, 3, and 4) according to the location work (city, district, sub-district, and village).

11. Number of training courses: was measured by the number of training courses that participated by the trainee had participated during the period of 1st Jan 2013 – 1stDec 2017.

12. Duration of training courses: was measured by the number of training days participated by the trainee.

13. Place of training courses: was measured by giving the digital codes (1, 2 and 3) according to the execution place of training courses (Inside, Inside with Outside, Outside).

14. Training benefits: was measured by giving the digital values (0, 1, 2, 3) respectively, according to the total numbers were obtained (no, few, Some, A lot).

15. Attitude towards training): was measured through (12) items half of them were positive and the other half were negative. The alternative of attitude levels (agree, neutral, disagree) by giving the digital values (3, 2, 1) for positive and (1, 2, 3) for negative, respectively.

16. Job satisfaction: was measured through (12) items for the extension workers and (8) items for the farmers, half of them were positive and the other half were negative. The alternative of satisfaction levels (agree, neutral, disagree) by giving the digital values (3, 2, 1) for positive and (1, 2, 3) for negative, respectively.

17. Problem-solving ability: was measured through (12) items for the extension workers, and (10) items for the farmer, all items were positive. The alternative of problem solving ability levels (agree, neutral, disagree) and giving the digital values (3, 2, 1) respectively.

3.8. Second: Digital measurement of the dependent variable:

Estimation of extension training effectiveness: This part includes eight aspects for the estimation (training objectives, trainees selection methods, duration and timing of training, capabilities of the trainers, content of the training, methods and means of training, facilities and capabilities of training, training results), comprising of (81) items for the extension workers, and (80) items to the farmers as follows (10, 10, 10, 14, 12, 9, 9, 7), (10, 11, 8, 14, 12, 10, 8, 7), respectively. These items were arranged and purified depending on the literature, and views of specialist perspectives in the training subjects depend on the previous investigations on the entire subjects. To evaluate each aspect five alternatives were assigned to each item as an indicator to determine the level of the achievement of the items. The alternatives of achievement levels (weak, fair, good, very good, and excellent) were detected with the numbers of 1, 2, 3, 4 and 5, respectively. The determination of the training evaluation level was done by collecting the digital value of evaluation items that determined to be (81 – 405).To evaluate each aspect giving the total number of (80) items to estimate the training course. Therefore three alternatives were assigned to each item as an indicator to determine the level of the achievement of the items. The alternatives of achievement levels (weak, fair, Good) were detected with the numbers of (1, 2, and 3) respectively. The determination of the training evaluation level was done by collecting the digital value of evaluation items that determined to be (80- 240).

3.9. Third: Problems of extension training:

This part includes eight aspects of extension problems (training basics, capabilities and facilities, areas and activities, extension workers, planning and evaluation of training, methods and transfer of techniques) comprising (74) items as follows (10, 14, 14, 14, 11,

11), respectively. These items were arranged and purified depending on the literature, and views of specialist perspectives in the training subjects depending on the previous investigations on the entire subjects. To identify each aspect giving the total scores of 74 items to identify extension training problems, five alternatives were designed to each item as an indicator to determine the level of the achievement of the items. The alternatives of achievement levels (N/A, Little, medium, Big, Huge) were detected with the values of (0, 1, 2, 3, and 4) respectively. The determination of extension training problems level was done by collecting the digital value of problem items that determined to be (0 - 296).

3.10. Data collection:

After the data was collected during the period (Sept. 10th – Nov. 27th, 2018), the data were arranged and classified after analyzing with SPSS application.

3.11. Statistical analysis methods:

After completing the process of the data dump, classification, and tabulation, the nature of data distribution was examined for the dependent factors by using the Shapiro-Wilk and Kolmogorov-Smirnov test method through SPSS program, it was appeared through the test that the data distribution follows the normal distribution, so parametric statistical methods were used to analyze the search data.

The statistical methods which used for analyze the data were: frequency, percentage, weight arithmetic means, standard deviation, Cronbach's Alpha, t-test and F test, as follows (Al-Abbassi, 2018):-

1. Frequency (f).
2. Percentage (%).
3. Mean ($\overline{x}$): It is used to describe the numeric values of the variables under study

$\sum x_i$ = summation of numeric values $\qquad \overline{X} = \frac{\sum x_i}{n_i}$

n_i = number of observations

4. Weighted Arithmetic Average: It used to arranging and importance of estimating the of extension training effectiveness from the workers and the farmers' point of view, also used to arranging the scale of problems are facing extension training from the workers point of view.

$$Y = \frac{\sum wy}{\sum w}$$

Y= Weighted mean

W = number of respondents

Y = value of the mattress

5. Standard deviation (Std. Dev.): It is used to describe the deviation of the numeric values from the arithmetic mean of the variables:

$$s.d = \sqrt{\frac{\sum x_{i^2} - \frac{\left(\sum x_i\right)^2}{n}}{n-1}}$$

$\left(\sum x_i\right)^2$ = Square of summation of numeric values

$\sum x_{i^2}$ =summation of square of numeric values

n = number of observations

6. Cronbach's Alpha: It is generally used as a measure of internal consistency or reliability of a psychometric instrument

$$\infty = \frac{n}{n-1}\left[1 - \frac{\sum s_i^2}{s_x^2}\right]$$

∞ = Cronbach's Alpha.

n = the number measurement tool items'.

s_i^2 = variance of the (i) item.

s_x^2 = total variance degree of the measurement tool.

7. Validity coefficient: Use to find the validity of a psychometric instrument

r = validity coefficient

∞ = reliability $r = \sqrt{\infty}$

8. t-test (t): It is used to determine the significant difference between the means of two samples.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{sp\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$\bar{x}_1$= mean of the first sample.

$\bar{x}_2$ = mean of the second sample

S.d= Standard deviation of both samples

n_1 = numbers of observations of the first sample

n_2 = numbers of the observations second sample

9. Analysis of variance (F) test: It is used to compare the means of more than two samples.

$$F = \frac{MS_t}{MS_e}$$

MS_t = mean sum of squares due to treatment

MS_e = mean sum of squares due to error

10. Duncan test (MRT): Is a test to measure specific differences between pairs of means: (Viv & et al, 2004).

$$R_p = S_e r_p \sqrt{\frac{1}{n}}$$

R_P = Duncan's Range test

S_e = Standard Error

n = number of observations of each group

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1.Estimating the degree of extension training effectiveness from the trainees' point of views in general.

To determine the total estimate degree of the extension training effectiveness in general for the extension workers, the respondents were classified into three levels depending on the actual range described in (Table 4.1).

Table 4.1.Total estimate of extension training effectiveness of extension workers

Levels of total estimate	Frequency	Percentage	Mean of Total estimate
Low (118 - 195) degree	65	43.92%	169.00
Medium (196 - 273) degree	74	50.00%	224.78
High (274 - 351) degree	9	6.08%	293.33
Total	148	100%	

Minimum = 118, Maximum =351, Std. Dev. =40.96, Mean=204.453

It is appearing from (Table 4.1) that 93.92% of the extension workers indicated that the total estimate of the training effectiveness tend from medium to low. This result indicates to need review the comprehensive plan and the efforts that being devised by the entities that responsible for training employees at the agricultural extension in Kurdistan region during organizing of the training courses. This indicates that the training programs did not lead to produce a positive impact nor on the requirement level for all aspects of the training courses to a satisfactory standards.

To determine the total estimate degree of the extension training effectiveness for the farmers in general, the respondents were classified into three levels depending on the actual range as described in (Table 4.2).

Table 4.2.Total estimate of extension training effectiveness of farmers

Levels of total estimate	Frequency	Percentage	Mean of Total estimate
Low (139 – 172) degree	24	7.9%	159.54
Medium (173 – 206) degree	142	46.9%	194.25
High (207 – 240) degree	137	45.2%	220.39
Total	303	100%	

Minimum = 139, Maximum =240, Std. Dev. =20.35, Mean=203.33

It is appearing from (Table 4.2) that nearly (92%) of the trainees perceived the effectiveness of training as medium tends to high. This result indicates the proficiency of the comprehensive plan, and the extraordinary performance and the efforts being put forward by the Training Departments at the Agricultural Extension in Kurdistan region during organizing

of the training courses. The accumulated result indicated that the training programs led to a positive impact on the trainees and on the requirement level for all aspects of the training to a satisfactory standard**.**

4.2.Estimating the degree of extension training effectiveness from the trainees' point of views in each aspect.

To determine the estimate degree of the extension training effectiveness in each aspect of the Training for the extension workers, the aspects were arranged according to the level of their achievements. It is appeared that the "ability of trainers" was rated at the first rank with the importance percentage of 56.37%. This result referred to the scientific and practical ability of the trainers in delivering the target subjects as the majority are academic degrees holders at the university and they have experiences in training and teaching, while the "trainees' selection" was occupied the lowest ranking with a percentage of 43.18%. This result may be attributed to that the trainees were not satisfied with the mechanism of their candidacy for the courses, or there could be biasness by the officials and staff for some of the candidates, or there might be injustice in nominating the candidates for the training courses, as described in (Table 4.3).

Table 4.3.Arranging the extension training aspects according to their effectiveness percentage from the workers trainees' point of views

No.	Estimation of Extension Training Aspects	Minimum Value	Maximum Value	Mean Value	Std. Deviation	Standard Degree	Effectiveness Percentage	Rank
1	Ability of trainers	22	63	39.46	8.88	70	56.37%	1
2	Training results	10	33	18.93	4.11	35	54.08%	2
3	Facilities and possibilities	9	44	23.17	6.30	45	51.48%	3
4	Training content	16	53	30.68	7.34	60	51.13%	4
5	Training objectives	10	48	24.94	6.13	50	49.88%	5
6	Training methods and means	10	37	22.14	5.46	45	49.20%	6
7	Timing and duration	10	41	23.49	6.30	50	46.98%	7
8	Selection trainees method	10	40	21.59	6.38	50	43.18%	8

To determine the estimate degree of extension training effectiveness in each aspect for farmers, the training aspects were arranged according to the level of their achieving. It is appeared that the "result of training" and ability of trainers'" estimation were rated the first and second rank with an important percentage of (88.85%, 87.475%), respectively. This result referred since the farmers' estimation of the effectiveness of training aspects is positive in general. Surely, from farmers point of views the results of the training is the most important

consideration of the benefits that gained from the application of what they have learned. Ability of trainers occupied the second rank, is referred to the scientific and practical ability of trainers in deliver the target subject as the majority of the trainers was academics and has training and teaching rich experiences. While the trainees selection estimate was occupied the lowest ranking with an important percentage of 80%. This result may be attributed to that the trainees disappointment regarding the way they have been selected for the courses, or the officials and staff discrimination toward some candidates or lack of justification in nominating the candidates of the training courses as described in(Table 4. 4).

Table 4.4.Arranging extension training aspects according to their effectiveness percentage from the farmer trainees' point of views

No.	Training Aspects	Minimum Value	Maximum Value	Mean Value	Std. Deviation	Standard Degree	Effectiveness Percentage	Rank
8	Training results	7	21	18.66	2.74	21	88.85%	1
4	Ability of trainers	23	42	36.74	3.92	42	87.47%	2
2	Timing and duration	14	33	28.05	3.64	33	85.00%	3
6	Methods and means of training	15	30	25.44	3.43	10	84.80%	4
7	Facilities and possibilities	10	24	20.25	3.09	24	84.37%	5
5	Training content	19	36	30.34	3.69	36	84.27%	6
1	Training objectives	13	30	24.61	3.56	30	82.30%	7
3	Selection trainees methods	8	24	19.20	3.16	24	80.00%	8

4.3. Determining the differences in extension training effectiveness according to some characteristics:

4.3.1. Determining the differences in extension training effectiveness according to some characteristics of the extension workers trainees:

To determine the differences in extension training effectiveness (as a dependent variable) according to the different characteristics of the trainees (as independent variables), t-test and analysis of variance were used.

4.3.1.1. Age: The table (4.5) shows that the majority of the extension workers (% 70.9) are within the age range of (28-40), (41-53) years. This implies that the majority of the extension workers are young and middle age. F-test was used to find the differences in the total estimate of the training effectiveness. The calculated F-value (0.004) is less than the table value. This means that there is no significant difference in the effectiveness of the training according to the age. Meaning that the age is not affecting to estimate of training effectiveness level. This may be due to the majority of trainees look at training in the same way and they have same

point of view, regardless of their age. This result is consistent with the findings of (Amin *et al.*, 2010, Oreibi, 2011, Mohamed, 2012; Al-Abbassi and Al-Chalabi, 2014, Al-Abbassi*et al.*, 2013 and Sakina, 2017, Al-Doski 2018, Hafidh, 2019), as show in table (Table 4.5, 4.6).

Table 4.5.Distribution the extension workers trainees according to age

Categories/years	Frequency	Percentage	Mean of Total estimate
28 – 40	52	35.1%	204.09
41 – 53	53	35.8%	204.45
54 - 66	43	29.1%	204.88
Total	148	100%	

Minimum=28, Maximum=66 , Mean=46 , Std. Dev. =10.08

Table 4.6. Differences in training effectiveness according to age

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * age categories	Between Groups (Combined)	14.599	2	7.300	.004	.996
	Within Groups	246726.070	145	1701.559		
	Total	246740.669	147			

4.3.1.2. Gender: The results of table (4.7) shows that most of the trainees are male (77.7%). t-test was used to find the differences in the total estimate of the training effectiveness. Since the calculated t-test (0.476), is less than the table value, this mean that there is no significant difference in the effectiveness of the training according to the Gender variable. May the reason is that the majority of the respondents are male and that the both of male and female have the same opportunity to participation in the training courses. This result is consistent with the findings of (Abul-Ros et al., 2012, Al-Doski 2018), and inconsistent with the findings of (Al-Ajeeli and Al-heby 2013), (Table 4.7).

Table 4.7.Differences in training effectiveness according to gender

Categories	Frequency	Percentage	Mean of Total estimate	t-test
Male	115	77.7%	203.59	0.476 NS
Female	33	22.3%	207.45	
		148	100%	

4.3.1.3. Provenance: It is appeared from the results that most of the respondents are belong to the urban category. t- test was used to find the differences in the total estimate of the training effectiveness. The calculated t-test is (0.355), is less than the table value Table (4.8), this mean that there is no significant differences in the effectiveness of the training according

to the provenance variable. May the reason is that the majority of the respondents are belong to the urban category which led to the absence of differences in the effectiveness of training from their point of view.

Table 4.8.Differences in training effectiveness according to provenance

Categories	Frequency	Percentage	Mean of Total estimate	t-test
Urban	118	79.7%	203.84	0.355 NS
Rural	30	20.3%	206.83	
		148	100%	

4.3.1.4. Academic achievement: The results showed that the majority of the respondents trainees (47.3%) in the studied area are university graduates. This can be a good indicator to be used in promoting and upgrading the Agriculture Extension centers programs and activities. To find the differences in the total estimate of the training effectiveness, the analysis of variance (F) was used. As it is appeared in (Table 4.9), the calculated F-value (0.77) is less than the table value. This means that there is no significant difference in the effectiveness of the training according to the Academic achievements of the trainees. May be the reason is that the majority of the trainees are not specialized in agricultural extension. This result is consistent with the findings of (Dahish, 2010, Al-Abbassi and Al-Naqqash, 2010; Oreibi, 2011, Al-Abbassi*et al.*, 2013, Al-Ajeeli and Al-heby 2013, Al-Abbassi and Al-Chalabi, 2014, Al-Doski 2018, Hafidh, 2019) and inconsistent with the finding of (Al-Abbassi and Al-Naqqash, 2013,) (Table 4.9, 4.10).

Table 4.9. Distribution the extension worker trainees according to academic achievement

Categories	Frequency	Percentage	Mean of Total estimate
High school	33	22.3%	209.18
Diploma	25	16.9%	197.68
Bachelor	70	47.3%	202.32
High Diploma	15	10.1%	217.86
M.Sc.	5	3.4%	196.60
Total	148	100%	

Table 4.10.Differences in training effectiveness according to academic achievement

		Sum of Squares	df	Mean Square	F	Sig.
Total estimate * Academic achievement	Between Groups Combined)	5207.944	4	1301.986	0.771	0.546 NS
	Within Groups	241532.725	143	1689.040		
	Total	246740.669	147			

4.3.1.5. Specialization: The table (4.11) shows that the Majority of the respondents (79.7%) are not Agriculture Extension specialists which reflect the extent of their need to in-service training courses to acquire needed skills and information for implementing their tasks. T-test is used to find the differences in the total estimate of the training effectiveness. The calculated t-test (0.36), is less than the table value, This mean that there is no significant differences in the effectiveness of the training according to the trainees Specialization. May be the reason is that the Majority of the respondents (79.7%) are not Agriculture Extension specialists. This result is consistent with the findings of (Mohamed, 2012, Amin *et al.*, 2010, Hafidh, 2019), and inconsistent with the findings of (Al-Ajeeli and Al-heby 2013, Al-Abbassi and Al-Chalabi, 2014,) (Table 4.11).

Table 4.11.Differences in training effectiveness according to specialization

Categories	Frequency	Percentage	Mean of Total estimate	t-test
Extension	30	20.3%	206.86	0.36 NS
Others	118	79.7%	203.83	
Total	148	100%		

4.3.1.6. Total service duration: It is appeared from the results that the most of the respondents are within the second category of total service duration (13–21) years. Analysis of variance was used to find the differences in the effectiveness of the training. The calculated F-test (0.605) is less than the table value. This means that there is no significant difference in the effectiveness of the training according to the total Service duration of the trainees. May be the reason is that the Majority of the respondents (77.7%) are belong the low extension duration service (Table 4.14). This results confirm to (Al-Abbassi and Al-Naqqash, 2010; Oreibi, 2011, Al-Abbassi*et al.*, 2013, Al-Abbassi and Al-Chalabi, 2014, Al-Doski 2018, Hafidh, 2019), and inconsistent with the finding of (Al-Ajeeli and Al-heby 2013, Al-Abbassi and Al-Naqqash, 2013).

Table 4.12: Distribution of extension workers trainees according to total service duration

Categories/ years	Frequency	Percentage	Mean of Total estimate
4– 12	44	29.7%	210.36
13 – 21	60	40.5%	200.13
22 - 30	30	20.3%	205.53
31 - 39	14	9.5%	199.92
Total	148	100%	

Minimum=4, Maximum=39 , Mean=17.70, Std. Dev. =8.96

Table 4.13.Differences in training effectiveness according to total service duration

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * total service	Between Groups (Combined)	3073.159	3	1024.386	.605	.613
	Within Groups	243667.510	144	1692.135		
	Total	246740.669	147			

4.3.1.7. Extension service duration: Depending on the obtained results, most of the respondents are within the low category of the extension service duration (1–12) years. To find the differences in the total estimate of the training effectiveness, analysis of variance (F) was used. As shown in (Table 4.15), the calculated F-value (0.673) is less than the table value. This suggests that there is no significant difference in the effectiveness of the training according to the Extension Service duration of the trainees. May be this is because the majority of the respondents are belong to the low category of the previous training (1-3 course) as it is shown in Table (4.14). This result is consistent with the findings of many researchers (Al-Abbassi and Al-Naqqash, 2010; Oreibi, 2011, Al-Abbassi*et al*., 2013 and Al-Abbassi and Al-Chalabi, 2014, Al-Doski 2018, Hafidh, 2019), and inconsistent with the findings of (Al-Ajeeli and Al-heby 2013, Al-Abbassi and Al-Naqqash, 2013).Table (4.14, 4.15).

Table 4.14: Distribution of extension worker trainees according to extension service duration

Categories / years	Frequency	Percentage	Mean of Total estimate
1 - 12	115	77.7%	206.13
13 – 24	30	20.3%	197.03
25 - 36	3	2.0%	214.33
Total	148	100%	

Minimum=1, Maximum=36 , Mean=9.50 , Std. Dev. =5.98

Table 4.15.Differences in training effectiveness according to extension service duration

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * extension service duration	Between Groups Combined	2267.992	2	1133.996	.673	.512
	Within Groups	244472.677	145	1686.018		
	Total	246740.669	147			

4.3.1.8. Location of the work: Depending on the results obtained in this study, most of the respondents are working in sub-districts. To find the differences in the total estimate of the training effectiveness, analysis of variance (F) was used. It is clear from (Table 4.17), that the calculated F-value (4.78) is more than the table value. So there is a significant difference in

the effectiveness of the training according to the Location of The work. When the Duncan's coefficient was used the differences appeared between village category and other. This result is confirming that the respondents' location of the work relates to the total estimate of the Effectiveness of the training. This suggests that they working at the local level and they have direct contact with the farmers and opportunity to apply what they have learned in the training sessions. This result is consistent with the results found by (Al-Ajeeli, 2013).

Table 4.16: Distribution of extension workers trainees according to location the work

Categories	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Village	16	10.8%	235.25[a]	Sig **
Sub-district	57	38.5%	194.94 [b]	
District	47	31.8%	201.10 [b]	
City	28	18.9%	211.82 [b]	
Total	148	100%		

Table 4.17.Differences in training effectiveness according to location the work

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * location of extension work	Between Groups Combined	22372.252	3	7457.417	4.786	0.003
	Within Groups	224368.417	144	1558.114		
	Total	246740.669	147			

4.3.1.9. Number of training courses: The results indicated that most of the respondents were participated in the training category (1–3) courses. To determine the differences in the total estimate of training effectiveness, analysis of variance (F) was used. As it is appeared from (Table 4.19), that calculated F-value (4.80) is more than the table value. So the differences are significant in training effectiveness according to the number of training courses. When the Duncan's coefficient was used the differences appeared between the first category and other number of training. It is clear from this result that the number of training courses is important to come out with the good estimation to the effectiveness of training. It means that the number of training courses gave the best information and experience to compare the results and making decision about training program. This result is consistent with the findings of (Oreibi, 2011, Al-Abbassi and Al-Naqqash, 2013;, Al-Ajeeli, 2013, , Al-Abbassi and Al-Chalabi, 2014,,), and inconsistent with the findings of each (Amin *et al.*, 2010, Al-Abbassi and Al-Naqqash, 2010, Mohamed, 2012, Al-Abbassi*et al.*, 2013, Al-Ajeeli and Al-heby 2013, Al-Abbassi and Al-Chalabi, 2014, Sakina, 2017, Al-Doski 2018,Hafidh, 2019).(Table 4.18, 4.19).

Table 4.18: Distribution of extension workers trainees according to number of training courses

Number/training	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
1 – 3	92	62.2%	196.52 [b]	Sig **
4 – 6	38	25.7%	216.92 [a]	
7 - 9	18	12.2%	218.66 [a]	
Total	148	100%		

Minimum=1, Maximum=9 , Mean=3.32 , Std. Dev. =2.22

Table 4.19.Differences in training effectiveness according to number of training courses

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * number of training	Between Groups (Combined)	15330.949	2	7665.475	4.803	.010
	Within Groups	231409.720	145	1595.929		
	Total	246740.669	147			

4.3.1.10. Duration of the training courses: It is appeared from the results that most of the respondents had 3-21 days of training courses. Analysis of variance was used to find the differences in the total estimate of training effectiveness. Since the calculated F-test (6.29), is more than the table value, so the differences are significant in training effectiveness according to the duration of the training. When the Duncan's coefficient was used the differences appeared between third category and others of duration of the training. The best explanation for this relation is that those who participated in the longer periods of training courses were able to collect good adequate information on the courses subjects, as they were investigated all subject sides and they have a reasonable time for the practical and field works during the training courses. This result is consistent with the findings of each (Oreibi, 2011, Al-Abbassi and Al-Naqqash, 2010;; Al-Ajeeli, 2013; Al-Abbassi and Al-Chalabi, 2014 and Sakina, 2017,), and inconsistent with the finding of each (Al-Abbassi and Al-Naqqash, 2010, Amin *et al.*, 2010, Mohamed, 2012, Al-Abbassi *et al.*, 2013,Al-Ajeeli and Al-heby 2013, Al-Doski 2018, Hafidh, 2019).(Table 4.20, 4.21).

Table 4.20: Distribution of extension workers trainees according to duration of the training courses

duration of training/day	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
3 – 21	108	73%	198.13 [b]	Sig **
22 – 40	29	19.6%	214.37 [b]	
41 - 59	11	7.4%	238.54 [a]	
Total	148	100%		

Minimum=3, Maximum=59 , Mean=17.39 , Std. Dev. =13.99

Table 4.21.Differences in training effectiveness according to duration of the training courses

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * duration training courses	Between Groups (Combined)	19711.818	2	9855.909	6.295	.002
	Within Groups	227028.851	145	1565.716		
	Total	246740.669	147			

4.3.1.11. The Place of the training courses: The results showed that most of the trainees were participated in training courses inside the Kurdistan region. Analysis of variance was used to find the differences in total estimate of training effectiveness. Since the calculated F-test (3.38), is more than the table value, so the differences are significant in training effectiveness according to the place of training courses. When the Duncan's coefficient was used the differences appeared between inside-outside category and other. This result will affirm that the place of execution training courses has relation with the total estimate, and those who participated inside and outside may have received more information and experiences or a mix of these in Kurdistan region with abroad. (Table 4.22, 4.23).

Table 4.22: Distribution of extension workers trainees according to place of the training courses

placer/training	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Outside	12	8.1%	196.75[b]	Sig *
Inside	112	75.7%	201.11[a b]	
Inside and Outside	24	16.2%	223.87[a]	
total	148	100%		

Table 4.23.Differences in training effectiveness according to place of the training courses

			Sum of Squares	df	Mean Square	F	Sig.
total estimate * place of training courses	Between Groups	(Combined)	11012.303	2	5506.151	3.387	.037
	Within Groups		235728.366	145	1625.713		
	Total		246740.669	147			

4.3.1.12.Extent of training benefits: The results in (Table 24) show that most of the respondents were of the high category about extent of training benefits; analysis of variance was used to find the differences in total estimate of training effectiveness. Since the calculated F-test (4.46), is more than the table value, so the differences are significant in training

effectiveness according to the training benefits. When the Duncan's coefficient was used the differences appeared between third category and first category. This result explain who were benefited from training activities have given a good assessment of training programs, this result is consistent with the finding of (Mohamed, 2012), while inconsistent with the finding of (Radi,2003). (Table 4.24, 4.25).

Table 4.24: distribution of extension workers trainees according to extent of training benefits

Categories	Number	Percentage	Mean of Total estimate	Duncan's Coefficient
Rarely (1 – 10)	109	73.6%	199.05[b]	Sig *
Few (11 – 20)	35	23.6%	216.97[a b]	
A lot (21 – 30)	4	2.8%	242.00[a]	
Total	148	100%		

Minimum=1, Maximum=30 , Mean=7.68 , Std. Dev. =5.65

Table 4.25.Differences in training effectiveness according to extent of training benefits

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * benefits of training	Between Groups (Combined)	14300.028	2	7150.014	4.460	.013
	Within Groups	232440.641	145	1603.039		
	Total	246740.669	147			

4.3.1.13.Attitudes towards training: The results confirmed that most of the respondents have a high degree of positive attitude. To find the differences in the total estimate of training effectiveness, analysis of variance (F-test) was used. Since the calculated F-test (4.96) is more than the table value, so the differences are significant in training effectiveness according to attitude toward training. When the Duncan's coefficient was used the differences appeared between high degree category and others categories. This is might be refer to the reason that the respondents with positive attitude get use of training programs, and the training programs were related to these respondents, therefore they had a well estimation of the training courses, and this result is consistent with the findings of both (Alzaidi and et al 2001,Radi, 2003, Al-Abbassi and Al-Naqqash, 2013, Al-Ajeeli, 2013 and Oreibi, 2011).(Table 4.26, 4.27).

Table 4.26.Distribution of extension workers trainees according to attitude towards training

Attitude toward training level	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Negative (19 - 24)degree	12	8.1%	188.41[b]	Sig **
Neutral (25 - 30)degree	32	21.6%	188.62[b]	
Positive (31 – 36)degree	104	70.3%	211.17[a]	
Total	148	100%		

Minimum=19, Maximum=36 , Mean=31.50 , Std. Dev. =3.67

Table 4.27.Differences in training effectiveness according to attitude towards training

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * attitude	Between Groups (Combined)	15799.368	2	7899.684	4.960	.008
	Within Groups	230941.301	145	1592.699		
	Total	246740.669	147			

4.3.1.14. Job satisfaction: The results showed that most of the respondents were of the medium category about satisfaction toward jobs. To find the differences in the total estimate of training effectiveness, analysis of variance (F-test) was used. It is appeared from (Table 4.29) that the calculated F-value (8.72) is more than the table value, so the differences are significant in training effectiveness according to the job satisfaction**.** When the Duncan's coefficient was used the differences appeared between high degree and others categories. It means that training course programs created a suitable socio-economic environment for the workers with his work, and this result is consistent with the findings of (Jaifar, 1994), while inconsistent with finding of (Alsaidi, 2009). (Table 4.29, 4.30).

Table 4.29.Distribution of extension workers trainees according to job satisfaction

Job satisfaction level	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Low (16 – 22) degree	25	16.9%	189.28 [b]	Sig **
Medium (23 – 29)degree	99	66.9%	201.32 [b]	
High (30 – 36)degree	24	16.2%	233.167 [a]	
Total	148	100%		

Minimum=16, Maximum=36 , Mean=25.82 , Std. Dev. =3.78

Table 4.30.Differences in training effectiveness according to job satisfaction

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * job satisfaction	Between Groups (Combined)	26512.639	2	13256.320	8.728	.000
	Within Groups	220228.030	145	1518.814		
	Total	246740.669	147			

4.3.1.15.Problem solving ability: The results showed that most of the respondents are of the high category about ability of solving problems. To find the differences in the total estimate of training effectiveness, analysis of variance (F-test) was used. It is appeared from (Table 4.31) that the calculated F- (3.06) is more than the table value, so the differences are significant in training effectiveness according to the problem solving ability. When the Duncan's coefficient was used the differences appeared between high degree and others

categories. It means that training course programs led to knowing of identifying problems and solving during the work. This result is confirming that the training session affected on the respondents, led to increased self-confidence, raised the morale of respondents to face difficulties and work problems. This result is consistent with the finding of (Al-Abbassi and Al-Naqqash, 2013). (Table 4.31, 4.32).

Table 4.31.Distribution of extension workers trainees according to problem solving ability

ability of solving problem level	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Low (19 – 24) degree	10	6.8%	197.30 [b]	Sig *
Medium (25 – 30)degree	49	33.1%	193.81 [b]	
High (31 – 36)degree	89	60.1%	211.11 [a]	
Total	148	100%		

Minimum=19, Maximum=36 , Mean=30.91 , Std. Dev. =3.70

Table 4.32.Differences in training effectiveness according to problem solving ability

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * problem solving ability	Between Groups (Combined)	10002.346	2	5001.173	3.063	.050
	Within Groups	236738.323	145	1632.678		
	Total	246740.669	147			

4.3.2. Determining the differences in extension training effectiveness according to some characteristics of the farmer's trainees:

4.3.2.1. Age: The results indicated that the range of age is between (19-78) years, which divided into three categories. F-test was used to find the differences in the total estimate of training effectiveness. Since the calculated F (3.70), is more than the table value, so the differences are significant in the training effectiveness according to the age. When the Duncan's coefficient was used, the differences appeared between the third category with the first and second categories. This means that the greater age leads to accumulation of their expertise and skill and the farmers benefited more from the training courses, as shown in (Table 4.33, 4.34).

Table 4.33. Distribution of farmer trainees according to age

Categories	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
19 - 38	112	37.0%	200.27 [b]	Sig *
39 – 58	151	49.8%	203.73 [b]	
59 - 78	40	13.2%	210.32 [a]	
Total	303	100%		

Minimum=19, Maximum=78 , Mean=43 , Std. Dev. =12.53

Table 4.34.Differences in training effectiveness according to age

		Sum of Squares	df	Mean Square	F	Sig.
Total estimate * Age	Between Groups (Combined)	3012.080	2	1506.040	3.700	.026
	Within Groups	122114.224	300	407.047		
	Total	125126.304	302			

4.3.2.2. Gender: The results showed that most of the trainees are male compared with female; t-test was used to find the differences in total estimate of training effectiveness. Since the calculated t-test (1.38), is less than the table value, so the differences is not significant in training effectiveness according to the gender. Meaning that the gender is not related to the estimation of extension training effectiveness each of male and female have a same opinion about training courses. (Table 4.35).

Table 4.35.Differences in training effectiveness according to gender

Categories	Frequency	Percentage	Mean of Total estimate	t-test
Male	210	69.31%	204.41	1.38 NS
Female	93	30.69%	200.89	
total	303	100%		

4.3.2.3. Residence: Depending on the results obtained, most of the respondents are living in villages. To detect the differences in the total estimate of training effectiveness, analysis of variance (F) was used. It is appeared from table (36) that the calculated F (2.33) is less than the table value. So the differences are not significant in training effectiveness according to the residence. It means that the residence is not affect to their evaluation of training courses. This result confirming that the residence is not related to the estimation of extension training effectiveness. (Table 4.36, 4.37).

Table 4.36.Distribution the farmer trainees according to residence

Categories	Frequency	Percentage	Mean of Total estimate
District	61	20.1%	202.47
Sub-district	25	8.3%	195.36
Village	217	71.6%	203.32
Total	303	100%	

Table 4.37.Differences in training effectiveness according to residence

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * Residence	Between Groups (Combined)	1919.174	2	959.587	2.337	.098
	Within Groups	123207.130	300	410.690		
	Total	125126.304	302			

4.3.2.4. Academic achievement: The results showed that most of the trainees are qualified primary degree. To find the differences in the total estimate of training effectiveness, the analysis of variance (F) was used. It is appeared from table (39) that the calculated F-value (1.73) is less than the table value. So the differences are not significant in training effectiveness. It is confirming that academic level is not related to the level of estimation. It means that the farmers have the same amount of information and knowledge of education. Although the estimation of diploma category was higher. (Table 4.38, 4.39).

Table 4.38.Distribution the farmer trainees according to academic achievement

Categories	Frequency	Percentage	Mean of Total estimate
Illiterate	80	26.4%	205.80
Reads and writes	50	16.5%	199.32
Primary	86	28.4%	204.54
Intermediate	36	11.9%	204.75
High school	34	11.2%	201.23
Diploma	7	2.3%	212.14
Bachelor	10	3.3%	189.00
Total	303	100%	

Table 4.39.Differences in training effectiveness according to academic achievement

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * Academic achievement	Between Groups (Combined)	4238.278	6	706.380	1.730	.114
	Within Groups	120862.719	296	408.320		
	Total	125100.997	302			

4.3.2.5. Social status: It is appeared from the results that most of the respondents are not participants of social status. Analysis of variance was used to find the differences in the total estimate of training effectiveness. Since the calculated F value was (3.42), and it is more than the table value, so the differences are significant in training effectiveness. When the Duncan's coefficient was used, the differences appeared between two participants and less than of social status. The best explanation for this relation is that, the trainees who did not participate in the social status and less than tow their estimation was weak, as well as who participated in more

than three social status. While those who participated in two social status their estimation was higher. It means who participate in two social status take an appropriate size of social responsibility and be accurate in their evaluation (Table 4.40, 4.41).

Table 4.40.Distribution the farmer trainees according to participants of social status

Numbers of participant	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
0	119	39.2%	200.47[b]	Sig *
1	65	21.5%	200.33[b]	
2	62	20.5%	210.64[a]	
3	32	10.6%	202.03[a b]	
4	25	8.2%	208.12[a b]	
Total	303	100%		

Table 4.41.Differences in training effectiveness according to participants of social status

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * social status	Between Groups (Combined)	5494.250	4	1373.563	3.422	.009
	Within Groups	119632.054	298	401.450		
	Total	125126.304	302			

4.3.2.6. Number of training courses: The results indicated that most of the respondents participated in the training category (1 – 2) courses. To determine the differences in the total estimate of training effectiveness, analysis of variance (F) was used. It is appeared from table (43) that the calculated F-value (4.72) is more than the table value. So the differences are significant in training effectiveness according to the number of training courses. When the Duncan's coefficient was used, the differences appeared between first category and others categories. It is clear from the results that number of training courses is important to come out with the good estimate of the effectiveness of training. It means that the number of training give the best information and experience to compare and make decision about training program. (Table 4.42, 4.43).

Table 4.42.Distribution the farmer trainees according to number of training courses

Number/training	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
1 - 2	231	76.2%	201.35[b]	Sig **
3 - 4	60	19.8%	209.33[a]	
5 - 6	12	4.0%	211.25[a]	
Total	303	100%		

Minimum=1, Maximum=6 , Mean=1.89 , Std. Dev. =1.10

Table 4.43.Differences in training effectiveness according to number of training courses

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * training sessions	Between Groups (Combined)	3820.123	2	1910.061	4.724	.010
	Within Groups	121306.181	300	404.354		
	Total	125126.304	302			

4.3.2.7. Duration of the training courses: It is appeared from the results that most of the respondents had (2-14) days of training. Analysis of variance was used to find the differences in the total estimate of training effectiveness. Since the calculated F-test (0.74), is less than the table value, so the differences are not significant in training effectiveness according to the duration of training courses. The best explanation for this relation is that those participated in different period of training courses were not able to collect good adequate information on the courses subjects.(Table 4.44, 4.45).

Table 4.44.Distribution the farmer trainees according to duration of training

duration of training/day	Frequency	Percentage	Mean of Total estimate
2 - 14	235	77.6%	204.06
15 - 27	54	17.8%	200.38
28 - 40	14	4.6%	202.14
Total	303	100%	

Minimum=2, Maximum=40 , Mean=9.6 , Std. Dev. =7.45

Table 4.45.Differences in training effectiveness according to duration of training

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * duration of training	Between Groups (Combined)	614.845	2	307.423	.741	.478
	Within Groups	124511.458	300	415.038		N.S
	Total	125126.304	302			

4.3.2.8. Benefits of training: The results in table (46) show that most of the respondents are belonging to (1 – 5) category about extent of training benefits; analysis of variance was used to find the differences in total estimate of training effectiveness. Since the calculated F (6.32), is more than the table value, so the differences are significant in training effectiveness according to the extent of training benefits. When the Duncan's coefficient was used, the differences appeared between the first categories that benefit a low extent with other groups that benefited a high extent. This result explains that farmers who were benefits from training activities had given a good assessment of training programs. It means whenever increased the extent of benefit from the training courses is reflected positively on their evaluation of the

training courses (Table 4.46, 4.47).

Table 4.46.Distribution the farmer trainees according to benefits of training

Categories/degree	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Rarely (1 – 5)	183	60.4%	199.40[b]	Sig **
Few (6 – 10)	100	33.0%	209.41[a]	
Some (11 – 15)	18	5.9%	207.16[a]	
A lot (16 – 20)	2	0.7%	222.00[a]	
Total	303	100%		

Minimum=1, Maximum=20 , Mean=5.11 , Std. Dev. =3.26

Table 4.47.Differences in training effectiveness according to benefits of training

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * extent of training benefits	Between Groups (Combined)	7463.176	3	2487.725	6.322	.000
	Within Groups	117663.127	299	393.522		
	Total	125126.304	302			

4.3.2.9. Attitude towards training: Depending on the results that obtained, most of the respondents have a high positive degree of attitude. To find the differences in the total estimate of training effectiveness, analysis of variance (F-test) was used. Since the calculated (F) value (17.13) is more than the table value, so the differences are significant in training effectiveness according to the attitude toward training. When the Duncan's coefficient was used, the differences appeared between low attitude and high attitude. This is might be refer to the reason that the respondents with positive attitude were benefited of training program, and the training program affected them therefore they were well estimated the training courses. (Table 4.48, 4.49).

Table 4.48. Distribution the farmer trainees according to attitude towards training

Attitude toward training level	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Negative (16 – 22) degree	2	0.7%	179.50[b]	Sig **
Neutral (23 – 29) degree	37	12.2%	186.83[a b]	
Positive (30 – 36) degree	264	87.1%	205.81[a]	
Total	303	100%		

Minimum=16, Maximum=36 , Mean=32.85 , Std. Dev. =3.25

Table 4.49.Differences in training effectiveness according to attitude towards training

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * attitude	Between Groups (Combined)	12828.871	2	6414.436	17.136	.000
	Within Groups	112297.432	300	374.325		
	Total	125126.304	302			

4.3.2.10. Job satisfaction: The results showed that most of the respondents involved a medium category about satisfaction toward jobs. To find the differences in the total estimate of training effectiveness, analysis of variance (F) test was used. It is appeared from table (50, 51) that the calculated F-value (17.37) is more than the table value, so the differences are significant in training effectiveness according to the job satisfaction**.** When the Duncan's coefficient was used, the differences appeared between high job satisfaction with medium and low. It means that the training program was affected on the trainees and the training was created an appropriate environment to the farmers to work in the farm.

Table 4.50.Distribution the farmer trainees according to job satisfaction

Job satisfaction level	frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Low (10 – 14)degree	18	5.9%	192.77 [b]	Sig **
Medium (15 – 19)degree	216	71.3%	200.50 [b]	
High (20 – 24)degree	69	22.8%	214.91[a]	
Total	303	100%		

Minimum=10, Maximum=24 , Mean=17.93 , Std. Dev. =2.34

Table 4.51.Differences in training effectiveness according to job satisfaction

		Sum of Squares	df	Mean Square	F	Sig.
total estimate * job satisfaction	Between Groups (Combined)	12991.714	2	6495.857	17.379	.000
	Within Groups	112134.589	300	373.782		
	Total	125126.304	302			

4.3.2.11.Problem solving ability: The results showed that most of the respondents are of high category about ability to resolve problems. To find the differences in the total estimate of training effectiveness, analysis of variance (F) test was used. It is appeared from table (53) that the calculated F-value (42.09) is more than the table value, so the differences are significant in training effectiveness according to the problem solving ability. When the Duncan's coefficient was used, the differences appeared between each levels of problem solving ability. It means that the training program was affected on the trainees and the training was created an appropriate atmosphere to work. This result confirming that the training

session affected the respondents and led to increased self-confidence and raised the morale of respondents to face difficulties and problems of work, as it is appeared from (Table 4.52, 4.53).

Table 4.52.Distribution the farmer trainees according to ability of problem solving

ability of solving problem level	Frequency	Percentage	Mean of Total estimate	Duncan's Coefficient
Low (10 – 16)degree	7	2.3%	180.14[c]	Sig **
Medium (17 – 23)degree	106	35.0%	191.92[b]	
High (24 – 30)degree	190	17.30%	210.53[a]	
Total	303	100%		

Minimum=10, Maximum=30 , Mean=24.07 , Std. Dev. =3.57

Table 4.53.Differences in training effectiveness according to ability of problem solving

			Sum of Squares	df	Mean Square	F	Sig.
total estimate * solving problem	Between Groups	(Combined)	27420.808	2	13710.404	42.097	.000
	Within Groups		97705.495	300	325.685		
	Total		125126.304	302			

4.4. Determination extension training problems:

4.4.1 Determination the main extension training problems from the trained worker's point of view of the various aspects in general.

To determine the total degree of the extension training problems in general from workers' point of view, the respondents were classified into three levels depending on the range as described in (Table, 4.54).

Table 4.54.Total degree of extension training problems

Extension training problems levels	Number of trainees/workers	Percentage	Mean of Total problem
Low (41 - 116)degree	25	16.9%	88.32
Medium (117 - 192)degree	91	61.5%	157.05
High (193 - 268)degree	32	21.6%	221.56
Total	148	100%	

Minimum = 41, Maximum =268, Std. Dev. =46.36, Mean=159.39

It is appearing from (Table 4.54) that the total degree of the extension training problems is nearly 60% is medium tends to high. This result is supports the total estimate of the extension training effectiveness in general for workers, and also indicates existence the problems in the extension training aspects, maybe referred to the circumstances are experienced in Kurdistan

Region of financial crises. This indicates that the training programs not led to a positive impact and not on the requirement level for the trainees for all aspects of training satisfactory.

4.4.2. Determination the main extension training problems from the worker trainees' point of view of the various aspects:

To determine the degree of the extension training problems in each aspect for workers, the aspects were arranged according to the level of their achieving. It is appeared that the "extension workers" problems are rated at the first rank, giving the interesting percent of (57.26%). This result referred to workers' problems is the main source of other problems, and workers are the main factor to success or failure of training programs or training activities. While the "planning and evaluation" of training is occupied the last rank, giving the interesting percent of (51.59%). This result probably explains there is no difficulty in planning and evaluation when compared to other areas (Table 4.55).

Table 4.55.Arranging the degree of extension training problems aspects according to their percentage from the workers trainees' point of views

No	Areas of training problem	Minimum value	Maximum value	Mean value	Std. Deviation	Standard degree	Important percentage	Rank
1	Extension workers	4	54	32.07	10.15	56	57.26%	1
2	Possibilities and equipment	0	56	30.82	12.44	56	55.03%	2
3	Methods and technology transfer	1	44	23.60	8.05	44	53.63%	3
4	Extension training basics	0	38	20.96	8.19	40	52.4%	4
5	Areas and activities	0	52	29.20	10.15	56	52.14%	5
6	Planning and evaluation	2	43	22.70	8.83	44	51.59%	6

4.4.3. Arranging the statements of each aspect of extension training problems from the workers trainees' point of view:

4.4.3.1. Problems related to the extension workers: The statements of this aspect were arranged according to the mean values of their achieving. It is appeared that the problem of lack of appointment new graduates specialized in agricultural extension is rated at the first rank. This may be due to lack commitment of appointment of new graduates in Kurdistan Regional Government with the continued work by the retirement law for employees, as described in (Table, 4.56).

Table 4.56.Problems related to extension workers

N	problems	means	rank
1	Lack of opportunities to employ new graduates who specialized in agricultural extension.	2.95	1
2	Lack of opportunities to employ female advisory service (extension)to work with rural women	2.92	2
3	Shortage of female advisory service (extension) employees	2.74	3
4	Lack of incentives and rewards for agricultural extension workers	2.64	4
5	Poor communication between different levels of the employees	2.56	5
6	Low wage/salary comparison to the heavy workload	2.47	6
7	Lack of interest to rehabilitate new female advisory service (extension)in rural areas	2.43	7
8	Lack of accurate and competency-based role description for the agricultural extension	2.40	8
9	Shortage of workers	2.32	9
10	Cancellation of the agricultural extension classes in educational institutions	2.12	10
11	Dissatisfaction and discouragement of some employees at work	1.99	11
12	Uneven distribution of the employees at the extension centers	1.84	12
13	Frequent job transfer of the employees	1.65	13
14	Constant transfer of highly efficient workers	1.61	14

4.4.3.2. Problems related to the possibilities and equipment of training: The items of this aspect were arranged according to the mean values of their achieving. It is appeared that the problem of insufficient financial resources to spend on farmer visitors is rated at the first rank. This may be due to the financial crisis was imposed on the Kurdistan regional government, which affected the performance of all ministries in general, as described in (Table, 4.57).

Table 4.57.Problems related to possibilities and equipment of training

N	problems	means	rank
1	Insufficient financial resources to spend on farmers	2.44	1
2	Lack of transportation to carry out training activities	2.42	2
3	Lack of budget to purchase training requirements	2.39	3
4	Frequent power cut (failure).	2.30	4
5	Lack of Up To Date publication materials	2.29	5
6	Insufficient agricultural areas to use for experiments and demonstration.	2.28	6
7	Lack of fuels.	2.25	7
8	Poor maintenance of the training center facilities.	2.16	8
9	Insufficient number of staff to carry out training activities.	2.11	9
10	Lack of technicians to operate the equipment and devices.	2.07	10
11	Shortage of proper size generator at the training centers.	2.01	11
12	Lack of tools & aids in the training center.	1.97	12
13	Weak network communication between training units.	1.93	13
14	Lack of the computer (IT)devices in the training units	1.83	14

4.4.3.3. Problems related to the methods and technology transfer of training: The items of this aspect were arranged according to the mean values of their achieving. It is appeared that the lack of demonstration fields is rated at the first rank. This may be due that the demonstration is one of the most important methods used in the training of agricultural

extension, has an effective impact on the farmers, which uses practice and practice, as described in (Table, 4.58).

Table 4.58.Problems related to the methods and technology transfer of training

N	problems	means	rank
1	Lack of demonstration fields.	2.45	1
2	Lack of cooperation and coordination between training units and Research Centers.	2.42	2
3	The inaccessibility of the means and techniques to implement extension activities	2.38	3
4	Incompetence and limited role of the agricultural media.	2.37	4
5	Lack of scientific libraries/references to provide employees with the agricultural information.	2.27	5
6	Lack of the knowledge and methodology to transfer techniques	2.25	6
7	Lack of communication opportunities between trainers and trainees to follow-up and evaluate.	2.08	7
8	Lack of identification and prioritization of the scientific principles.	2.07	8
9	Ineffectiveness of the training programs and activities to adapt the agricultural techniques.	2.01	9
10	Lack of convenient places to hold panels and meetings.	1.85	10
11	Lack of training centers' interest in handling farmer's issues.	1.78	11

4.4.3.4. Problems related to the extension training basics: The items of this aspect were arranged according to the mean values of their achieving. It is appeared that the problem of linking the extension training activities with the administrative routine is rated at the first rank. This may be due that the routine problems which have long roots in all administrative institutions, including the ministry of agriculture, which has a direct impact on the delay of approval and timing in the implementation of extension activities, and delays in the financial budget to be denied, as described in (Table, 4.59).

Table 4.59.Problems related to the extension training basics

N	problems	means	rank
1	Interconnect the extension training activities with the administrative routine.	2.29	1
2	Depending on the centralization to run the training courses.	2.26	2
3	Instability of the agricultural extension training's structure.	2.20	3
4	Lack of interest in application the principles of agricultural extension training.	2.17	4
5	Poor network communication between different hierarchy levels (upper, lower and linear).	2.16	5
6	Duplicate supervisory at the training sessions and not knowing their duty limits.	2.10	6
7	Overlapping responsibilities at the advisory levels.	2.08	7
8	Consider the agricultural extension training as an out dated and unnecessary activity.	2.07	8
9	Unclear objectives of the agricultural extension trainings by the higher authorities.	2.00	9
10	Lack of conception about the extension training by the higher authorities.	1.94	10

4.4.3.5. Problems related to the areas and activities of training: The items of this aspect were arranged according to the mean values of their achieving. It is appeared that the problem of financial allocations for spending to extension training activities is rated at the first rank. This may be due that the financial crisis over the past five years, led to the reduction of the Ministry of agriculture budget in all components, and therefore negatively affected the

implementation of the training courses, as described in (Table, 4.60).

Table 4.60.Problems related to the areas and activities of training

N	problems	means	rank
1	Low budget to spend on extension training activities.	2.58	1
2	Lack of financial and moral incentives to encourage farmers to join the training activities.	2.51	2
3	Lack of extension training activities for rural youth.	2.43	3
4	Lack of communication between the extension training centers and agricultural researchers.	2.37	4
5	Lack of extension training activities for rural women.	2.32	5
6	Obstacles in extension centers to organize training courses.	2.29	6
7	Lack of opportunities of the extension centers to implement the extension fields.	2.18	7
8	Lack of opportunities of the extension centers to plan and implement training programs that are suitable for the rural areas	2.15	8
9	Functional dependency of the training centers technically and administratively.	2.13	9
10	Lack of responses and trust in extension training activities.	2.01	10
11	The timing of the trainings does not suit the trainee's circumstances.	1.85	11
12	Lack of the extension center's responsibilities to evaluate the training activities	1.70	12
13	Irregular work schedule, inconsistent working hours and frequent job rotation.	1.68	13
14	Lack of trainers' commitments and punctuality.	1.32	14

4.4.3.6. Problems related to the planning and evaluation of training: The items of this aspect were arranged according to the mean values of their achieving. It is appeared that the problem of the lack taking into consideration the reality of the region and rely on central planning is rated at the first rank. This may be due programs that are implemented in the form of ready-made programs from higher authorities, and there is no decentralization and independent powers in agricultural extension work and this is supported by the problem that occupied second rank, as described in (Table, 4.61).

Table 4.61.Problems of the planning and evaluation of training

N	problems	means	rank
1	No consideration of the current status of the region and dependency on central planning.	2.25	1
2	Reliance on prepared programs that are made by the higher authorities.	2.24	2
3	Difficulty to demonstrate the issues and identify the needs of the trainees.	2.12	3
4	Lack of trainees' participation in the planning and evaluation process.	2.11	4
5	Poor quality of the training programs that are related to the planning and evaluation.	2.09	5
6	Lack of resources to collect information.	2.07	6
7	Lack of implementation of the principles of the extension training planning.	2.06	7
8	Not benefited from the extension reports.	2.04	8
9	Not benefited from the results of the previous evaluation.	1.98	9
10	Poor qualitative sequencing of the training needs that are important.	1.93	10
11	Not to benefits from the extension reports.	1.86	11

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions:

1. The study results appeared that the total estimate of training effectiveness from the extension workers' point of view is nearly (93%) medium tends to low. Hence, we conclude that the efforts of the training centers in all agricultural extension departments need to be reviewed and working with a sound planning and performance in holding the training courses, as well require the scientific planning to determine the training needs of agricultural extension workers, or the training courses did not meet the required level of ambition in terms of the quality or quantity.

2. The total estimates of training effectiveness from the farmers' point of view is nearly (92%) medium tending to high. We conclude that the efforts of training centers for the farmers have a sound planning and performance in holding the training courses, as well in the practice, the farmers benefited from the results of training courses materially and morally.

3. The aspect of ability of trainers' estimation occupied the first rank from the trained Extension workers point of views. We can conclude that the agricultural extension organizations are able to select a trainers with a scientific and practical ability in delivering the target subject as the majority of the them were academics and had training and teaching rich experiences . While the method of selection of the trainees is occupied the last rank, it conclude from this that the selection of the trainees was not based on the training needs of the trainees in a scientific way.

4. The aspect of the training results' estimation occupied the first rank from the trained farmers' point of views. We can conclude the aspect of training results is the most important consideration in their views and benefit that gained from the application of what they have learned, as well as the ability of trainers occupied the second rank from the trained farmers point of views, This indicates the success of the agriculture extension centers in selecting competent trainers with theoretical and practical experience in the field of training. While the method of selection of the trainees for the training courses from the farmers' point of view occupied the last rank, perhaps this indicates that the selection of trainees to participate in the training courses was not according to their needs and non- use of scientific methods in identifying and analyzing the training needs of farmers in some cases.

5. The age of extension workers and academic achievement were not related to the extension

training effectiveness estimation significantly; perhaps this indicates that there is no significant variation in the level of ages of the largest proportion of extension workers, and also that most of them have graduated from college recently.

6. Gender of the Extension workers is not relating to the estimation, We conclude from this that the extension organization has taken into consideration the issue of gender when selecting trainees to participate in the training programs

7. The location of the work of extension workers was related to the total estimated degree of the extension training effectiveness, concluding that those who work at the village level and applying the subjects of the course, the extension training effectiveness estimates are more accurate for them.

8. Number and period of training courses of extension workers is related to the total estimated degree of the extension training effectiveness, we conclude that increasing the number of training courses and the time period for training leads to the acquisition of more knowledge and skills and consequently an increase in their knowledge of the importance of training and participation in it.

9. Positive attitudes of extension workers towards training increases the conviction of training, and an increase in job satisfaction of workers creates a suitable economic and social environment for trainees in training courses, also the increased ability of workers to solve problems may be due to the application of the content of training programs.

10. The age of farmers was ascribed to the difference in estimation of extension training effectiveness; we can conclude that the respondents acquire more information and needed skills whenever they penetrated into the age.

11. Academic achievement of farmers was not related to the total estimation of extension training effectiveness;, we conclude that training subjects that may be new to the trainees, as well the gender of farmers not related to estimation, and we conclude that there is a consideration for both genders to participate in the training courses as well as the choice of subjects for them.

12. Social Status of farmers was related to the total estimation of extension training effectiveness; we conclude that who participated appropriately in several social positions, will affect to benefit the extent of the training courses.

13. Number of training courses of farmers was related to the total estimation extension training effectiveness; we conclude that increasing the number of training courses may leads to the acquisition of more knowledge, skills and consequently raise their awareness on the importance of training and then increased utilization of training activities, but the duration of

training courses was not total estimation extension training effectiveness, we can conclude the duration of Training courses may be was short or insufficient to cover the content of training courses.

14. The Farmers Attitudes were related to the total estimation of the training effectiveness , we conclude that this means that the farmers acquire more knowledge and skills through training leads to forming positive directions towards training and thus search for and participate in training opportunities and benefit from them

15. The study results determined that the extension training problems from the worker trainees' point of view is nearly (82%) medium tending to high in each aspect. Hence, we conclude the financial crisis that occurred in Kurdistan region affected negatively on all areas, such as agricultural sector, especially in the field of training and development of the human resources, or poor attention by the responsible authorities to resolving problems and constraints during the training period, as well as weakness in the preparation and planning of material and human resources for the implementation of training, or perhaps not to take into consideration the desire of the trainees to participate in training programs to suit their actual needs, to take advantage of them in the development of their abilities in the field of their work effectively and other obstacles. This result supports the total estimate of the extension training effectiveness in general for workers which is medium tends to low.

16. The results showed that the problems related to the extension workers occupied the first rank from the Extension workers trainees' point of view. We can conclude that the extension work effectiveness depends on the performance of the local agricultural extension staff as they are the direct implementers of extension work and Activities and depend on them the success or failure of agricultural extension programs

17. The problem of the planning and evaluation is occupied the last rank, concluding there are plans and programs and not require much effort, but the problem in its implementation due to the lack of material and human resources or not translated into reality by officials of the organization.

18. The results reveals that the greatest problems that affects the extension training effectiveness in the Iraqi Kurdistan Region are (lack of appointments, lack of demonstration, administrative routines, lack of budget for the implementation, insufficient financial resources to spend on farmers, not taking into account the needs and problems of farmers and dependency on central plan), We conclude from this that the financial crisis that the region has been going through for years has led the government to direct available funds to emergency issues and the scarcity of funds for development programs and activities.

5.2. Recommendations:

1. Depending on the results, the training programs of the agricultural extension departments have to focus on activating the training efforts according to the scientific principles of planning, execution, and evaluation.

2. Creating the reasonable mechanism for the selection of trainees by extension organizations for the training courses and taking into consideration the training needs and the problems they are facing during the work.

3. Broaden contribution of the trainees in formulating and setting training objectives and content convenient and parallel to their personal and scientific abilities.

4. Agricultural extension should pay attention for the workers to participate in training courses regardless of their age, gender, academic achievement and years of service.

5. Focusing by agricultural extension organizations to participate the workers in the training courses who are working in sub-districts and districts.

6. Focusing on the practical sides of the training more than theoretical, holding the training courses outside the department and in the site of problems by agricultural extension organization.

7. Focusing on expanding the training courses and the appropriate duration of each course to encourage the contribution of the workers of their work by extension training centers. .

8. Focusing on improving farmer's attitudes and satisfaction, as well as creating an appropriate environment to work by agricultural extension organizations.

9. More attention should be paid by the extension departments for the farmers to participate in training courses regardless of their gender or academic achievement or residence.

10. Working to reduce and solving the problems and obstacles which are affecting extension training efforts, and review the principles, philosophy, and objectives of extension training from the higher authorities, and provide all material and human resources to implement training activity in the light of their training needs.

11. Agricultural extension departments should provide specialists in agricultural extension through appointments new and well trained staff.

12. Allocating an appropriate budget and setting up an incentive system for the implementation of activities, as well as avoiding routine and taking into account the problems of farmers' needs.

13. Conduct training courses based on the existing reality in the rural areas, which is consistent with their agricultural conditions**.**

References:

Abdul-Ghafar, T. A. (1976). *Agricultural Extension between Philosophy and Practice*, New Publications House, Alexandria.

Abdul-Maksuod, B. M. (1988). *Agricultural extension*, Dar El-Wafaa for Printing, Publishing & Distribution Mansoura.

Abdul-Wahab, A. M. (1992). *Personnel Management,* Library of Commerce and Cooperation Cairo.(Arabic)

Abdul-Wahab, A. M. (2000). *Human Resources,* Department Faculty of Commerce Ain Shams University.(Arabic)

Abdul-Wahab. (1976). "*The theoretical basis for follow-up and evaluation of training activity - integrated look*", the Arab Conference for Administrative Training in Tunis, Arab Organization for Administrative Sciences, League of Arab States.

Abubakr, S. S. (2002). *Identification of training needs of Arab countries in the field of agriculture*, paper presented to the workshop of the Arab Organization for Agricultural Development, League of Arab States, Amman.

Abudi, M. (1997). *General Administration*. Dar Al-Nahda Al Arabiya, Cairo.

Abul-Ros, S. A. and Al-Quqa, I. A. (2012). Impact of training on the growth and profitability of small enterprises in Palestine Field study on small projects in the Gaza Strip. *Journal of Al-Azhar University in Gaza, Human Sciences Series 13(1).*

Abu-Saud, Kh. H. (1987). *Agricultural Extension. - Organization, Planning and Evaluation*, Ministry of Education, Arab Republic of Yemen.

African Journal (2007). *Business Management pp. 049-054*, June, www.academicjournals.org/ajbm.

African Journal of Agricultural Research(2009).The role of agriculture education and training on agriculture economics and national development of Bangladesh, Faculty of Education, *University of Malaya, 50603 Kuala Lumpur, Malaysia 4 (12):1334-1350.*

Ahnaish M. A. & Seow Ta. Wee. (2012). The impact of training on performance and production efficiency in agricultural projects in Libya, International Refereed *Journal of Engineering and Science,1 (3): 37 – 40.*

Al-Abbassi, A. F. (1998). *Study of the needs of staff in Nineveh Governorate for some knowledge and experience of extension*, unpublished doctoral thesis, Faculty of Agriculture and Forestry, University of Mosul,p:(9-10)

Al-Abbassi, A. F. (2019). *Training in Agricultural Extension*, Second Edition, Dar-noon for Printing & Press, Mosul, Iraq.

Al-Abbassi, A. F. & AL-Douski, A. A. & AL-Busso, Z. M. (2013*).* Evaluating Training Courses Of Agricultural Extension Workers In Duhok Province And 1ts Relation With Some Variables, *Mesopotamia J. of Agric. 14 (4) 2013: 2224-9796.*

Al-Abbassi, A. F. (2018). Methods of Scientific Research and Statistical Analysis in Behavioral Sciences, First Edition, Alnoon For Printing & Press, Mosul, Iraq

Al-Abbassi, A. F. and Al-Chalabi, R. M. (2014). Evaluation of vocational Training in the International Center of Agricultural Research in Dry Areas (ICARDA) in the trainees' Point of Views. *Journal of Alexandria for Scientific Exchange, 35 (2): 119-132.*

Al-Abbassi, A. F. and Al-Naqqash, B. H. A. (2010). Evaluation of vocational Training in Ninevah Center for Extension and Agricultural in the Trainees Point of Views, *Journal of Mesopotamia, 38 (2): 90-97*

Al-Abbassi, A. F. and Al-Naqqash, B. H. A. (2013). Trainers Efficiency Evaluation according to Trainees Perceptions in Nineveh Center for Agricultural Extension and Training and its Relation with Certain Trainers Personal and Vocational Characteristics. *Tikrit University Journal of Agricultural Sciences, 13 (4): 96-102.*

Al-Adli, A. El. (1973). *The basics of agricultural extension science*, New Publications House, Alexandria, Egypt.

Al-Ajeeli S. A. (2013). Motives of The Workers in Agricultural Extension toward occupational Training, *Journal of Kirkuk university for agricultural Sciences 4 (1): 1-15.*

Al-Ajeeli, S. A. &AL-heby, F. I. R. (2013). Evaluating Occupational Training In Sllahaldain Center For Agricultural Extension And Training From The Trainees Of Point Of View, *Tikrit University Journal of Agricultural Sciences, 13 (1): 326-336.*

Al-Amiri, M. I. (2002). *Training priorities in the agricultural sector in Egypt, Agricultural Research Center*, Egypt Paper presented to the workshop of the Arab Organization for Agricultural Development, League of Arab States, Amman.

Al-Dosky, A. A. H. (2018). Evaluating training courses of non-governorate organizations (ngos) workers in Duhok province in 2014, *Journal of Kirkuk university for agricultural Sciences 9 (1): 1- 10*

Al-Ghamdi, Kh. & Abdullah Al - Marabani (2013). *The role of training in raising the efficiency of the performance of public sector employees Ministry of Higher Education*, Albaha University, Faculty of Administrative and Financial Sciences, Master thesis of Human Resources, Kingdom of Saudi Arabia.

Al-Hiti, Kh. A. (2005). *Human Resources management*, Second Edition, Wael Publishing House, Royal Scientific Society Street, Amman, Jordan.

Al-Huri, I. (Without a date). *Training Evaluation*, Electrical Training Center, Amman, Jordan, Internet, Jordants.org/jorg/conf/7.doc.

Ali, K. M. (1984). *Dictionary of Organization and Management Terminology*, Dar Al-Nahda Al-Arabia, Cairo.

Al-jboori, A. A. (2000). Training Needs for vegetable farmers in Shargat district and relationship with some variables, thesis of master degree, University of Mosul college of Agriculture and forests.

Allen, R. E. (1990). "*The Concise Oxford Dictionary of Cure English*, 8th Ed, Clarendon Press Oxford N, Y., USA.

Al-liyla, Z. H. & Abdul-Azeem S. (1987). *Principle of Agricultural Extension*, Ministry of Higher Education and Scientific Research, University of Mosul, Directorate of Dar Al-Kutub for Printing and Publishing.

Al-Mashhadani, M. A. (2006). Building a Model for the Mechanism of In-Service Training Evaluation for Extension Workers in Iraq Technicians, Ph.D Thesis, Coolege Oof Agriculture, University of Baghdad, Iraq

Al-Muaita, D. M. (2008). Evidence of training design bags, Dar-Alhamid for printing and publishing, Amman, Jordan.

Al-Naqash, B. H. (2009). *Evaluation of job training at the Nineveh Center for Agricultural Extension and Training from the point of view Trainees*, Master Thesis, Faculty of Agriculture and Forestry, University of Mosul, Iraq.

Al-Omar, Q. & Al-akrad, I. & Nasly, S. (2012). *Agricultural Extension*, Practical Part, Damascus University Press, University of Damascus Press.

Al-Rafie, A. K. (1992). *Agricultural Extension Science and Application*, Agricultural Extension and Rural Development Research Institute (AERDRI), Agricultural Research Center, Giza.

Al-Rekibe, H. S. A. AL.(2014). Role of extension centers in farmers training in the southern provinces Iraq, Banaras Hindu University, India, Ph.D thesis.

Al-Rimawi, A. Sh. & Hamad, H. J. & Abdul-Lateef, KH. (1995). *Introduction of Agricultural Extension*, Dar-hanin for Printing and Publishing Amman, Jordan.

Al-Saidi, B. A. (2006). *Building a Model for the Training of New Agricultural Extension Workers in the Central Region*, Unpublished PhD Thesis, College of Agriculture, University of Baghdad, P. 3.

Al-Samarrai A. A. (1976): *Training Needs of Agricultural Extension Workers in the Republic of Iraq*, unpublished PhD thesis, Faculty of Agriculture, Cairo University.

Al-Samarrai, A. A. & Al-Jadiri, A. H. (1990). *Agricultural Extension Science*. Baghdad University. College of Agriculture.

Al-Samawi, A. A. (2004). The Effect of Post-harvest Processes at Agricultural Extension Training on the Extension Agents' Knowledge in Wady Zabied , Yemen, Damascus University of Agricultural Sciences Journal, 20 (2). 211-222

Al-Samurai A. A. (2002). *Agricultural training priorities during the next three years*, paper presented to the workshop of the Arab Organization for Agricultural Development, League of Arab States.

Al-Shadaydeh, A. N. H. (1999). *Training Needs of Extension Agents in Jordan and its Relation to Some Factors*, Dissertation, unpublished, Faculty of Agriculture, University of Baghdad.

Al-Tanobi, M. O. (1996). *Training of Manpower in the Agricultural Sector*, First Edition, Umar Al-Mukhtar University Publications, Al-Bayda, Libya, p17-18.

Al-Tanobi, M. O. (1998). *Agricultural Extension Reference*, First Edition, Dar Al-Nahda for Printing and Publishing, First Edition, Beirut, Lebanon

Al-Tnobi, M. O. & Safaadin, M. & Radwan, M. H. (1995). *Agricultural Extension,* first edition, Department of Agricultural –University of Omer Al-Mukhtar, Al-Baiza, Libya.

Alunas M. M. (2014). Assessment of the factors impacting agricultural extension training programs in Tanzania: a descriptive study, Graduate Theses and Dissertations. Paper 14227, Master of Science thesis, Iowa State University, Ames, Iowa.

Al-Zaidi, A. A. & Al–Sukran, M. S. & Al-Haj, A. A. & Al–Darwish, A. (2001). Trainees' attitudes towards agricultural extension training courses carried out by the Ministry of Agriculture and Water in the Kingdom of Saudi Arabia, *Research Center of the Faculty of Agriculture, King Saud University, Department of Agricultural Extension and Rural Society*, *Riyadh No.(104):pp. 5-37*.

Al-Zayadi, A. R. (1999). *Human Resources Training*, Ain Shams, Library, Cairo.

Amin, Salah J. & Khattab A. M & Khattab J. M (2010) Evaluation of Some Training Course Elements for Technicians and Agricultural Extensionnests in Kirkuk Center for Agricultural Extension and Training From Trainees Viewpoint, *Journal Of Kirkuk University For Agricultural Sciences. , 1 (2): 1 – 8*.ar.wikipedia.org.

Arab Organization for Agricultural Development (AOAD). (1994). *Study of the Efficiency of Agricultural Extension Systems in the Arab World*, League of Arab States, Khartoum, December.

Arabi S. M. (2011). Attitude of agricultural extensions towards training courses in Babylon Governorate, *Al-Furat Journal of Agricultural Sciences - 3 (1): 180-194.*

Arshidat, Q. M. (2002). Determine the Training Needs in the Field of Agriculture in Arab Countries, Paper Presented at the Workshop of the Arab Organization for Agricultural Development, The Arab League, Oman, P. 3

Badawi, A. Z. (1989). *Dictionary of technical education terms Training planning, types, management, organization, methods, means*, the Egyptian Book House, and the House of the Book of Lebanon, Cairo.

Bashat, A. I. (1978). *Training Foundation*, Dar Al-Nahda Al Arabiya, Cairo.

Bassam, H. A. (2009). *Evaluation of job training at the Nineveh Center for Extension and Agricultural Training from the point of view of trainees*, Master Thesis Agricultural Education University of Al Mosul Faculty of Agriculture and Forestry.

Bn-Aishi, A. (2012). *Training and Evaluation of Personnel Performance*, Dar Osama Publishing and Distribution, Amman, Jordan.

Borai, M. J. (1968). *Planning for Training in Development*, Cairo Modern Library, Egypt.

C. W. Chang. (1963) *extension education for agricultural and rural development*, FAO, Bangkok: FAO Reg. Off. Asia Far East. 1963 pp. xv + 186 pp. ref. Bibl.

Certo, Samuel. C. (1997) "Modern Management", 7th ed., prentice-Hall international, Inc., N.J., USA.

Churden H. J. & Shermam, A. W. (1963). *Personnel management*, south-western publishing Co., Ohio.

Daft R.L. (2000). "Management" 5th ed. Houghton Mifflin co Boston USA.

Dahish, J. F. (2011). Evaluation training effectiveness to improving agricultural service level in Iraq and the future requirements (agricultural departments of Baghdad, case study applicative duration of (2000-2010), Dananir journal, No (5):169-195.

Dixon, Nancy, M. (1990). *Evaluation*: A Tool for Improving HRD Quality. American Society for Training and Development, Alexandria Virginia, USA.

Donnelly, J. H. (1998)."*Fundamentals of Management*"10th ed., Richard D .Irwin , Inc., USA.

Dunn, J. D. ,c Stephens, (1979) ,*Management of personnel , Manpower Management and Organization*, , Mc Graw, Hill Bokco ., New York.

Edwin. B., Flippo, (1972). *Principles of Personnel Management*, Mc Graw –Hill Book Co, Edition. N.Y. national library of Australia, www.trove.nla.gov.au/version/25695279. Egypt Scientific Services.

El-Essawy, A. (1996). *Administrative Efficiency*, University House, Alexandria.

Ezeano, C. I. (2012). Socio-economic variable that influence participation of women in rural development in rivers state, Nigeria, a Journal of agricultural extension, Vol 8, N 1.

Ghaith M. A. (1983). "*The Design of Social Research between Strategy and Implementation*" Dar Al-Maarefah University, Alexandria, Egypt.

Griffin, R.W. (1996). "Management". 5th ed., Houghton Mifflin Co. Boston, USA.

Hafiza, A. Z. y. (2019). Evaluation of The Training Course Carried Out by ICARDA in The Conservation Agriculture for Some Agricultural Employees in The Northern Region- Iraq, Tikrit University Journal of Agricultural Sciences, 19 (1): 18-29.

Harun, R. (2014). *The Use of Water for Sustainable Rural Development: A Case Study in the Kurdistan Regional Government*. Doctorate school, College of Agriculture, The University of Agricultural Sciences And Veterinary Medicine, Cluj-Napoca.

Harun, R., Mureşan, I., Arion, F. and Dumitraş, D. (2015) 'The State Fact of the Rural Area of the Kurdistan Regional Government', Bulletin UASVM Horticulture, 72, p.1.

Harris, O. J. (1976). Management people at work. A wiley, Hamilton publishing N. Y.

Hassanen, H. M. (2005). Evaluation training, Dar Majdalawi for printing, publishing, and distribution, Amman, Jordan.

Houston, W.R. & Housam, R. B. (1982). "Competency Based Teacher Education, Progress, Problems and Prospect" Sentence research associates, Inc., USA.

Husseini, M. A. (1984). Factors affecting of the efficiency of the training process, Seminar on Planning and Development of Employment and Labor Welfare in Egypt and Germany, Cairo.

Ivan C. J. M.(1995) ,*Human Resources Management*, Irwin, Inc.p: 423

Jaifar, K. H. A. (1994). Agricultural extension training effectiveness for agents in mania governorate, PhD. thesis unpublished, agricultural economics department, university of mania.

Jucious, M. J. (1963). *Personnel management* (5th ed.). Homewood, IL: Richard D. Irwin.

Kamath, M. G. (1961). *Extension Education in Community Development*. Directorate of Extension Ministry of Food and Agriculture, N .D

Khouli, H. Z. (1984). *Agricultural Extension*, Falcon Agency for Press and Publishing, Alexandria.

Kishta, A. A. (2012). *Agricultural extension new vision*. Green Line Printing, faculty of agriculture, Cairo University, 2012.

Kishta, A. A. (2013). *Philosophy successful agricultural extension in developing countries*, Green Line Printing, faculty of agriculture, Cairo University.

Maher, A. (2001). *Human Resources Management*, Fifth Edition, Egypt, Alexandria.

Mahir, H. M. (2008). Educational Impacts of Training Program for Training of Trainers for Members of Agricultural Development Associations and Their Families in Upper Egypt, *Alexandria Journal of Scientific Exchange, 29 (2) :206 – 218.*

Maunder, A. H. (1972). Agricultural extension. FAO ,Rome Italy, *files.eric.ed.gov/full text/ED075628.pdf.*

Megginson, L.C. and Mosley, D.C. and Pietri, P.H (1989). *Management: concepts and applications*, Harper \& Row, publisher .Inc. N.Y., USA books.google.iq/books/about/Management.

Ministry of Agricultural & water resource, General Directorate of Agricultural Extension, and all Extension Departments in governorates

Mohamed, G. M. G**.** (2016). Analytical Study to Benefit Agricultural Agents from the Training Course on the Techniques of Managing and Utilizing the Natural Resources to Maximizing Saline land Production, *J. Agric. Economic, and Social Sci., Mansoura Univ., Vol. 7(10)*: 937 – 946.

Mohamed, Y. A. H. (2012). Variables Associated With Benefits Trainees Egyptian Participants In The Extension Training Program To Prepare An Agricultural Specialist In Farm Irrigation Which Hold At The University Of California – Davis, J. Agric. Economic and Social Sci., Mansoura Univ., Vol.3 (9): 1299 - 1317, 2012.

Mohammed R. J. & Fattah I. A. (2011). Impact of Training Programs on Performance Development, Personnel, Applied Study in the Ministry of Science and Technology, Department of Hazardous Materials and Environmental Research Journal of the College of Baghdad for Economic Sciences, Journal of the College of Baghdad for Economic Sciences University Issue No. 27:255 – 273.

Mohammed, O. M. (2009). *The extension training knowledge needs for the workers in the agricultural extension in sulaimani governorate and their relation to some factors*, master thesis unpublished university of sulaimani , college of agricultural science.

Mop (Ministry of Planning), (2012) 'Regional Development Strategy for Kurdistan Region.

Muhalhal, I. et al. (1972). *Agricultural Extension*, Second Edition, Darul-Salaam Press, Baghdad.

Muharram, S. (1970). *Evaluation of Training in Public Administration*, published by the Arab Organization for Administrative Sciences, October.

Muraris, S. (2004). How to Conduct Evaluation of Extension Program, department of ANR education and communication system Michigan state university.

Namir, S. A. M. (1983). *Introduction to Agricultural Rationalization*, Faculty of Agriculture, Ain Shams University.

Nasrullah, H. (2002). *Human Resources Management*, Dar Zahran Publishing and Distribution, Amman, Jordan.

Nichols, F. (2000). *Evaluation Training of extension program, department of ANR education and communication system*, Michigan state university.

Nizal, M. S. (2001) *Determination of Training Needs*, Organization of Arab Petroleum Exporting Countries, Arab Oil Training Institute, Baghdad,.

Nyarko, F. (2014). "The concept of efficiency and effectiveness" www.slideshare.net.

Oakley, P. & Garforth C. (1985), *Guide to Extension Training*, agriculture Extension and Rural Development Centre, School of Education, University of Reading, UK, www.fao.org/3/a-t0060e.pdf.

Omar, A. & et al. (1973). *Reference in Agricultural Extension*, Dar al-Nahda al-Arabia, Cairo.

Omar, A. M. (1979).*agricultural extension*, ofesta for printing, Cairo.

Omar, A. M. (1992). *Agricultural extension* Contemporary.

Omer, T. M. A. (2011) 'Country pasture/forage resource profiles', FAO Available http://www.fao.org/ag/agp/agpc/doc/counprof/PDF%20files/iraq.pdf

Oreibi, S. M. (2011). "Agricultural Guides Attitudes towards training courses in the province of Babylon Euphrates*" journal of agriculture science 2011 Volume: 3 Issue: 180-194*

Padhy Ch. & Bijaya K. J. (2015). International Journal of Engineering Technology, *Management and Applied Sciences* www.ijetmas.com February 2015, Volume 3 Issue 2, ISSN 2349-4476.

Paul W. (2016) *Extension Training and Curriculum Development*, school of management-science, National Open University of Nigeria, Aem 405, nwww.nounsite.com.

Pring, C. (2015) 'Kurdistan Region of Iraq: Overview of Corruption and Anti-Corruption, U4 Expert Answer', *U4 Anti-Corruption Centre and Transparency International*.

http://www.u4.no/publications/kurdistan-region-of-iraq-overview-of-corruption-and-anti-corruption.

Raab, R. T. & Freeman, H.E., and Wright, S.R. (1991) "Improving Training Quality – A trainer's Guide to Evaluation" FAO, Rome, Italy, p: 148.

Radi, A. M. M. (2003). *The Extension Training Efficiency Of Agricultural Extension in Egypt*, PhD thesis, Unpublished, Egypt, Ain Shams University, p 2.

Rossi, P. H. & *et al* 1979 "Evaluation – A systematic Approach" Inc., California.Rference.

Sakina, M. O. M. (2017). Evaluation of some training courses in Agricultural Extension Department - general Directorate of Agriculture in Sulaimani governorate during the period of 1st January 2014 – 1st February 2015 from the trainees point at views. *Journal of Kirkuk University for Agricultural Sciences, 8(3): 1-13.*

Saleh, S. M. (1979). *Evaluation Study of Extension Work in Beheira Governorate*, unpublished PhD thesis, Agricultural Extension Department, Faculty of Agriculture, Alexandria University.

Salma, A. (1985). "Personnel Management and Productivity", 3rd Edition, Al-Ghareeb Library, Cairo.

Sanders, H .C. (1966). *The Cooperative Extension Service*, Prentice- Hall, Inc. N. J.

Schermerhorn Jr., J.R. (1984) Management for Productivity. 3rd Edition, John Wiley & Sons, New York, USA.

Schermerhorn, Jr., J.R., Hunt, J.G. And Osborn, R.N. (1998). "Basic Organizational Behaviour "2nd Ed., John Wiley & Sons Inc ., N.Y ., USA.

Shawqi, A. M. (1975). *Methods and approach of Training in Newly Developed Rural Societies*, Egyptian General Establishment for Cultivation and Land Development, Society Development and Development, Cairo.

Shakouri 2006.

Shuhaib, M. A. & Mustafa M. R. (1992). "Human Relations - A Behavioral Approach" Arab Publishing and Distribution Company, Cairo.

Swanson, B. E. (1990). *Training for Pre-Service Extension Staff, of Agricultural Extension*, Reference Manual, Second Edition, FAO, of the United Nations, Rome, Italy.

Swanson, B. E. (Ed) (1984). *Agricultural Extension A Reference Manual*. FAO, Rome, Italy.

Swanson, E. B. & Bentz, R. & Soranko, A. J. (1997). *Improving Agricultural Extension*. FAO. Rome, Italy, ww.Fao.Org.

Sweilem, Mohamed. Nasim, A. (1998). *Agricultural Extension*. Egypt for Scientific Services, Cairo.

Taqi, A. A., Abdul-Hussein, A. and Hilmi, M. M. (1997). Training-Planning, Design, Implementation 1, Kuwait, the Public Authority for Applied Education and Training, System.

Tawfiq, A.(1994). *Training Process, Encyclopedia of Training and Human Development*, Second Issue, Center of Professional Experiences of Administration, Giza.

Viv, B. & Liz, Ch. & J, B. (2004). Statistics review 9: One-way analysis of variance, *PMC journal, Crit Care list, v. 8(2):130 – 136. https://www.ncbi.nlm.nih.gov/pubmed/15025774*

W.G, Scott and Mitchell, (1972). *Organization theory*, Richard D Irawin, Inc, Hanegard, Illinois.

Werther .B.W. (1982) *Personal Management and Human Resources*" Mc Graw –Hill, New York, Training Chapter.

www. ar.wikipedia.org.

www.researchgate.net/publication/328964895_Theory_of_Training_Effectiveness

www.Dictionary.Com/Browse/Efficiency.

www.encyclopedia.com.Efficiency.

www.hr-guide.com/data/G362.htm.

www.irri.com. (1990). *Training and technology transfer course performance objectives manual*. Manila: International Rice Institute.

www.krso.net.

www.languages.oup.com.

www.oag-bvg.gc.ca. Understanding Efficiency Concepts.

www.quora.com.

www.slideshare.net concept-of-efficiency-and-effectiveness.

X. Chen, X. Liu, M.J.F. Gales & P. C. Woodland (2015) *Improving The Training And Evaluation Efficiency Of Recurrent Neural Network Language Models* University of Cambridge Engineering Dept, Trumping ton St., Cambridge@eng.cam.ac.uk.

Xarat, A. (1994). "*FAO Experience in Agricultural Training and Extension in the Near East Region*" Near East Regional Workshop on Fisheries Development Policies, FAO, Cairo, Egypt.

Yaghi, M. A. (1986). *Administrative training between theory and application*, Deanship of Library Affairs, King Saud University, Riyadh, Saudi Arabia.

Appendix 1

* Name of the experts:

No	Name of Expert	Scientific degree	Specialty	Workplace
1	D. Jabir Majid Al-Atabi	Profesor	Agricaltural Extension	College of Agriculture/University of Wasit
2	D. Aamel Fadhil Al-Abbassi	Profesor	Agricaltural Extension	College of Agriculture and Forestry/ University of Mosul
3	D. Hamada Mohammed Ibrahim	Profesor	Agricaltural Extension	Ministry of Agriculture- Egyptian Arabic Republic Desert Research Center
4	D. Samir Abdul-Azeem	Profesor	Agricaltural Extension	College of Agriculture /University of Alexandira
5	D. Mohammed Omar Al-Tanubi	Profesor	Agricaltural Extension	College of Agriculture /University of Alexandira
6	D. Tariq Ogla Hidros	Profesor	Agricaltural Extension	College of Agriculture /University of Dhi Qar
7	D. Najmalddeen Abdulla Saleem	Profesor	Agricaltural Extension	College of Agriculture and Forestry/ University of Mousl
8	D. Sahab Ayid Alajeeli	Profesor	Agricaltural Extension	College of Agriculture/University of Tikrit
9	D. Jawad Niaamat Hussein	Profesor	Evaluation and Measurement	College of Basic Education/University of Sulaimani
10	D. Solav Faiq Mohamed Ali	Profesor	Evaluation and Measurement	College of Basic Education/University of Sulaimani
11	D. Nizam Abduljabar	Asist profesor	Evaluation and Measurement	College of Basic Education/University of Sulaimani
12	D. Mohammed Wageh El-Sawy	Teacher	Agricaltural Extension	Ministry of Agriculture- Egyptian Arabic Republic Desert Research Center
13	D. Salah J. Amin	Teacher	Agricaltural Extension	College of Agriculture/University of Kirkuk

Appendix 2

In the name of Allah

University of Sulaimani Form ( )
College of Agricultural Sciences Engineering
Department of Agribusiness and Rural Development
Questioner study

"Agricultural Extension Training Effectiveness in Kurdistan Region/ Iraq during the Period of (2013 –2017) from the Trainees' Point of Views"

Dear Employee,

This research aims to study the effectiveness of agricultural extension training in all governorates in Kurdistan region including (Dohuk, Erbil, Sulaimani and Garmian). This will be the basis of our discussion including preparation, planning and implementation of the training programs to develop competencies, improve performance and promote the agricultural extension process.

Taking this into consideration, the objectives of this research were set as follows:

1. To estimate the extension training effectiveness from the trainees' point of view in general.
2. To estimate the extension training effectiveness in all aspects including (training objectives, trainees selection methods, duration and timing of training, capabilities of the trainers, content of the training, methods and means of training, facilities and capabilities of training.
3. To determine the differences in extension training effectiveness according to some trainee's characteristics.
4. To arrange the main extension training problems from trainees' point of view.

So, please answer all the questions with sincere appreciation.

Note: Please do not include your name, keep it anonymous.

Researcher
Mohammed Omar Mohammed
Ph.D. student

Part one

Please answer the following questions:

1. Age: ( ) Year.

2. Gender: Male ( ) , Female ( ).

3. Provenance: Urban ( ) , Rural ( ).

4. Academic achievement: Preparatory ( ) , Diploma ( ) , Bachelor ( ) , Higher Diploma ( ) , Master ( ) , PhD ( ).

5. Educational specialization: Extension ( ), other agricultural specialization ( ).

6. Total period service: ( ) years.

7. Extension period service: ( ) years.

8. Location of the work: ( ) City Center ( ) Extension Center.

9. Previous Training: How many agricultural extension training courses have you participated during the period of (beginning 2013 until the end of 2017)? ( )

N	Title of training Course	Duration / days	Place	Scale of benefits			
				A lot	Some	Few	None

10. **Attitude toward training**:

Please rate your answer by marking (√) in front of the following statements:

N	Statements	Scale		
		Agree	Neutral	Disagree
1	I think the training courses are not useful for farmers.			
2	I would like to participate in training courses.			
3	I believe training courses increase my knowledge and experience			
4	I feel that time spent in training is wasted.			
5	I see training courses are important to keep up with new developments in agriculture.			
6	I am not convinced of trainers' capabilities.			
7	I believe that participating in training courses gives you a privileged social status.			
8	I think the training courses are not useful in practice.			
9	I think training courses are a waste of effort and money.			
10	I see participation in training courses gives me respect and appreciation of others.			
11	I believe training courses increases my confidence			
12	I think the content do not match with the reality of the field			

11. Job satisfaction: Please rate your answer by marking (√) in front of the following statements:

N	statements	Scale		
		Agree	Neutral	Disagree
1	I feel comfortable with my job in general.			
2	The workload doesn't match with the wage and the effort I put in			
3	Unfair task distribution.			
4	I feel the relationships are good with my colleagues and managers			
5	Unfair bonuses and incentives distribution			
6	The environment is not suitable for innovation and development			
7	I feel appreciated by my mangers for the effort I put in work.			
8	I feel the positive dynamic and good relationships at work.			
9	I feel that my supervisors are fair when it comes to assessment.			
10	The workload requires complex procedures which hinder job promotions			
11	My supervisor is always ignoring many proposals that I recommend			
12	I feel my qualification is well matched with my job.			

12. Problem solving ability: Please rate your answer by marking (√) in front of the following statements:

N	statements	Degree of approval		
		Agree	Neutral	Disagree
1	I would like to take an informal approach with the farmers when it comes to problem solving			
2	I transfer and communicate field problems to scientific research sides.			
3	I always seek best solution.			
4	I do follow-up scientific and objective approach in dealing with field's issues.			
5	I always take serious action to deal with complex issues.			
6	I communicate with farmers in discussing difficult issues.			
7	I carefully deal with the farmer's values and beliefs to solve field problems.			
8	I consult specialist to discuss farmer's issues			
9	I priorities the needs and issues that farmers face			
10	I deal with problems according to the possibilities available			
11	I simplify solutions			
12	I do cooperate with relevant organizations in addressing problems			

Part Two:

Estimation of the effectiveness of extension training

Please rate your answer by marking (√) in front of each statement and appropriate alternative

First: training objectives

N	Statements	Scale: To what extent				
		weak	fair	good	very good	excellent
1	Objectives contributes in improving your attitude					
2	Objectives are transparent					
3	Objectives contributes in developing your knowledge and skills					
4	Your participation helps to identify the objectives					
5	Objectives are compatible with your educational level					
6	Objectives are relevant to your training needs					
7	Objectives are compatible with your personal characteristics					
8	Objectives are compatible with training component/content					
9	Objectives contributes in solving problems at workplace					
10	Objectives are compatible with the training's time frame					

Second: Training Duration and Timing

N	Statements	Scale: To what extent				
		weak	fair	good	very good	excellent
1	The training's time schedule is convenient for the trainees					
2	The training duration is convenient for the trainees					
3	Time well managed and allocated equally between the training's components					
4	Training's time schedule compatible with the field issues					
5	The duration of the training course matched well with trainees' capabilities					
6	Efficient use of the training to undertake the extension activities					
7	Enough time available for the dialogue and discussions.					
8	Enough time available to visit the fields					
9	Efficient time division between theory and practice					
10	The total number of hours per day is convenient					

Third: Trainees Selection

N	Statements	Scale: To what extent				
		weak	fair	good	very good	excellent
1	Trainee's participation to select themselves for training courses.					
2	Use of incentives to participate in the training courses.					
3	Estimate and evaluate individual's differences.					
4	Consider the trainee's previous experiences.					
5	Evaluate the trainee's personal need.					
6	Checking trainee's background to participate in the training courses.					
7	Benefit of knowing trainees experience and achievements.					
8	Use of scientific methods to select candidates.					
9	Fair and transparent process to nominate workers.					
10	Consider the proficiency and quality of the work to participate.					

Fourth: Capability of the trainers

N	Statements	Scale: To what extent				
		weak	fair	good	very good	excellent
1	Trainers' commitment					
2	Trainers' interest in trainings topics					
3	Ability to explain and deliver					
4	Use of various training methods and techniques					
5	Offer trainees the opportunity to express their opinion					
6	Engaging trainees to answer question					
7	Trainer's capability to clarify and deliver the training's content					
8	Trainees ability to motivate trainees to participate in discussions					
9	Give well-known examples related to the topics					
10	Use of easy to understand terminologies during the lectures					
11	Topics arrangement according to their complexity to understand					
12	Follow-up training's findings					
13	Use of appropriate audio-visual aids for each subject					
14	Summarize the main points at the end of the lecture					

Fifth: Training content

N	Statements	Scale: To what extent				
		weak	fair	good	very good	excellent
1	Suitability of the training contents with the trainee's mental abilities					
2	Compatibility of the content with the objectives of the training					
3	The training programs contains Up To Date topics					
4	The training content contributes in developing knowledge, skills and orientation of the trainees					
5	Arrange, organizing and link the topics together					
6	Correlate the content to the trainees' issues					
7	Correlate the content to the methods and means used in the training					
8	Compatibility of the content with the duration of the training					
9	Ability to Implement training contents in the field					
10	Correlate the content to the title of the training courses					
11	The topics integrate well with the objectives					
12	Support the lectures with the pictures and illustrations					

Sixth: methods and means of training

N	Statements	Scale: To what extent				
		weak	fair	good	very good	excellent
1	The training methods matched with the objectives					
2	Diversity of the methods used in the training courses					
3	Use of appropriate methods that suits trainees' capabilities					
4	Use of appropriate methods that suits training means					
5	Use of appropriate methods and means that suits the number and level of the trainees					
6	Effectiveness of the methods used to help trainee to obtain knowledge					
7	Use of appropriate methods that suits the training environment					
8	Used methods in the training is compatible with the contents					
9	Use of modern tools and means in the trainings					

Seventh: facilities and equipment of training

N	Statements	Scale: To what extent				
		weak	fair	good	very good	excellent
1	The training sites/locations is appropriate for the trainees					
2	Transportation means is accessible for the trainees					
3	The size of the venue (space) is convenient for the trainees					
4	The training venue is calm and quite					
5	Relevant training publications are available for the trainees					
6	Facilities are available including (ventilation, lighting, seating)					
7	Training equipment is provided including (papers, pens, etc.)					
8	The quality of organizing and administering the training					
9	The ease of the movement between the trainees' residence and the training site					

Eighth: training results

N	Statements	Scale: To what extent				
		weak	fair	good	very good	excellent
1	Trainees enhance their knowledge in the topics covered					
2	Increases the effectiveness of work to handle issues					
3	Assists in minimizing mistakes and errors at the workplace					
4	Helps to gain positive attitudes towards work					
5	Boost morale of the trainees					
6	Motivate trainees to develop quality of their work					
7	Gain new skills					

The most important problems of extension training

Please Choose the appropriate answer for each of the following: -

1. Problems are related to the basics of extension training

N	problems	Problems importance				
		N/A	Little	medium	Big	Huge
1	Lack of conception about the extension training by the higher authorities					
2	Unclear objectives of the agricultural extension trainings by the higher authorities					
3	Lack of interest in implementing the principle of the agricultural extension training					
4	Consider the agricultural extension training as an out dated and unnecessary activity					
5	Instability of the agricultural extension training's structure					
6	Depending on the centralization to run the training courses					
7	Interconnect the extension training activities with the administrative routine					
8	Poor network communication between different hierarchy levels (upper, lower and linear)					
9	Duplicate supervisory at the training sessions and not knowing their duty limits					
10	Overlapping responsibilities at the advisory levels					

2. Problems are related to the Possibilities and equipment of training:-

N	problems	Problems importance				
		N/A	Little	medium	Big	Huge
1	Weak network communication between training units					
2	Lack of the computer (IT)devices in the training units					
3	Lack of tools & aids in the training center					
4	Lack of budget to purchase training requirements					
5	Lack of Up To Date publication materials					
6	Lack of transportation to carry out training activities					
7	Insufficient number of staff to carry out training activities					
8	Poor maintenance of the training center facilities					
9	Frequent power cut (failure)					
10	Shortage of proper size generator at the training centers					
11	Insufficient agricultural areas to use for experiments and demonstration					
12	Lack of technicians to operate the equipment and devices					
13	Lack of fuels					
14	Insufficient financial resources to spend on farmers					

3. Problems are related to the areas and activities of training

N	problems	Problems importance				
		N/A	Little	medium	Big	Huge
1	Lack of opportunities of the extension centers to implement the extension fields					
2	Lack of opportunities of the extension centers to plan and implement training programs that are suitable for the rural areas					
3	Lack of extension training activities for rural youth					
4	Lack of extension training activities for rural women					
5	Obstacles in extension centers to organize training courses					
6	Lack of the extension center's responsibilities to evaluate the training activities					
7	The timing of the trainings does not suit the trainee's circumstances					
8	Lack of trainers' commitments and punctuality					
9	Low budget to spend on extension training activities					
10	Lack of responses and trust in extension training activities					
11	Lack of financial and moral incentives to encourage farmers to join the training activities					
12	Lack of communication between the extension training centers and agricultural researchers					
13	Irregular work schedule, inconsistent working hours and frequent job rotation					
14	Functional dependency of the training centers technically and administratively					

4. Problems are related to the extension workers

N	problems	Problems importance				
		N/A	Little	medium	Big	Huge
1	Low wage/salary comparison to the heavy workload					
2	Lack of accurate and competency-based role description for the agricultural extension					
3	Lack of incentives and rewards for agricultural extension workers					
4	Shortage of workers					
5	Dissatisfaction and discouragement of some employees at work					
6	Frequent job transfer of the employees					
7	Uneven distribution of the employees at the extension centers					
8	Constant transfer of highly efficient workers					
9	Cancellation of the agricultural extension classes in educational institutions					
10	Lack of interest to rehabilitate new female advisory service (extension)in rural areas					
11	Lack of opportunities to employ new graduates who specialized in agricultural extension					
12	Lack of opportunities to employ female advisory service (extension)to work with rural women					
13	Poor communication between different levels of the employees					
14	Shortage of female advisory service (extension) employees					

5. Problems are related to planning and evaluation of training

N	problems	Problems importance				
		N/A	Little	medium	Big	Beggar
1	Difficulty to demonstrate the issues and identify the needs of the trainees					
2	No consideration of the current status of the region and dependency on central planning					
3	Lack of trainees' participation in the planning and evaluation process					
4	Poor qualitative sequencing of the training needs that are important					
5	Lack of resources to collect information					
6	Lack of implementation of the principles of the extension training planning					
7	Reliance on prepared programs that are made by the higher authorities					
8	Poor quality of the training programs that are related to the planning and evaluation					
9	Lack of professionals and specialists to evaluate the extension programs					
10	Not benefited from the extension reports					
11	Not benefited from the results of the previous evaluation					

6. Problems are related to training methods and technology transfer

N	problems	Problems importance				
		N/A	Little	medium	Big	Huge
1	Ineffectiveness of the training programs and activities to adapt the agricultural techniques					
2	Lack of training centers' interest in handling farmer's issues					
3	Lack of cooperation and coordination between training units and Research Centers					
4	Lack of the knowledge and methodology to transfer techniques					
5	Lack of identification and prioritization of the scientific principles					
6	Lack of scientific libraries/references to provide employees with the agricultural information					
7	Lack of demonstration fields					
8	Incompetence and limited role of the agricultural media					
9	Lack of convenient places to hold panels and meetings					
10	The inaccessibility of the means and techniques to implement extension activities					
11	Lack of communication opportunities between trainers and trainees to follow-up and evaluate					

Appendix 3

In the name of Allah

University of Sulaimani Form ( )
College of Agricultural Sciences Engineering
Department of Agribusiness and Rural Development
Questioner research

"Agricultural Extension Training Effectiveness in Kurdistan Region/ Iraq during the Period of (2013 –2017) from the Trainees' Point of Views"

Dear farmers,

This research aims to estimate the effectiveness of agricultural extension training in all governorates in Kurdistan region including (Dohuk, Erbil, Sulaimani and Garmian). This will be the basis of our discussion including preparation, planning and implementation of the training programs to develop competencies, improve performance and promote the agricultural extension process.

Taking this into consideration, the objectives of this research were set as follows

1- To estimate the extension training effectiveness from the trainees' point of view in general,

2- To estimate the extension training effectiveness from the trainees' point of view in all aspects including (training objectives, duration and timing, trainee selection methods, capabilities of the trainers, content of the training, methods and means of training, facilities and equipment of training.

3- To determine the differences in extension training effectiveness according to trainee's characteristics.

So please answer all the questions with high respect and appreciation…….

Note: Please do not mention the name

Researcher
Mohammed Omar Mohammed
Ph.D. student

Part One

Please answer the following questions:

1. Age: ( ) Year.

2. Gender: male ( ), female ( ).

3. Place of Residence: district ( ), sub-district ( ), village ( ).

4. Academic achievement: Illiterate ( ), Read and write ( ), Primary ( ), Intermediate ( ), High school ( ), Diploma ( ), Bachelor ( ).

5. Social status:

Please respond by marking (√) next to the following questions:

No	Statements	Yes	No
1	Are you a member of the farmer's union association?		
2	Are you a government employee?		
3	Are you a clan leader?		
4	Are you a chairman of the village council?		
5	Are you well known member of a political organization?		
6	Others please state:		

9. Previous Trainings:

How many agricultural extension training courses have you participated during the period of (beginning 2013 until the end of 2017)? (---------)

Please give more details by completing the below table:

No	Title of the training Course	Duration / days	Scale of benefits			
			A lot	Some	Few	None

10. Attitude toward training: Please rate your answer by marking (√) in front of the following statements:

N	Statements	Scale		
		Agree	Neutral	Disagree
1	I think the training courses are not useful			
2	I would like to participate in training courses			
3	I believe training courses increase my knowledge and experience			
4	I believe that time spent in training is wasted			
5	I believe training courses are important to keep up with new developments in agriculture			
6	I am not convinced of trainers' capabilities			
7	I believe that participating in training courses gives you a privileged social status			
8	I think the training courses are not useful in practice			
9	I think training courses are a waste of effort and money			
10	I believe participation in training courses gives me respect and appreciation of others			
11	I believe training courses increases my confidence			
12	I think the content do not match with the reality of the field			

11. Job satisfaction: Please rate your answer by marking (√) in front of the following statements:

N	Statements	scale		
		Agree	Neutral	Disagree
1	I am satisfied with my job			
2	I think there is a shortage of agricultural resources/requirements to enhance the fields efficiency			
3	My earning does not match the workload			
4	I am happy about my relationships with the relatives and the local leaders			
5	lack of transparency of the agricultural resources' distribution			
6	I think that the environment is suitable to expand and enhance the field’s workload			
7	The workload matches my capabilities			
8	I believe that I am in the right post			

12. Problem resolving ability: Please rate your answer by marking (√) in front of the following statements:

N	Statements	Scale		
		Agree	Neutral	Disagree
1	I can solve the routine administrative tasks that hinder agricultural work			
2	I transfer the field issues to the extension centers			
3	I overcome the barriers to access the demand of the agricultural requirements.			
4	I priorities my needs and issues that I struggle with at work			
5	I discuss with the advisory (extension) service during their attendance			
6	I try to understand the results of the research and scientific solutions from the advisory (extension) service			
7	I am always willing to try to implement new things			
8	I consult the advisory (extension) service on issues that I face			
9	I pay for my travel expenses to avoid the long commute between the center and the field			
10	I treat all employees as friends to build the trust			

Part Two: Estimation of the extension training effectiveness

Please rate your answer by marking (√) in front of each statement and appropriate alternative:

First: training objectives

N	Statements	Scale: to what extent		
		weak	Fair	Good
1	Objectives contributes in improving your attitude			
2	Objectives are transparent			
3	Objectives contributes in developing your knowledge and skills			
4	Your participation helps to identify the objectives			
5	Objectives are compatible with your educational level			
6	Objectives are relevant to your training needs			
7	Objectives are compatible with your personal characteristics			
8	Objectives are compatible with training components/content			
9	Objectives contributes in solving problems at workplace			
10	Objectives are compatible with the training timeframe			

Second: duration and timing of training:

N	Statements	Scale: to what extent		
		Weak	Fair	Good
1	The training's time schedule is convenient			
2	The training duration is convenient			
3	Time well managed and allocated equally between the training's components			
4	Trainings' time schedule compatible with the field issues			
5	The duration of the training courses matched well with your capabilities			
6	Efficient use of the training to undertake the extension activities			
7	Enough time available for the dialogue and discussions			
8	Enough time available to visit the fields			
9	Efficient time division between theory and practice			
10	The total number of days are convenient			
11	The total number of hours per day are convenient			

Third: Trainees Selection

N	Statements	Scale: to what extent		
		Weak	fair	Good
1	Your participation to select yourselves for training courses			
2	Use of incentives to participate in the training courses			
3	Estimate and evaluate different characters			
4	Consider your previous experiences			
5	Evaluate your personal needs			
6	Use of the proactive way to be selected			
7	Fair and transparent election process			
8	Consider the quality of the farmer's work to participate			

Fourth: Capability of the trainers

N	Statements	Scale: To what extent		
		weak	fair	good
1	Trainers' commitment			
2	Trainers' interest in trainings topics			
3	Ability to explain and deliver			
4	Use of various training methods and techniques			
5	Offer trainees the opportunity to express their opinion			
6	Engaging trainees to answer questions			
7	Trainer’s capability to clarify and deliver the training’s content			
8	Trainees ability to self-motivate to participate in discussions			
9	Give well-known examples related to the topics by the trainers			
10	Use of easy to understand terminologies during the lectures			
11	Topics arrangement according to their complexity			
12	Follow-up training’s findings			
13	Use of appropriate audio-visual aids for each subject			
14	Summarize the main points at the end of the lecture			

Fifth: training content

N	Statements	Scale: To what extent		
		Weak	Fair	Good
1	Suitability of the training contents with the trainee’s mental abilities			
2	Compatibility of the content with the objectives of the training			
3	The training programs contain Up-to-date topics			
4	The training content contributes in developing your knowledge, skills and trend			
5	Arrange, organizing and link topics together			
6	Correlate the content to your issues			
7	Correlate the content to the methods and means used in the training			
8	Compatibility of the content with the duration of the training			
9	Ability to Implement training contents in the field			
10	Correlate the content to the title of the training courses			
11	The topics integrate well with the objectives			
12	Support the lectures with pictures and illustrations			

Sixth: methods and means of the training

N	Statements	Scale: To what extent		
		Weak	Fair	Good
1	The training methods matched with the objectives			
2	Diversity of the methods used in the training courses			
3	Use of appropriate methods that suits your capabilities			
4	Use of appropriate methods that suits training means			
5	Use of appropriate methods and means that suits the number of the trainees			
6	Effectiveness of the methods used to obtain knowledge			
7	Use of appropriate methods that suits the training environment			
8	Used method in training is compatible with the contents			
9	Use of appropriate training methods by the trainers			
10	Use of modern tools and means in the training courses			

Seventh: Facilities and Equipment of training

N	Statements	Scale: To what extent		
		Weak	Fair	Good
1	The training sites/locations is appropriate			
2	Transportation means is accessible			
3	The size of the venue (space) is convenient			
4	The training venue is calm and quite			
5	Relevant training publications are available			
6	Facilities are available including (ventilation, lighting, seating)			
7	Training equipment is provided including (papers, pens, etc.)			
8	The quality of organizing and administering the training			

Eighth: Training results

N	Statements	Scale: To what extent		
		Weak	Fair	Good
1	Enhance Your knowledge in the topics covered			
2	Increases the effectiveness of work to handle issues			
3	Assists in minimizing mistakes and errors at the workplace			
4	Helps to gain positive attitudes towards work			
5	Boost your morale			
6	Your motivation to develop quality of work			
7	Gaining new skills			

المستخلص

استهدفت هذه الدراسة تحديد فعالية التدريب الارشادي الزراعي بشكل عام في بعض المجالات ، ثم ايجاد الفروقات بين التقدير الكلي لفعالية التدريب وفقا لبعض المتغيرات، كذلك تحديد اهم المشاكل التي تواجه التدريب الارشادي في اقليم كوردستان العراق. شملت الدراسة جميع العاملين في الارشاد الزراعي والذي كان عددهم (١٤٨) عاملا ارشاديا ، وعينة من المزارعين كان عددهم (٣٠٣) مزارعا من المشاركين في الدورات التدريبية الارشادية في اقليم كوردستان العراق للفترة ما بين (٢٠١٣ – ٢٠١٧).

تم عملية جمع البيانات من خلال المقابلة الشخصية للمتدربين و باستخدام استمارة استبيان أعدت لهذا الغرض. وللتأكد من الصدق الظاهري فقد عرضت الاستمارة على مجموعة من الخبراء في مجال الارشاد الزراعي والعلوم التربية و النفسية ، تم قياس الثبات بواسطة استخدام معادلة الفا كرو نباخ ، و بلغت قيمته (٠.٩٢) للعاملين الارشاديين و (٠.٨١) للمزارعين. استخدم برنامج التحليل الاحصائي (SPSS) في تحليل البيانات.

اظهرت النتائج بان مستوى تقدير فعالية تدريب الارشادي الزراعي للمتدربين بشكل عام من وجهة نظر العاملين متوسط يميل الى الانخفاض، بينما كان التقديرعند المزارعين متوسط يميل الى الارتفاع. احتل مجال تقدير فعالية المدربين المرتبة الاولى من وجهة نظر العاملين وبلغت اهميتها النسبية (٥٦.٣٧٪)، بينما جاء مجال تقدير طرق اختيار المتدربين في المرتبة الاخيرة و كانت اهميته النسبية (٥٣.١٨٪). من جهة اخرى احتل مجال تقدير نتائج التدريب المرتبة الاولى من وجهة نظر المزارعين و بلغ اهميته النسبية (٨٨.٨٥٪)، كذلك احتل مجال تقدير اختيار المتدربين المرتبة الاخيرة و بلغت اهميته النسبية (٨٠.٠٠٪).

اشارت نتائج تحليل البيانات الى وجود فروقات معنوية في تقدير فعالية التدريب الارشادي من وجهة نظر العاملين الارشاديين و كل من المتغيرات المستقلة (موقع العمل ، عدد الدورات التدريبية ، مدة الدورات التدريبية ، مدى الاستفادة من الدور ات التدريبية ، الاتجاه نحو التدريب الارشادي ، الرضا الوظيفي ، القدرة على حل المشكلات)، بينما اشارت النتائج الى عدم وجود فروقات معنوية في تقدير فعالية التدريب و كل من المتغيرات المستقلة (العمر ، الجنس ، النشأة ، التحصيل الدراسي ، التخصص الدراسي ، مدة الخدمة الوظيفية الكلية ، مدة الخدمة الارشادية).

اظهرت النتائج الى وجود فروقات معنوية في تقدير فعالية التدريب الارشادي من وجهة نظر المزارعين و كل من المتغيرات المستقلة (العمر ، المكانة الاجتماعية ، عدد الدورات التدريبية ، مدى الاستفادة من الدورات التدريبية ، الاتجاه نحو التدريب الارشادي ، الرضا عن العمل ، القدرة على حل المشكلات)، وعدم وجود فروقات معنوية في تقدير فعالية التدريب الارشادي و كل من (الجنس ، السكن ، التحصيل الدراسي ، مدة الدورات التدريبية).

واشارت النتائج بان مستوى مشاكل التدريب الارشادي من وجهة نظر العاملين كان متوسطا يميل الى الارتفاع ، وان مجال مشاكل العاملين جاءت المرتبة الاولى وكانت اهميتها النسبية (٥٧.٢٦٪)، بينما احتل مجال مشاكل التخطيط والتنفيذ احتل المرتبة الاخيرة باهمية نسبية (٥١.٥٩٪).

وفي ضوء ما توصل اليه البحث من نتائج ، فقد اقترح الباحث مجموعة من التوصيات اهمها تنشيط جهود نشاطات التدريب الارشادي وفق نتائج و توصيات البحث العلمي في التخطيط والتنفيذ والتقويم ، و بناء آلية سليمة علمية لاختيار المرشحين في الدورات التدريبية وفي ضوء الاحتياجات التدريبية للمتدربين والمشاكل التي تواجههم اثناء العمل، وزيادة عدد الدورات التدريبية ومدتها، وكذلك تشجيع و حث المتدربين على المشاركة في اعداد البرامج التدريبية ورسم الاهداف واختيار مواضيع الدورة ، حث و تشجيع العاملين للمشاركة في الدورات التدريبية بغض النظر عن اختلافهم في العمر والجنس والنشأة والتحصيل الدراسي والتخصص والخدمة الوظيفية ، ايضا تشجيع المزارعين للمشاركة في الدورات التدريبية بغض النظر عن اختلافهم في الجنس والتحصيل الدراسي والسكن، كذلك زيادة الجانب العملي للدورات التدريبية ، ثم رفع الاتجاه الإيجابي عن التدريب و الرضا عن العمل للمتدربين وخلق مناخ ملائم لظروف العمل ، والعمل على خفض و معالجة المشاكل التي تواجه التدريب الارشادي في كافة المجالات، ثم زيادة دعم المصادر المادية والبشرية والميزانية الضرورية مع المكافئات والحوافز من اجل تنفيذ النشاطات التدريبية في ضوء الحاجات التدريبية للمتدربين.

حكومة إقليم كوردستان
وزارة التعليم العالي والبحث العلمي
جامعة: السليمانية
كلية: علوم الهندسة الزراعية

فعالية التدريب الارشادي الزراعي في إقليم كوردستان العراق للفترة من (٢٠١٣ – ٢٠١٧) من وجهة نظر المتدربين

اطروحة دكتورا

مقدمة الى مجلس كلية علوم الهندسة الزراعية – جامعة السليمانية- وهي جزء من متطلبات درجة دكتوراه فلسفة في العلوم الزراعية

الارشاد الزراعي - التدريب الارشادي

مقدمة من قبل الطالب

محمد عمر محمد سكينة

بكالوريوس – الاقتصاد والتعاون الزراعي – كلية الزراعة والغابات – جامعة الموصل ١٩٩٢

ماجستير – الارشاد الزراعي – التدريب الارشادي – جامعة السليمانية – كلية الزراعة ٢٠٠٩

بإشراف

الأستاذ الدكتور

عابد علي حسن الدوسكي

٢٠٢٠ ميلادي

١٤٤١ هجري

پوختە

ئامانج لەنجامدانی ئەم توێژینەوەیە بریتی بوو لە دیاریکردنی کارایی ڕاهێنانی ڕێنمایی کشتوکاڵی لە هەندێ بواردا، هەروەها دیاریکردنی جیاوازییەکان لە نێوان خەملاندنی گشتی کارایی ڕاهێنانی ڕێنمایی بە پێی هەندێ فاکتەر، دواتر دیاریکردنی گرنگترین ئەو کێشانەی ڕوو بەڕووی ڕاهێنانی ڕێنمایی دەبێتەوە. توێژینەوەکە هەموو کارمەندانی بواری ڕێنمایی کشتوکاڵی لە خۆ گرتبوو کە ژمارەیان (١٤٨) کارمەند بوو لە هەموو پارێزگاکانی هەرێمی کوردستان بە گەرمیانیشەوە، لەگەڵ نموونەیەك لە جووتیارانی هەرێمی کوردستان کە بەشداریان کردوە لە خولەکانی ڕاهێنان لە هەرێمی کوردستان لە ماوەی نێوان (٢٠١٣ – ٢٠١٧) کە ژمارەیان (٣٠٣) جووتیار بوو. داتاکان کۆکرایەوە بە هۆی چاوپێکەوتنی ڕاستەخۆی ڕاهێنراوەکان بە بەکارهێنانی فۆرمێکی ڕاپرسی کە ئامادە کرابوو بۆ ئەو مەبەستە. بۆ دڵنیابوون لە ڕاستی شێوەکی ،فۆرمەکە خرایە بەردەست چەند شارەزایەکی بواری ڕێنمایی و زانستە دەروونیەکان. جێگیری فۆرمەکە پێورا بە بەکارهێنانی یاسای ئەلفاکرۆنباخ ، کە ئەنجامەکەی (٠.٩٢) بۆ کارمەندەکان و (٠.٨١) بۆ جووتیارەکان. پرۆگرامی ئاماری کۆمپیوتەری (SPSS) بەکار هێنرا بۆ شیکاری داتاکان.

ئەنجامەکانی توێژینەوەکە دەریخست کە ئاستی خەملاندنی کارایی ڕاهێنانی ڕێنمایی لە دیدگای کارمەندەکانەوە ناوەندە بەرەو نزمبونەوە ، بەڵام بۆ جووتیارەکان ناوەندە بەرەو بەرزبوونەوە. سەبارەت بە کارمەندەکان خەملاندنی بواری بە توانایی ڕاهێنەرەکان پلەی یەکەمی بەدەستهێناوە لە ڕیزبەندی بوارەکان کە گرنگی ڕێژەییەکەی(٥٦.٣٧٪) ، وە خەملاندنی بواری هەڵبژاردنی ڕاهێنەرەکان کۆتا پلەی بەدەستهێناوە کە گرنگی ڕێژەییەکەی (٥٣.١٨٪). بەڵام سەبارەت بە جووتیارەکان خەملاندنی بواری ئەنجامەکانی ڕاهێنان پلەی یەکەمی بە دەست هێناوە لە ڕیزبەندی بوارەکان کە گرنگی ڕێژەییەکەی (٨٨.٨٥٪) ، وە خەملاندنی بواری هەڵبژاردنی ڕاهێنەرەکان کۆتا پلەی بەدەستهێناوە کە گرنگی ڕێژەییەکەی (٨٠٪). ئەنجامی توێژینەوەکە دەریخست کە جیاوازیەکی بەرچاوو هەیە لە خەملاندنی کارایی ڕاهێنانی ڕێنمایی لە دیدگای کارمەندەکان بەم فاکتەرە سەربەخۆیانە(شوێنی کار ، ژمارەی خولەکانی ڕاهێنان ، ماوەی خولەکانی ڕاهێنان ، ئاستی سوودمەندی لە خولەکانی ڕاهێنان ، ئاراستە بۆ ڕاهێنانی ڕێنمایی ، ڕازیبوون لە کار ، توانای چارەسەرکردنی کێشەکان). بەڵام

جیاوازیەکی بەرچاوو نیە لە خەملاندنی کارایی ڕاهێنانی ڕێنمایی بەم فاکتەرە سەربەخۆیانە(تەمەن ، ڕەگەز ، ڕەچەڵەك ،بڕوانامە ، پسپۆڕی ، ماوەی خزمەتی گشتی ، ماوەی خزمەتی ڕێنمایی). ئەنجامی توێژینەوەکە ڕوونی کردەوە کە جیاوازیەکی بەرچاوو هەیە لە خەملاندنی کارایی ڕاهێنانی ڕێنمایی لە دیدگای جووتیارەکان بەم فاکتەرە سەربەخۆیانە (تەمەن ، پێگەی کۆمەلایەتی ، ژمارەی خولەکانی ڕاهێنان ، ئاستی سوودمەندی لە خولەکانی ڕاهێنان ، ئاراستە بۆ ڕاهێنانی ڕێنمایی ، ڕازیبوون لە کار ، توانای چارەسەرکردنی کێشەکان). بەڵام جیاوازیەکی بەرچاوو نیە لە خەملاندنی کارایی ڕاهێنانی ڕێنمایی بەم فاکتەرە سەربەخۆیانە(ڕەگەز ، نیشتەجێ ،بڕوانامە ، ماوەی خولەکانی ڕاهێنان). ئەجامەکان ئاماژە بەوە دەکەن کە ئاستی کێشەکانی ڕاهێنانی ڕێنمایی مام ناوەندە بەرەو بەرز بونەوە ، وە کێشەکانی بواری کارمەندەکان پلەی یەکەمی بەدەستهێناوە لە کۆی ڕێزبەندییەکە کە گرنگی ڕێژەییەکەی (٥٧.٢٦٪) ، بەڵام کێشەکانی بواری پلاندانان و هەڵسەنگاندن کۆتا پلەی بەدەستهێناوە کە گرنگی ڕێژەییەکەی (٥١.٥٩٪).

لەبەر ڕۆشنایی ئەنجامەکانی توێژینەوەکە ، توێژەر پێشنیاری چەند ڕاسپاردەیك دەکات کە گرنگترینیان ئەمانەن: چالاك کردنەوەی ڕاهێنانی ڕێنمایی بە پێی ئەنجام و ڕاسپاردەی توێژینەوەی زانستی لەسەر بنەمای سیستمی پلاندانان و جێبەجێکردن و هەڵسەنگاندنە ، دیاریکردنی میکانیزمێکی تەندروست بۆ هەڵبژاردنی ڕاهێنراوەکان لە کارمەندان و جووتیارانیش لەسەر بنەمای پێویستی ڕاهێنان و ئەو کێشانەی دێتە ڕێیان لە کارکردن ، زیادکردنی خولەکانی ڕاهێنان و ماوەکەشی ، هاندانی ڕاهێنراوان بۆ بەشداریکردن لە داڕشتن و دیاریکردنی ئامانجی خولەکانی ڕاهێنان بابەتی خولەکانیش، هاندان بۆ بەشداریکردن کارمەندانی ڕێنمایی لە خولی ڕاهێنان بەبێ جیاوازی تەمەن و ڕەگەزو ڕەچەڵەك و بڕوانامەو پسپۆڕی و ساڵانی خزمەت ، هەروەها هاندانی جووتیارانیش بۆ بەشداریکردن لە خولەکانی ڕاهێنان بەتایبەتی گەنجەکان وە بەبێ جیاوازی ڕەگەزوو بڕوانامەو شوێنی نیشتەجێ، وە زیادکردنی بواری پراکتیکی لە خولەکاندا ، هەروەها بەرزکردنەوەی ئاراستەی ئەرێنی بۆ ڕاهێنانی ڕێنمایی و دروسکردنی ژینگەیەکی لەبار بۆ زیادکردنی ئارەزووی کارکردن ، وە کارکردن بۆ کەمکردنەوە و چارەسەرکردنی ئەو کێشانەی ڕوبەڕووی ڕاهێنانی ڕێنمایی دەبێتەوە لە هەموو بوارەکاندا ، وە دابینکردنی سەرچاوەی مادی و مرۆیی و بودجەی پێویست لە پێناو جێبەجێکردنی چالاکیەکانی ڕاهێنان لە ژێر ڕۆشنایی پێویستی ڕاهێنان.

حکومەتی هەرێمی کوردستان
وەزارەتی خوێندنی باڵاو توێژینەوەی زانستی
زانکۆی سلێمانی
کۆلێژی زانستە ئەندازیاریە کشتوکاڵیەکان

کارایی ڕاهێنانی ڕێنمایی کشتوکاڵی لە هەرێمی کوردستانی عێراق لە ماوەی (٢٠١٣ – ٢٠١٧) لە دیدگای ڕاهێنراوەکانەوە

تێزێك

پێشکەش کراوە بە ئەنجومەنی کۆلێژی زانستە ئەندازیاریە کشتوکاڵیەکان وەك بەشێك لە پێداویستیکانی بە دەستهێنانی بڕوانامەی دکتۆرا فەلسەفە لە ڕێنمایی کشتوکاڵ

ڕاهێنانی ڕێنمایی کشتوکاڵ

لە لایەن خوێندکار

موحەممەد عومەر موحەممەد سەکینە

بەکالۆریۆس – ئابووری و هەرەوەزی کشتوکاڵی – کۆلێژی کشتوکاڵ و دارستان – زانکۆی موسڵ ١٩٩٢

ماستەر – ڕێنمایی کشتوکاڵ – ڕاهێنانی ڕێنمایی – زانکۆی سلێمانی – کۆلێژی کشتوکاڵ ٢٠٠٩

بە سەرپەرشتی

پرۆفیسۆر

دکتۆر عابد عەلی حەسەن دۆسکی

٢٧٢٠کوردی ٢٠٢٠زایینی