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MEASURING ENVIRONMENTAL AWARENESS AMONG LIBYAN FARMS IN RABI VALLEY AREA

MASTER THESIS

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ABSTRACT

MEASURING ENVIRONMENTAL AWARENESS AMONG LIBYAN FARMS IN RABI VALLEY AREA

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The aim of this study is to shed light on the subject of environmental awareness among Libyan farmers at the designated area of east Tripoli (Wade Rabia), A survey was conducted to collect data from a sample of 100 participant, and a statistical method was used to actually measure the degree of awareness. A questionnaire was used to collect the most crucial information to this study consisting of 20 main questions and sub questions, all data then analyzed using the SPSS. The distribution of questionnaire and personal interviews took almost 5 months (begining February-June 2015).

The participant were asked for their opinions and what theythought as the main factors contributing to environmental issues in Libya . they were also asked to grade in order of importance of the solutions to the problem considering industrial emissions, fuel stations, house hold waste, chemical pollutions, construction sites and quarries as the most serious ones.

The results showed that chemical pollution ranked first by 62%, but the Farmers awareness of regarding environment protection scored about 67% the awareness of regarding the results of environment degradation scored 71% . The study recommended the use of appropriate instructional materials, considering environmental properties.

Key words: Environmental Awareness, Libyan Farmers, Environment Degradation.

ÖZET

MEASURING ENVIRONMENTAL AWARENESS AMONG LIBYAN FARMS IN RABI VALLEY AREA

EhabeddinELftisi

Yüksek Lisans, Çevre Eğitimi ve Yönetimi A.B.D.

Tez Danışmanı: Doç.Dr.Şerife GÜNDÜZ

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Bu çalışmanın amacı, doğu Trablus'un belirli alanlarında bulunan Libya çiftçileri arasında çevre bilincine duyarlılığını açıklamaktır (Wade Rabia), 100 katılımcıdan veri toplamak için bir anket hazırlanmış, ve daha sonra bir istatistiksel yöntem kullanılarak farkındalık derecesi ölcülecektir. Bu anket 20 ana soru ve alt sorudan oluşmuş olup çalışmanın en önemli bilgisini toplamak için kullanılmıştır. Bulunan tüm veriler SPSS kullanılarak analiz edilmiştir. Anketlerin dağılımı ve bireysel görüşmeler yaklaşık 5 ay sürmüştür {Şubat ayının başından ~ Haziran 2015'e kadar}.

Katılımcılara Libya'da çevre konularına katkı sağlayacak temel faktörler hakkındaki fikirleri ve düşünceleri soruldu, ayrıca katılımcılardan endüstriyel emisyonlar, yakıt istasyonları, ev atıkları, kimyasal kirliliği, şantiyeler ve taş ocakları dikkate alınarak önem sırasına göre sınıflandırılması istendi ve bu gibi ciddi sorunlara çözüm arandı.

Sonuçlar, kimyasal kirliliğin %62'lik oranla birinci sırada olduğunu gösterdi ancak çevrenin korunması konusunda çiftçilerin farkındalığı yaklaşık % 67'lik gibi yüksek bir oran alırken, çevresel bozulma sonuçlarına ilişkin farkındalık %71'lik bir oran aldı. Bu çalışma çevresel özellikler dikkate alınarak, uygun öğretim materyallerinin kullanılmasını tavsiye etti.

Anahtar Kelimeler: çevre bilinci; Libya'lı çiftçiler; Çevresel bozulma

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ABBREVIATIONS

BCE:	**Before Christ**
SOM:	**Soil Organic Matter**
GDP:	**GROSS DOMESTIC PRODUCT**
GMMR:	**Great Man Made River**
FAO:	**Food and Agriculture Organization of the United Nations**
SAS:	**The Sahara Aquifer System**
N:	**Number of people**
(%):	**Percentage**
(S.D):	**Standard Deviation**

TERMINOLOGY

Environment: Environment includes two types of living and non-living environment. Living environment ,sharing the same physical space with live and all other living creatures are directly or indirectly affected by it .The a biotic environment is a physical place like rock or water where living creatues live in or on it .(yucel,2006;Armagan,2006).

Environmental Awareness: The relationship between a person's environment and being aware of the importance of their presence (TUBA, 2002; Vaizoglu ve dig, 2005).

Sustainable Development: The development which meets the needs of the present without compromising the ability of future generations to meet their own needs. Some people also believe that the concept of sustainable development should include preserving the environment for other species as well as for people.(U.S national research council, policy division, board on sustainable development).

Environmental problems: It is a broader concept when compared to the concept of environmental pollution .Thus environmental problem are discussed further as deterioration, contamination, living behavior and ways of the life which constitute negative factors (Erten, 2006).

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CHAPTER I
INTRODUCTION

No doubt as the population around the world increases, the demand for agricultural products will increase as well, like meat, poultry and the production also feed to growing animals. This increase of demand for agricultural products pushes companies and farmers to search for new ways and means to increase production of such products, which at the end will always put more pressure on earth to grow food. Of those means is the emergence of chemical fertilizers which promotes faster growth rate, and pesticides to reduce crop damage by pestson. In the long run the use of such chemical fertilizers and pesticides will have its negative effects. It will affect the quality of agricultural products itself, environment and human health, especially when these chemicals are not been handled properly by farmers, so it's of extreme importance for those in the agriculture business to educate farmers in the proper way to use and dispose of such chemicals to reduce its potency to earth, animals and consequently to humans. Also increase farmers level of awareness of the damage these chemicals will inflect on their lives and their community (A. Arfin, M. A. Baten, B. S. Nahar and M. A. Sattar, 1999).Our world began to think about our way of life during the past three decades. This has led researchers in various fields to recognize the many risks and threats to the future of human life, and was among those things affected by the approach and style of life during the past decades, environmental risks. Those risks pushed these researchers to increase awareness and understanding that the current development model (model of modernity) is no longer the best option to achieve sustainable human development goals. Many environmental problems have emerged, such as shrinking tropical forest areas, air and water pollution, global warming (warmth cosmic), devastating floods caused by rising sea and river level, depletion of non-renewable resources, and other environmental problems.The emergence of these problems, pushed researchers, scientists and even at the level of political leaders in different parts of the world to make plans for a secure future for the Earth, by developed sustainable model alternative works to achieve harmony between achieving not only the development goals but also the protection of the environment and sustainability (Karlsson, 2004).

1.1.Objectives Of The Research

This research aims to find out the extent of knowledge of farmers in the search area agriculture-related environmental issues, through the measurement of environmental awareness among workers in the agricultural sector of farmers and agricultural advisors in the search area by answering fundamental questions related to agriculture such as the extent of knowledge of farmers using agricultural pesticides, insects and soil nutrients and fertilizers, regarding the use and protection of the environment and natural resources ,as ideas about environmental protection and the use of natural resources, on environmental degradation and ways to reduce it. As these issues do not find adequate attention by workers in the agricultural field, whether government agencies working in the field of agricultural extension or the farmers themselves, the effects always appear in the long term and this shows the lack of familiarity with the importance of the environment in our lives and coming generations.

1.2. Significance of the Study

Because of the expansion in the use of pollutants and improper use of land, water has become the biggest burden falls on agricultural extension as one of the important aspects in the countryside and in charge of environmental awareness and education of farmers to maintain sources of natural revolution of soil, water, plants and animals and other pollution and depletion of equipment is considered Agricultural Extension. One of the most basic published Poet knowledge can contribute to the maximum extent to encourage existing applications on pesticide and expansion to rely on other modern methods of pest control, such as biological vital roads in the control and use of style integrated with other control. (Erbough et al. 1995).

1.3. Aim of the Study

The importance of the search is of human concern for the environment as the human is the main effective and efficient in our life. An example is the pursuit of the state and government to reduce production-related expenses, and reduce imports and increase exports by creating many ways to reduce the cost of production by use of organic fertilizers and materials to increase agricultural production. However, that may lead to negative consequences in the environment and the safety of the ground.Measuring the extent of human attention to environmental issues is

one of the means that will help decision-makers in producing countries to draw policies that take into account life safety.

1.4. Research Methodology

(National Medium Term Investment Programmer, June 2006).The research will be conducted to cover an area where an active agricultural community exist (East of Tripoli). The majority of the population works in the craft of Agriculture. The craft was passed from father to son to grandson. The selected sample for the study forms 0.2% of the total population according to the 1990 census which was conducted by the Ministry of Labor. The study relied on a closed form to obtain the necessary raw data. The questionnaire was designed and divided into three main sections (Kahramanoğlu.,Gündüz, 2011).

1. General information related to the characteristics of the study.

2. A set of questions concerning the economic situation of the farmer and how to deal with agricultural products and its relationship with institutions working in agriculture.

3. A set of questions to measure the attitudes towards environmental issues.

Descriptive statistics methods were used to calculate averages and standard errors of analytical and statistics to analyze the data according to their nature by using statistical analysis of Social Sciences program SPSS, it also used laboratory tests in the light of the distributions, (Chi-square), tests used to look for the significance of differences between the responses of all the paragraphs of the second hypothesis. The researcher used analysis of variance(ANOVA), to measure the differences in the degree of awareness of the Libyan farmers on environmental protection and the use of environmental resources by demographic characteristics.

CHAPTER II
RELEVANT LITERATURE

2.1. History of Agriculture:

(Agarwal, Ankit (2011).Since ancient times, agriculture was the driving engine of civilization. Humans have developed from being so primitive depending on fishing and hunting games, which necessitate traveling seasonally following the trail of animals they hunt, to settlers and farmers cultivating crops and producing food for their family and domesticated animals like cattle and poultry. The history of agriculture is the story of humankind's development and cultivation of processes for producing food, feed, fiber, fuel, and other goods by the systematic raising of plants and animals. Prior to the development of plant cultivation, human beings were hunters and gatherers. The knowledge and skill of learning to care for the soil and growth of plants advanced the development of human society, allowing clans and tribes to stay in one location generation after generation. Archaeological evidence indicates that such developments occurred 10,000 or more years ago Throughout human history our ability to cultivate crops influenced the success of civilizations. This relationship between humans, the earth, and food sources affirms soil as the foundation of agriculture. Studies indicate that many of the crops were initially classified within the categories of wild plants and they were not classified as species of plants and crops, domesticated. As an example, some types of wheat did not become domesticated crops until the time of Advanced Neolithic. For some types of rice (Oryza sativa) studies have shown that it took 3,000 years to become domesticated crops (Mordechai E. Kislev, Anat Hartmann, and Ofer Bar-Yosef, 2006).

2.2. The Importance Of Agriculture

(Cervantes-Godoy, D. and J. Dewbre (2010)), Human communities, no matter how sophisticated, could not ignore the importance of agriculture. As a matter of fact, civilization began with agriculture, when our nomadic ancestors began to settle and grow their own food. Human society forever changed. Not only did villages, towns and cities begin to flourish, but so did knowledge, the arts and the technological sciences, for most of history, society's connection to the land was intimate, and for that some progresse toward food security had be made, and also because the increase in agricultural production may helped the rise of food purchasing power

around the world, and off course to improve the diets. In modern times, new technologies provide apparent abundance of food that has come from the growing, transportation and storage of food, but our global world may need to reconsider the fundamental importance of agriculture - and the degree to which the global and independent nature of human society today requires a re-thinking of our attitudes and approaches to world food production and distribution of Nationalistic attitudes contribute greatly to inadequacies in food production transportation, storage and distribution.The effective and lasting solution to problems related to food insecurity will be found in policies, and actions that pay adequate attention to those processes of development that aim primarily toward strengthening the human fabric of communities and revitalizing their institutions. More significantly, solutions to socioeconomic problems began at village level. This vision goes beyond the prescription to "think globally, act locally" These principles ensure that effective and appropriate technical solutions to food insecurity are developed and shared with those nations and people mostly in need. (Peter Timmerman, John Wiley and Sons, 2002)

2.3. Development of Agriculture

(Sanjai J. Parikh & Bruce R. James -2012).Frequently, soil is referred to as the "fertile substrate", because not all soils are suitable for growing crops. Ideal soils for agriculture are balanced in contributions from mineral components (sand, silt, and clay), soil organic matter (SOM), air, and water .The balanced contributions of these components allow for water retention and drainage, oxygen in the root zone, nutrients to facilitate crop growth; and they provide physical support for plants. The distribution of these soil components in a particular soil is influenced by five factors of soil formation: parent material, time, climate, organisms, and topography direct an overlapping role in influencing the suitability of a soil for agriculture.Historically, conventional agriculture has accelerated soil erosion to rates that exceed of soil formation and often that leaves the soil without adequate plant cover and therefore exposed to raindrop splash and surface runoff or wind. Throughout human history, soil erosion has affected the ability of societies to produce an adequate food supply. Examples of this can be seen in the eroded silt built up in the ancient riverbeds of Mesopotamia, making irrigation problematic. The second example appears in the United States Dust Bowl of the 1930 where a devastating drought increased wind erosion,

carrying fertile topsoil from the Midwest hundreds of kilometers to Washington, DC (Sanjai J & Bruce R. James - The Foundation of Agriculture.(2012).

Agriculture can work in concert with other sectors to produce faster growth, reduce poverty, and sustain the environment. Agriculture consists of crops, livestock, agroforestry, and aquaculture. It does not include forestry and commercial capture fisheries because they require vastly different analyses. But interactions between agriculture and forestry are considered in the discussions of deforestation, climate change, and environmental service (The International Bank for Reconstruction and Development/the World Bank 2007).

2.4. Management of Agriculture

(Daniele Giovannucci, Sara Scherr, Danielle Nierenberg, Charlotte Hebebrand, Julie Shapiro, Jeffrey Milder, and Keith Wheeler. 2012). The evolution of management concepts on agriculture with the development of the agricultural process in general contributed to the development of traditional and conventional management of the process of agriculture. There has been significantly less take-up of conversion in farmer attitudes to conversion to explore what perceptual barriers to organic conversion exist, and whether they are changing in importance over time. Previous studies of farmer motivations to convert to organic production draw attention to concerns over technical issues, financial security, personal health and more general societal and ethical concerns, especially related to environmental conservation and food quality. The study of farmers' environmental attitudes is still in its infancy, and an earlier statement that 'no overall pattern of analysis has yet been established among researchers of attitudes of landholders" still rings true today. Although there are many studies addressing farmers' attitudes to the environment in general, researchers still seem to be reluctant to combine their results with policy-relevant statements. (Wilson, 1992) .

2.5. Libyas on the World

(Saad A. Alghariani. 1993 & Salem, O.M. 1992). Libya is located in North Africa, which has natural limits, such as the Mediterranean Sea in the north, and a border with Egypt in the east, Sudan to the southeast, Chad and Niger to the south, in addition to Algeria and Tunisia in the west. It has an area of 1,759,540 km^2. The total arable land and permanent pasture 2,150,000 ha and that makes approximately 1.2% of Libya's total land area. The agricultural sector in Libya

has developed, but the prevailing climatic conditions, the low fertility of most of its soils, and irrigation problems limit the output The Sahara desert covers about 95% of Libya's land. They remaining area is used for grazing. Facts showed that most of the arable land and pastureland of Libya is in the western parts of the coastal belt. In 1958, before the era of oil wealth, agriculture supplied over 26% of GDP, so Libya, in that time was one of the exporting countries of agriculture and animal resource production (The Library of Congress Country Studies; CIA World Fact book).

Although gross levels of agricultural production have remained relatively constant, increasing oil revenues have resulted in a decline in agriculture's overall share of national income. Thus, by 1962, agriculture was (Libya: agriculture and economic development, 1973 p89) only responsible for 9% of GDP, and by 1978 this figure had tumbled to a mere 2%. Even more striking than the downward trend in agriculture's share of GDP was the rise in food imports. In 1977 the value of food imports was more than 37 times greater than it had been in 1958. Therefore, a large part of the rising oil wealth between 1960 and 1979 was spent on imported food products. So from these statistics we see that employment in the agricultural sector had been accounted as the less proportion of the total workforce. In the period (1970 to 2004) the average employment in the public administration sector was 16% and in health services 12%, in education 27% in manufacturing ratio 8% and in agriculture sector only 53%, while in 1958 agriculture sector was accounted around 70% of the total workforce (General Authority for Documentation and Information, Tripoli Libya.(2010)

2.6. Libyas Agricultural Development

(J.A.Allan., K.S.Mclachlan, (1973). Since 1962 Libyan governments has been more altentive to agricultural development. The government gives inducements to absentee landlords to encourage them to put their lands on productive use and initiated high agricultural wage policies to stem the rural-to-urban flow of labor. These policies met with some success. Production levels began to rise slightly, and many foreign workers were attracted to the agricultural sector (Support to Nepad–Caadp Implementation/ Tcp/Lib/2902, (2010). Agricultural development became the cornerstone of the 1981-1985 development plans, which attached high priority to funding the GMMR (Great Man Made River) project, designed to bring water from the large desert oasis aquifers of Sarir and Al Kufrah (Pallas, P. 1980).

Agricultural credit was provided by the National Agricultural Bank, which in 1981 made almost 10,000 loans to farmers at an average of nearly 1,500 LD each. The substantial amounts of funds made available by this bank may have been a major reason why so many Libyans,nearly 20% of the labor force in 1984, choose to remain in the agricultural sector. Despite the greater attention to agriculture, in 1984, this sector only accounted for about 3.5% of GDP, and Libya still imported over one million metric tons of cereals (up from 612,000 metric tons in 1974). Also in 1984, the average index of food production per capita indicated a decline of 6% from the period 1974 to 1976. On the average, about 70% of Libya's food needs were met by imports during the mid-1980s.The agricultural sector in Libya has been developing, but the prevailing climatic conditions, the low fertility of most of its soils, and irrigation problems limit the output. Most of the arable land and pastureland of Libya is in the western parts of the coastal belt. Grains are grown and some livestock is grazing to a lesser extent in the southeast area. Cultivation is sporadic and dependent on rainfall. Although total agricultural production has increased as a result of irrigation projects and the use of fertilizer, Libya still imports large amounts of food and agricultural productions to meet its food needs. Principal crops produced include watermelons, tomatoes, wheat, potatoes, citrus fruits, dates, and olive; principal livestock include sheep, goats, followed by cattle, camels, and poultry. Libya becamied during the last thirty years a major development in the agricultural sector, accompany by extensive use of various types of pesticides to increase agricultural production to meet the needs of the local market of agricultural products. (A. Alghariani. 1993. Salem, O.M. 1992).

2.7. Sustainable Development between Resource Exploitation and Environmental Protection

2.7.1. Education Role in Protecting the Environment and Reducing Pollution

There is no doubt that the human depends on the environmental resources available to him to provide the basic needs in life, using a variety of means sought to evolve over time, but the results showed that the use of these techniques will lead to a number of environmental problems by of time. It was clear that the failure to deal with environmental problems as quickly as required, will exacerbate these problems, and thus become a danger for life, and can extend even beyond the borders of the homeland in their implications and impact (General Organization for the Protection of the Environment of the Hashemite Kingdom of Jordan, (1999).

Therefore, the response means the need for concerted efforts and cooperation at the national and regional level and global, and the preparation of strategies and action plans to address them, to avoid future problems, hinder the achievement of sustainable development of the environment. The problem is almost misuse of natural resources and their impact on the environment, and the depletion of the basic components. The major problem faced by the contemporary world, which carried many people interested in environmental affairs monitoring phenomena of this problem and assess the dimensions, and analyze their impact on the continued growth potential. Human Environment link policy adopted by States to protect its resources, and the rationalization of their use, and treatment deterioration which determines its ability to regenerate and survive, constitute the areas of education and awareness of environmental and communication as essential pillar of the modalities of environmental protection and conservation. This strategy stresses the importance of these areas, and the extent of current capabilities, and employing the experience gained in the development of the trends and values and knowledge to help achieve sustainable development in Libya (National Strategy Education and awareness of environmental and communication/july1999).The study focused an educational speech to achieve its objectives in the preservation of the environment and resources, asfollows. (Safari, Z., Shimanaderi, Zahraghasemi, 2014).

1- Adequate amount of information on the environment local, regionally and internationally as a basis to promote environmental culture among the educated.

2- Emphasize that environmental resources are the foundation of all kinds of human activity in the community and its different institutions.

3- Contain adequate information on the status of environmental resources in Libya from the depletion and bring it from the dangers threatening the quality of life and the first human of course. This may require clarification and clear examples of patterns of non-rational exploitation of the environment. Libyan and the consequent environmental disasters such as removing forest belts around the city of Tripoli, for example, first injured, man himself.

4- Emphasize that the environment created by God Glory be to Him in a dynamic equilibrium which is rich in resources that can be utilized rationally and without prejudice to its balance and the rights in Libya to take into account its exploitation of the resources of the environment to maintain this equilibrium.

5- Confirms that the educational discourse on the environmental sense of the development of learners and enlighten their responsibilities towards the preservation of the environment.

6- To emphasize the role of the learner's educational discourse in environmental protection and responsibility in improving the quality of life through its role in preserving the environment process.

7- To develop educational discourse and the magnitude of the values and concepts and trends awareness of learners of the environment issues, environmental problems and learn the proper methods of dealing with it all the way to preserve the environment and resources.

8- That addresses the educational discourse honestly and objectively the deteriorating situation reached by the environment in the Libyan cities and discusses the causes and the consequent risks and the practical actors who must move to all spectrums of Libyan society anticipation of what a threat to life and the entire population of the real dangers it signed and exacerbated cannot control actions raised by the present and future.

2.8. Agricultural Extension and its Role in the Agricultural Environment Protection

(Extension's role in sustainable agricultural development, Food & Agriculture Organization(2010). Sustainable agriculture is looking for some conditions like specification of farming households that must be motivated to use coordinated resource management, which could be for pest and predator management, nutrient management, controlling the contamination of aquifers and surface water courses, coordinated livestock management, conserving soil and water resources, and seed stock management. But the problem appears in most places, platforms for collective decision making have not been established to manage such resources, so the

success of sustainable agriculture therefore depends not just on the motivations, skills, and knowledge of individual farmers, but also on action taken by groups or communities as a whole Sustainable agriculture must find new ways of learning, since teaching implies the transfer of knowledge from someone who knows to someone who does not know, and that teaching is the normal mode of educational curricula. Universities and other professional institutions reinforce the teaching paradigm by giving the impression that they are custodians of knowledge which can be dispensed or given (usually by lecture) to a recipient (a student). Where these institutions do not include a focus on self-development and on enhancing the ability to learn, they do not allow students to grasp an essential skill in the sustainable management of a complex system. In that case, "teaching threatens sustainable agriculture". Technology for sustainable farming must emphasize measurement and observation equipment or services that help individual farmers assess their situations, such as soil analysis, manure analysis, and pest identification. It also has to focus on higher system levels to control pests often require a larger biotope than that of a small farm.

Learning for sustainable agriculture involves a transformation in the fundamental objectives, strategies, theories, risk perceptions, skills, labor organization, and professionalism of farming. This learning path has four key elements Agricultural knowledge and environmental regulation The crop protection plan (Röling, N. 1993).

1. ***The information system:*** Sustainable agriculture must be responsive to changing circumstances, so farmers need to invest in observation, observation equipment, record keeping, and monitoring procedures.

2. ***Conceptual framework:*** Sustainable agriculture is knowledge intensive, and so farmers must know about life cycles of pests and disease organisms and their recognition, biological controls, ecological principles, soil life processes, nutrient cycles.

3. ***Skills:*** Sustainable farming requires a whole set of new skills, including observation and monitoring, compost making, mechanical weed control, spot application of pesticides, and risk assessment.

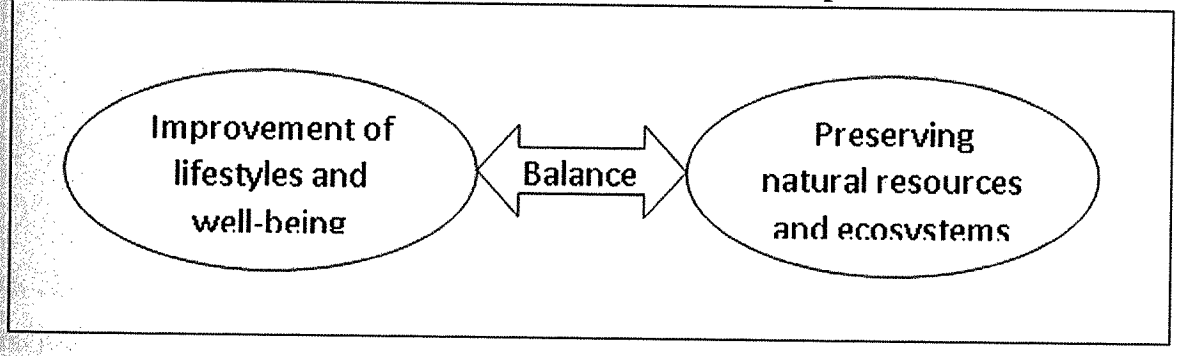
4. ***Higher system-level management:*** Generally, sustainable management of the farm is not enough, and it is necessary to think at system levels higher than the farm and take part in the collective management of natural resources at those levels.

2.9. Agriculture and Sustainability

2.9.1. Sustainability Movement

Sustainability movement is trying today to develop a new economic, agriculture and means to be able to meet the needs of the present and enjoy self-sustaining in the long term, especially after it became clear that the means currently used in environmental protection programs _ based on the investment of a great deal of money and effort _ is no longer viable because the humanitarian community spend the same exaggerated largest efforts in companies and projects cause such damage. This contradiction in modern society between the desire to protect the environment and sustainability, corporate finance and programs destructive to the environment at the same time explains the reason for the urgent need to develop a new format to create sustainable and broad cultural changes as well as economic and agricultural reforms (Abdullah Juman AL-Ghamdi, (2009).

Figure 2.1: Concept of sustainable development



More than one hundred definitions of sustainable development exist, but the most widely used one is from the World Commission on Environment and Development presented in 1987 which states that sustainable development is "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (U.S national research council, policy division, board on sustainable development).Some other definitions

summarized the relation between sustainable development and environmental resources usages and the human needs are as follows:

- Sustainable development is maintaining a delicate balance between the human need to improve lifestyles and feeling of well-being on one hand, and preserving natural resources and ecosystems, on which we and future generations depend.

- The guiding rules are that people must share with each other and care for the Earth. Humanity must take no more from nature than nature can replenish. This in turn means adopting lifestyles and development paths that respect and work within nature's limits. It can be done without rejecting the many benefits that modern technology has brought, provided that technology also works within those limits (Caring for the Earth, IUCN,2002).

- The term refers to achieving economic and social development in ways that do not exhaust a country's natural resources. In the Commission's words: "... sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with the future as well as present needs" (U.S.A Census International Program(2009).

- Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development respects the limited capacity of an ecosystem to absorb the impact of human activities.

Sustainable Development is the development which meets the needs of the present without compromising the ability of future generations to meet their own needs. Some people also believe that the concept of sustainable development should include preserving the environment for other species as well as for people.

2.10.Option For Sustainable Development In Libya

(D. Mahmoud Amopop , 2009). Lead a sustained economic growth in Libya and the evolution of the population live in style, the public authorities in the country to focus on the challenges of environmental protection, which is located in the core. Sustainable development and growth homogenized. Interest and the protection of the ocean environment in Libya has come in early, when the country participated in the 1972 Stockholm World Conference, and translated vowed to take to protect the natural environment at local and global levels. For that, Libyan government established Technical Center for the Protection of the ocean, and as well as the Libyan General Authority for the environment. A series of measures to protect the environment and maintenance is the task of the two institutions in carrying through to sensitize citizens' awareness of the importance of the environment and the benefits of preservation campaigns . After that the Libyan authorities identified the overall strategic framework for the protection of the environment and the ocean through the fight against sources of environmental degradation through the sensitization of the population and control human activities that may adversely affect the ocean - Orientation the province and Administration Governance of natural resources for this version was a huge arsenal of legislation governing the exploitation of natural resources in the country in order to prevent purpose.

Any abuse or behavior that might offend the ocean indeed, Libya acceded to numerous international conventions including the United Nations Convention on Climate Change and the Treaty of Barcelona in 1976 and regional agreements. Private agreements on the protection of the Mediterranean Sea against pollution at the local level issued many important laws The law of 100 meters on environmental protection and conservation prevents the construction of buildings on the shores of the sea depth of 100 meters starting from the edge of the sea .The aims of this law is to protect the Libyan beaches with a length of 2,000 km Furthermore 3/82, which prevents excessive water consumption, which regulates drilling of another work by the law. The law 112/73 works to monitor drinking water quality and prevent .over-exploitation of water for agricultural irrigation. The Law 15/2003 relates to environmental protection and the fight against desertification and prevents indiscriminate agriculture and irrational exploitation of pastures and agricultural lands as the maintenance in forests and green spaces and to work to increase its turf. Libya is a leader in the field of research on renewable energies. States has in this regard, several steps in order to localize solar energy technologies and energy extracted from the wind to feed

some of the cities that have difficulties inside. For access to energy at the local level the Libyan authorities are working to educate farmers not to use genetically improved seeds. For that there are some other laws and regulations on the protection and improvement of the environment (Laws and regulations on the protection and improvement of the environment Libyan General Authority for Environment 2003).

2.11.Previous Studies Of Environmental Awareness Concept

2.11.1.Resolution Of Conflicts Between Agriculture And Environment Protection In Uganda

(Victoria Sekitoleko;2009) .This paper highlights some of the policy measures which have been taken to ensure a balanced approach to the use of the land and water resources for agricultural production on the one hand, and to promote environment protection on the other. The main objective is to identify and analyze the major environmental problems and develop a comprehensive national strategy to deal with the problems. For that the researcher called in his paper for drainage, overharvesting and burning of wetlands which will be by clearing swamps for dairy farming e.g. in Kabale district, uncontrolled and unplanned draining of swamps to grow rice (Iganga, Tororo, Pallisa districts) and vegetables, and brick making to construct buildings for people, animals, crop storage and processing. The study showed that there are some causes which effect relationships among the prevailing agricultural practices, and many environmental damages done by non-educated farmers and the possible remedial measures. Also it showed that women play a significant role in agriculture. Consequently, they must be intimately involved in environment protection measures. Another recommendation from the researcher is to educate farmers to relate their family sizes to the resources at their disposal. This should reduce the excessive pressure of too many people depending on a narrow land resource base. The researcher concluded that there is need to create a harmonious relationship between agriculture and environment protection. All societies, regardless of the stage of industrialization and political maturity, have to depend on agriculture for food at least. On the other hand, rampant environment damage from agricultural practices is equivalent to the fatal action of cutting the branch of the tree on which one is sitting.

2.12.Developing Environment Education Programs Through Farmers' Training And Distance Learning Approaches In China

The researchers (Jianhua Chen,2010) .began the paper by talking about the country context, showed the population, life style and some other criteria. Due to the high pressure of human demands on natural resources, the relationship between the "environment-agriculture-population" systems in China is very fragile. The policy on environmental protection in China is very important and they need to develop an environment conservation education program. The paper showed the environment problems according to reference areas. The solution for the environmental problems in China, is the system of management on environmental issues is divided into two components. At the national, provincial and county levels, the environment protection bureaus are responsible for industry-associated pollution. Specifically, these responsibilities include agricultural education in university and/or college level, secondary school level, and farmers' level. It appeared that the main difficulties encountered were the lack of appropriate training materials on environment education and the systematic approach and methods of training. The overall goal of the research is to improve the basic knowledge of the extension worker, trainers and trainees so that they could better understand the relationships between environment conservation and farmers' agricultural production activities. Since there are direct benefits to the farmers on the sustainability and institutionalization in China, it has facilitated sustainable agriculture and industrial development. With the rapid development and growth of China's economy, it is inevitable that the rural industries will continue to increase. The large population and continuous increase in the purchasing powers of the people create an ever increasing demand for agricultural products which in turn impose high pressures on environmental resources. It is, therefore, crucial that all levels of government agencies, especially agriculture and industry-based institutions, strengthen their support for environment education. This is more important if China's activities are to be sustained and institutionalized.

2.13. Promoting Sustainable Agriculture and Rural Development

(Promoting Sustainable Agriculture and Rural Development, United Nations Environment Program "UNEP"2013). The paper showed firstly some facts about population over the world, like by the year 2025, 83% of the expected global population of 8.5 billion will be living in developing countries. Yet the capacity of available resources and technologies to satisfy the

demands of this growing population for food and other agricultural commodities remains uncertain. Agriculture has to meet this challenge, mainly by increasing production on land already in use and by avoiding further encroachment on land that is only marginally suitable for cultivation The study also figured that the major adjustments are needed in agricultural, environmental and macroeconomic policy, at both national and international levels, in developed as well as developing countries, to create the conditions for sustainable agriculture and rural development (SARD). Its major objective is to increase food production in a sustainable way and enhance food security. This will involve education initiatives, utilization of economic incentives and the development of appropriate and new technologies, thus ensuring stable supplies of nutritionally adequate food, access to those supplies by vulnerable groups, and production for markets; employment and income generation to alleviate poverty; and natural resource management and environmental protection. The program plans to make integration of sustainable development considerations with agricultural policy analysis and planning in all countries, particularly in developing countries. Recommendations should contribute directly to development of realistic and operational medium- to long-term plans and programs, and thus to concrete actions. Support and monitoring the implementation should follow.

2.14.From Intentions to Actions: The Role of Environmental Awareness on College Students

This study examined the ways environmental education influences the attitudes and behaviors of university students. Previous research has been able to associate strong attitudes with intentions This research goes beyond intentions by measuring behaviors. Surveys were used to verify the impact of an introductory environmental course on participants' environmental awareness. Two independent groups were divided by the characteristic of enrollment in the course. Students in the course reported greater pro-environmental attitudes and behaviors than students who were not enrolled. Results also revealed a positive correlation between attitudes and behaviors at the end of the course. These findings suggest the need for stressing the importance of environmental awareness in an educational setting, in order to benefit both student knowledge and future welfare of the greater population .The purpose of this study was to discover the impact of an environmental education course on student attitudes and behaviors. It was predicted that being enrolled in a course on environmental issues would be associated with an increase in pro-

environmental attitudes and behaviors, and also increase the correlation between environmentally conscious attitudes and behaviors as a function of course participation. Results indicated a significant difference in pro-environmental attitudes and behaviors between students enrolled in the course and not enrolled. After taking Environmental Issues (ENV 201), students reported higher levels of environmental awareness than students who had not taken the class, while also reporting more environmentally-conscious behaviors. Students not enrolled in the course displayed overall lower levels of environmental awareness. From time 1 to time 2, results implicated an increase in pro-environmental attitudes and environmentally-conscious behaviors by students taking the course. This increased correlation is in the expected direction and magnitude, suggesting pro-environmental attitudes and behaviors are more heavily linked after taking an environmental education course. To be more specific, it can be assumed that the Environmental Issues (ENV 201) class was successful in heightening the environmental awareness of students by making environmental concerns more accessible and relevant in their minds. In accordance with the theory of planned behavior and the concept of embeddednes, as environmentally-conscious attitudes are applied to more situations, it is likely that these attitudes will influence and predict more environmentally-conscious behaviors. Through reading and writing about nature, discussing environmental subject matter, embracing the outdoors, and acknowledging the human's impression and responsibility on this planet, student attitudes and behaviors can be effectively altered through education. These results indeed stress a greater need for environmental awareness in the realm of mainstream education, in the hopes of providing students with the ambition and abilities to care for the environment while securing their future health and happiness. (From Intentions to Actions, Julie E. Schmidt, 2003).

2.15. Measuring Environmental Awareness In The World

(Partanen-Hertell et al. 1999). The study builds upon the previous analysis in the project 'Strategic guidelines for improving public awareness and environmental education in the Baltic Marine Environment Protection Commission In that project a methodology for comparing countries' levels of environmental awareness was tested. The methodology was slightly refined and a completely new IT tool for data gathering and processing was used in a recent project. The main objective is to form a profile of environmental awareness in every country. The purpose of this is to give an outlook of the level of the country in the three different dimensions of

environmental awareness: motivation, knowledge and skills. This study was conducted with the objective to provide information on the current state of environmental awareness in the world so that it might help policymakers and other interested parties in their attempts to improve the situation. Especially the country rankings provide country specific information about the country's standing in international comparison. The paper summarized that our world is currently facing many challenges e.g. environmental problems and climate change that demand national and international attention. Consequently, understanding environmental awareness as a precondition behind any such environmentally significant behavior underlines the importance of it. This study was conducted in order to contribute to the study of environmental awareness in the world. Especially, we have provided and tested a survey method to measure environmental awareness globally.

CHAPTER III

METHODS

This section deals with a description of the community appointed by the study. As procedural aspects in building a study tool was used. Methods of preparation, which discusses the wizards and statistical methods used relied upon the researcher to analyze the data and use them to gain access to the results of the study.

3.1. Community of Study

Despite the hard work done by the researcher and the multiple visits in order to obtain an official and accurate statistics on the population of the study of the competent authority, he was unsuccessful in getting the needed data because of the lack of these statistics in the competent authorities.

3.2. Sample of Study:

The total sample size of random sample selection is (100) individuals by distributors of agricultural holdings in the study area.

3.3. Data Collection

1. The researcher distributed (120) questionnaires for each sample study items.

2. Loss of questionnaire was 20 distributed forms.

3. What recovered (100) questionnaires are valid for the use of the statistical analysis of the total forms, and the recovery was almost (83.33%).

3.4. Data Analysis

Researcher used some descriptive statistics and methods of frequencies, percentages and mean and standard deviation to display the data that reflects the personal variables of the items of the sample, as well as some of the methods and statistical tests and other deductive. The study was also statistically significant data processing through the Statistical Package for the Social Sciences program (SPSS). The researcher used the arithmetic mean to determine the degree of concentration of the respondents' answers for each item, for the degrees of the scale , he used the standard deviation to measure the dispersion of the answers and the extent of deviation from the arithmetic average, Besides Pearson correlation to measure the sincerity of the scale and paragraph coefficient, the scale and stability of its paragraphs the researcher used the equation cronbachs alpha. Also the researcher used the chi square test for significant differences between the responses of the paragraphs of the scale ,and used analysis of variance (ANOVA) to measure the differences in the degree of awareness of Libyans farmers on environmental protection and the use of environmental resources by demographic characteristics.

CHAPTER IV
RESULTS AND COMMENTS

This chapter is divided into three sections. The first characteristics of the respondents demographic section and Farmers Mentally and way of thinking for Finding solutions ,the second section provided and measured the Validity Of Scale and Stability Of The Scale by using (Cornbrash's Alpha Test) ,and Normal Distribution Of Data Scale Environmental Awareness To Libyans Farmers. The final section then, discusses the analysis of the research hypotheses.

4.1. Section I (Characteristics)

This section views the general data gathered by the researcher to show demographic of the test subjects and who they relate to the study.

1. Age Groups

Table (1) Distribution "Age Groups"

No	Q1 – Age Groups	Repetition	Frequency
1	From 20 > 30 Years	16	**16%**
2	From 30 > 40 Years	30	30%
3	From 40 > 50 Years	26	26%
4	From 50 > 60 Years	22	22%
5	60 Years and older	6	**6%**
		Total >	100%

Figure (1) Frequency distribution of "Age Groups"

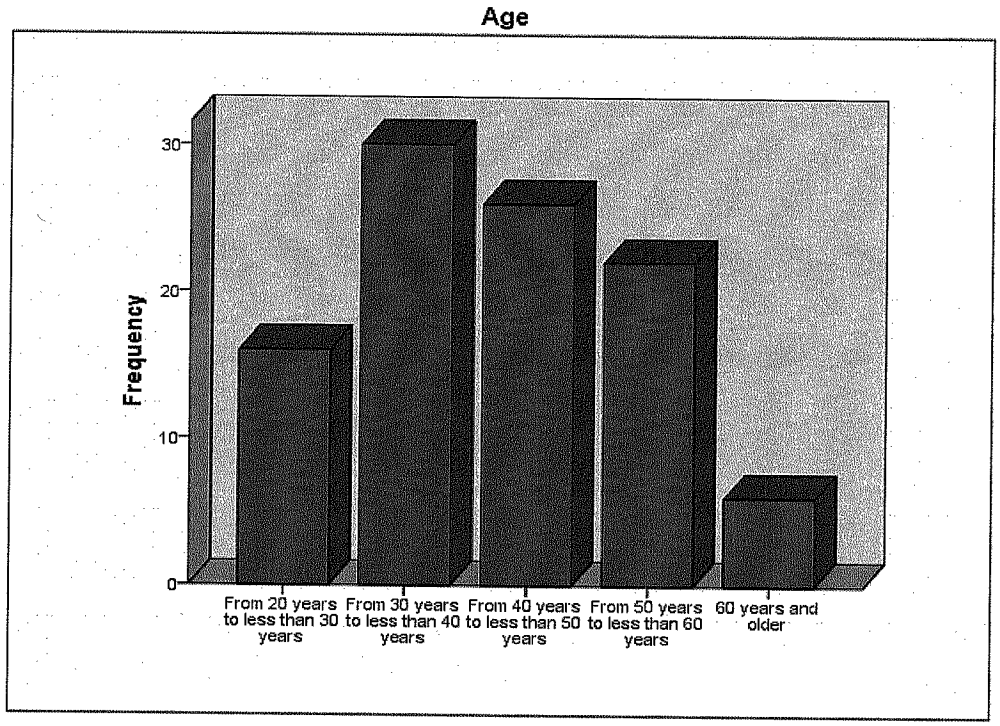


Table 1 shows that it very noticeable that the actively engaged ones in agricultur are between 30 and 60 years of age and they form about 78% healthy farmers. (Graph 1 show that).

2. Gender

Table (2) Distribution "Gender"

No	Q2 – Gender	Recurring	Frequency
1	Male	100	100%
2	Female	0	**0%**
		Total >	100%

Figure (2) Frequency distribution of "Gender"

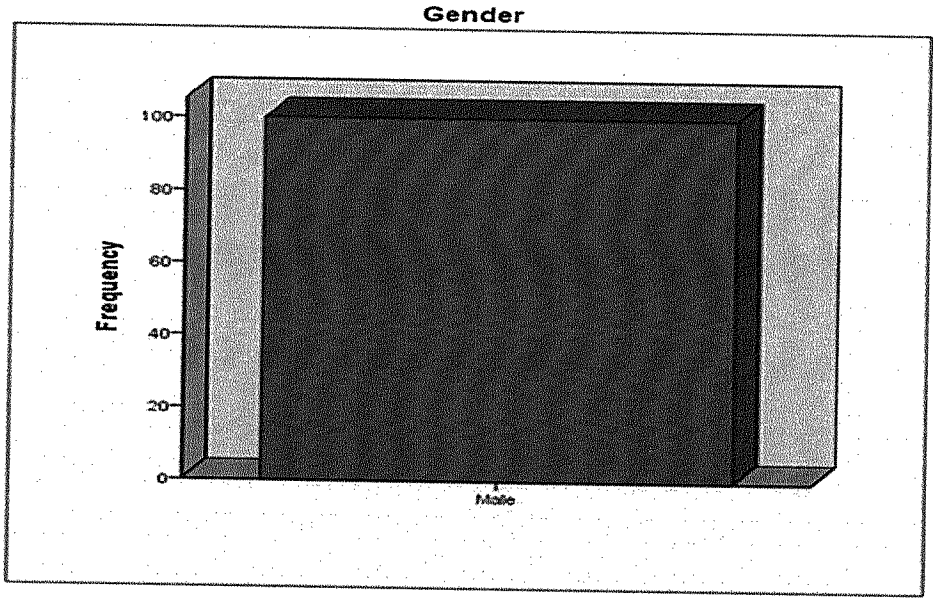


Table 2 shows that all farmers are male, Not in Libya where cultural habits near cities don't accept women to perform hard labor unlike in rural areas where women may participate in crop harvesting and Shepard the lamps.

3. Education Level

Table (3) Distribution "Education Level".

No	Q3 – Education Level	Repetition	Frequency
1	Primary	7	7%
2	Secondary (High School Level)	22	22%
3	University (College Level)	34	34%
4	Undergraduate	5	5%
5	Graduate	21	21%
6	Post Graduate	8	8%
7	Literate	3	3%
		Total >	100%

Figure (3) shows the frequency distribution of the variable level of education

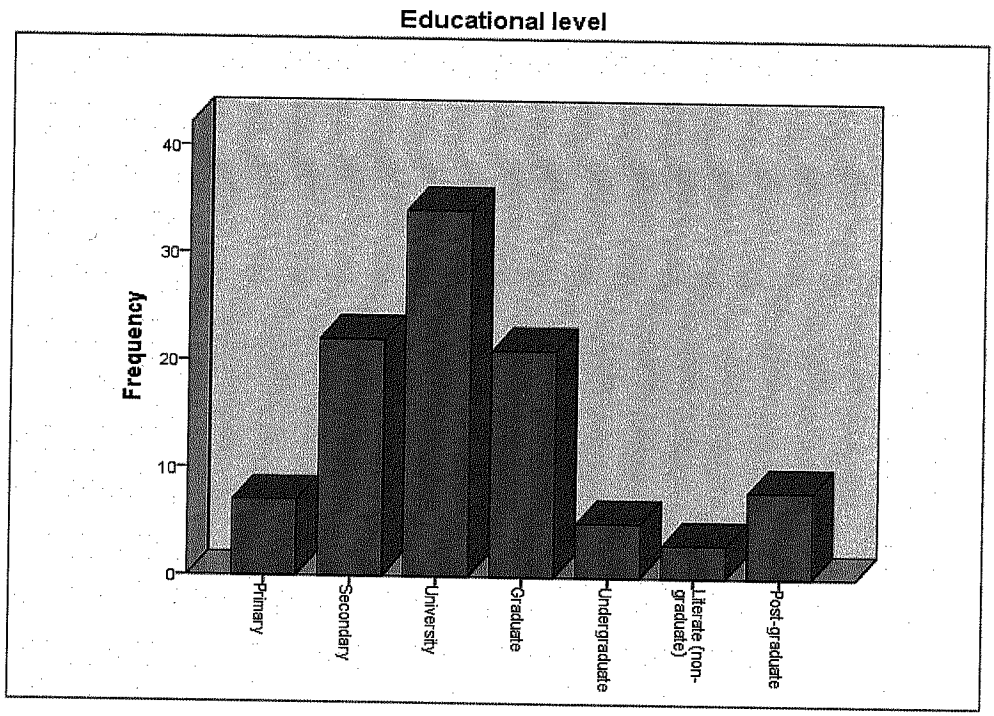


Table (3) shows that 77% of those surveyed learners, are good indicators for farmer's ability to better understand and comprehend the issues related to their environment.

4. Area of Residence

Table (4) Distribution of "Place of Residency".

No	Q4 – Place of Residency	Repetition	Frequency
1	Tajura	38	38%
2	Tripoli Center	25	25%
3	Wady Elrabi	21	21%
4	Ain Zara	16	16%
		Total >	100%

Figure (4) shows the frequency distribution of the variable place of residence

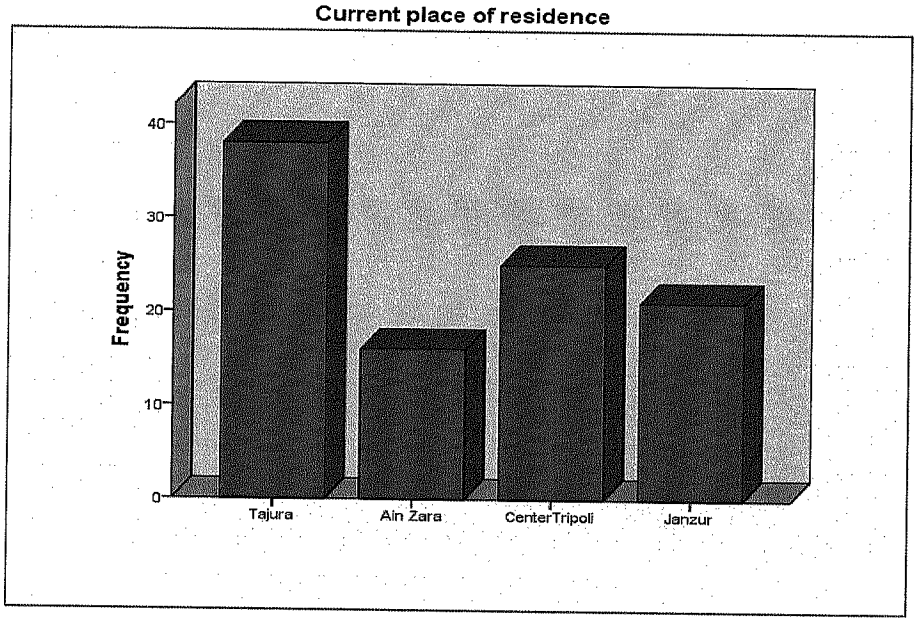


Table 4 shows that 79% of test subjects are living in town away from the farm lands. This is due to the fact that most farmers own lands as investment and growing cash crops

5. Financial Situation

Table (5) Distribution of "Financial Situation".

No	Q5 – Financial Situation	Repetition	Frequency
1	Agriculture is my only source of income	26	26%
2	Agriculture is a secondary job	43	43%
3	Agriculture is a seasonal activity	17	17%
4	I practice agriculture as a hobby	14	14%
		Total >	100%

Figure (5) shows the frequency distribution of the variable economic situation

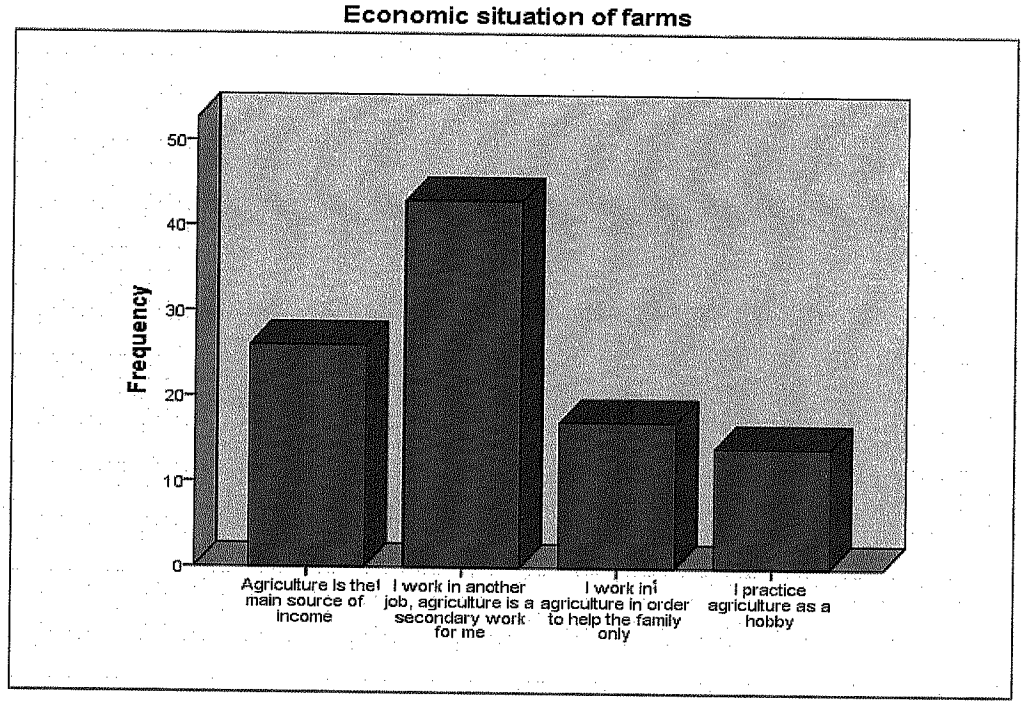


Table 5 a mentioned in the previous remarks, confirms that most of test subjects, about 60% ,investing in agriculture as an extra source of income or seasonal practice growing crops or raising animals.

6. Have you ever received any agriculture training?

Table (6) Distribution of answers to "Agricultural Training".

No	Q6 – Agricultural Training	Repetition	Frequency
1	Yes	4	4%
2	No	96	96%
		Total >	100%

Figure (6) shows the frequency distribution of the variable training courses in the field of agriculture

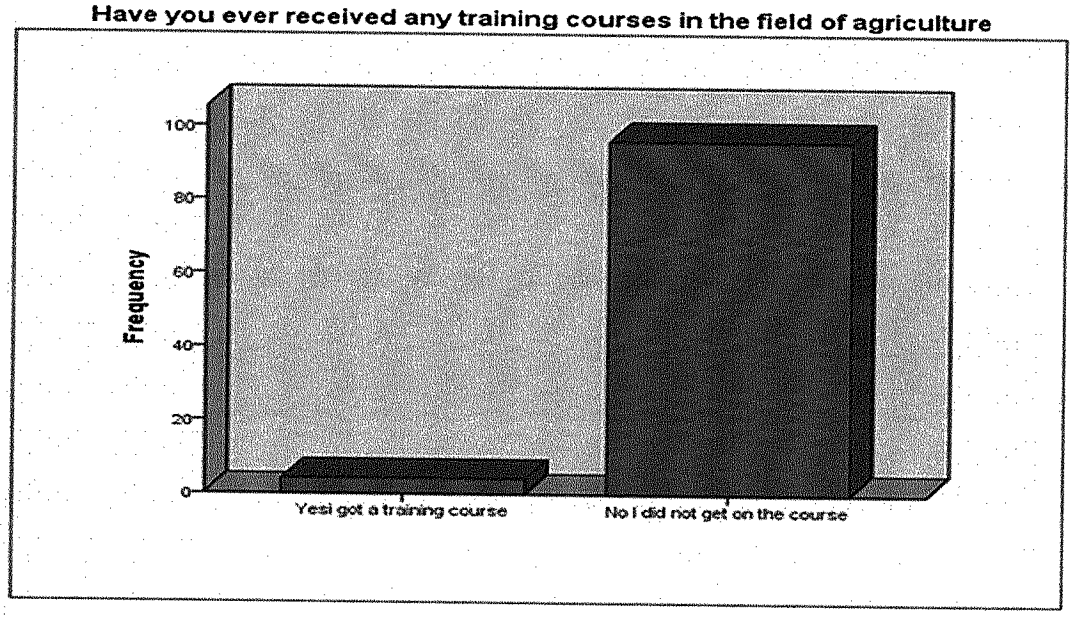


Table 6 shows a big surprise after learning about the different programs and efforts done by the Ministry of agriculture, training and awareness campaigns. Except 96% answer no to receiving any or participating "participation problem".

7. What type of crops does the farm produce?

Table (7) Distribution of answers to "Crop Type".

No	Q7 – Type of Crops Produced	Repetition	Frequency
1	Fruits and Vegetables	86	86%
2	Flowers and ornamental plants	4	4%
3	Fodders	4	4%
4	Legumes	4	4%
5	Agriculture seedlings	2	2%
		Total >	100%

Figure (7) the frequency distribution of the variable type of crops produced by farm

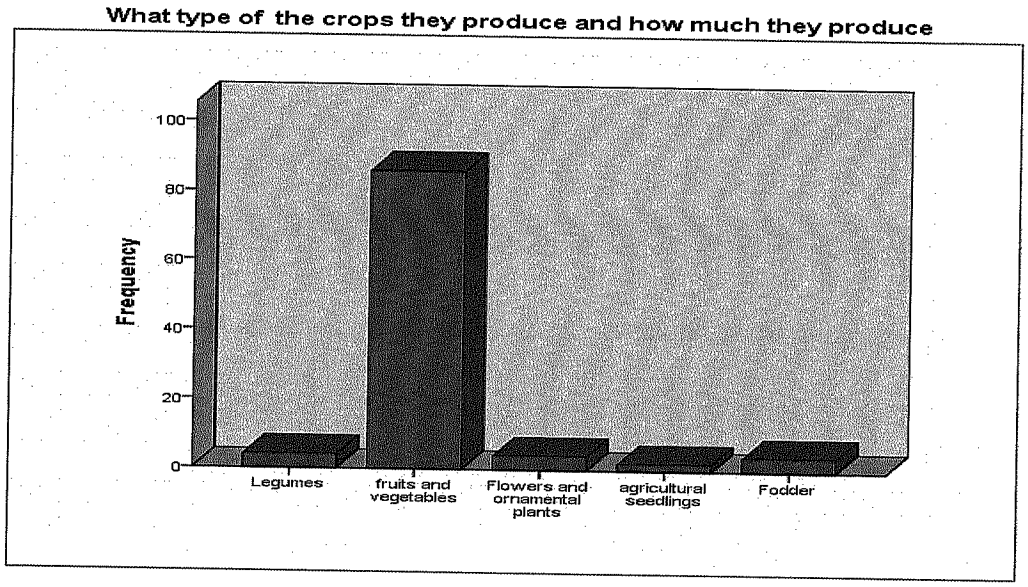


Table 7 shows that Agricultur in Libya is based on private activity, most of it growing cash crops, like fruits and vegetables mainly for the local market and family consumption, where the government tends to import huge quantities to satisfy the local and yearly increased consumption rate.

8. How do you sell farm produce?

Table (8) Distribution of answers to "Q8-Selling produce".

No	Q8 – How do you sellthe produce?	Repetition	Frequency
1	I sell my product to local brokers	54	54%
2	I keep it for family consumption	24	24%
3	I directly sell it to local shops and retailers	13	13%
4	I sell to my coworkers inside the field	6	6%
5	I export my product to neighboring countries	3	3%
		Total >	100%

Figure (8) shows the frequency distribution of the agricultural product

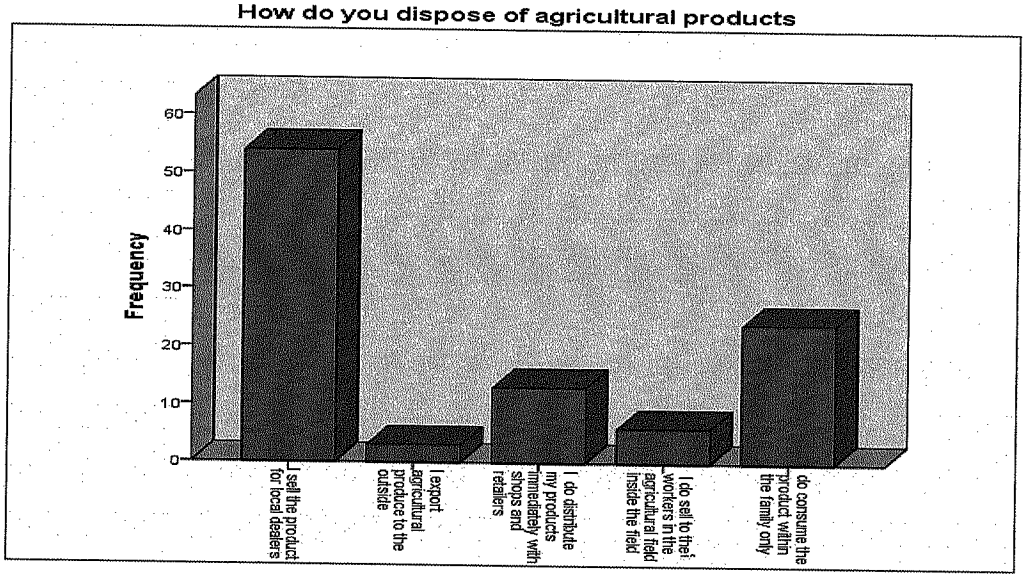


Table 8 confirms the previous observation, 91% of the production is consumed locally, mostly cash crops. This weakness in variety contribites to many factors. Most of the agricultural association not support farmers in selling their crops or promote crops.

9. Is your family dependent on farm income?

Table (9) Distribution of answers to "Q9-Farm dependency"

No	Q9 – Family dependency on farm income	Repetition	Frequency
1	Yes	66	66%
2	No	34	34%
		Total >	100%

Figure (9) Recurring illustrates the variable distribution of family income needed for farm production

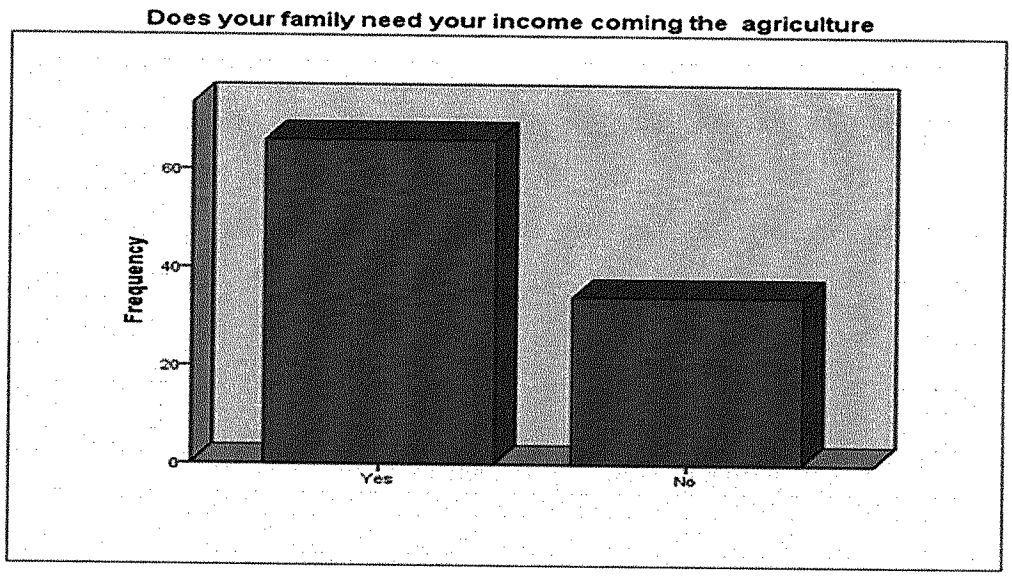


Table 9 shows that 66% of farmers are supporting their family with actively growing and selling the cash crops, for most of them are government employees in the first place.

10.Does your production differ from other products supplied to the local market, possibly imported from other regions?

10.1)How does your produce differ?

Table (10) Distribution of answers to "Q10.1-Produce Differences"

No	Q10.1 –Are there any differences?	Repetition	Frequency
1	Yes; "Mine is superior"	58	58%
2	No;"Not much of a difference"	35	35%
3	Yes; "Mine is inferior"	7	7%
		Total >	100%

Figure (10) shows the frequency distribution of the difference between the product, which is produced, and the product supplied in the market

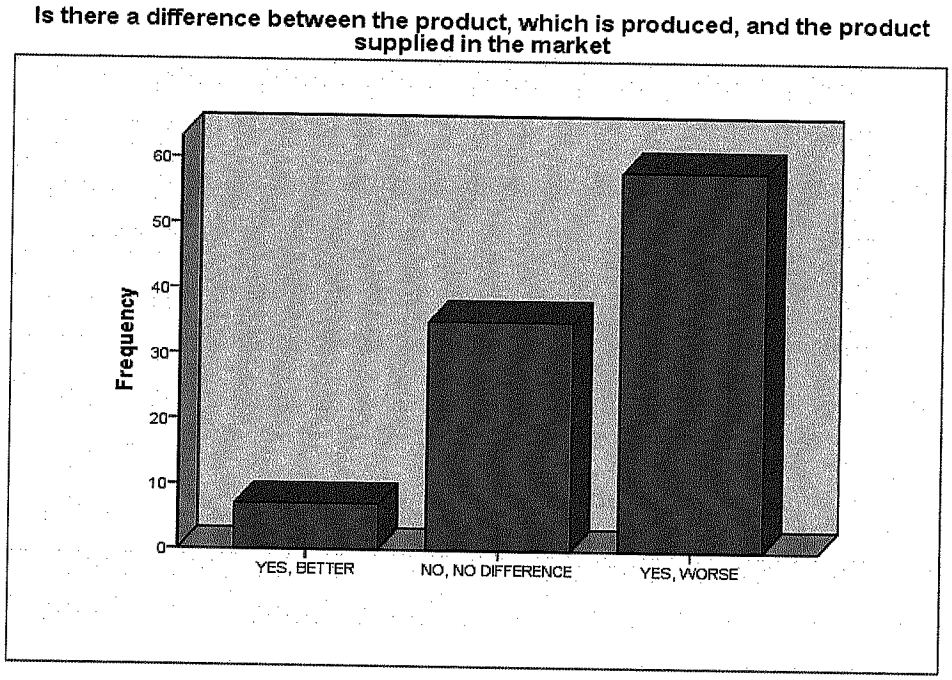


Table 10 shows that a good percentage, about 58%, agree and testify that locally grown products are better, for the imported products are shipped and stored for long periods which may affect the quality.

10.2 Why do you think your produces superior?

Table (11) Distribution of answers to "Q10.2-Produce Differences".

No	Q10.2 – How does your produce differ?	Repetition	Frequency
1	Taste	15	15%
2	Ripeness	38	38%
3	Variety	11	11%
4	Other	36	36%
		Total >	100%

Figure (11) shows the frequency distribution of the variable no difference if your product is the best

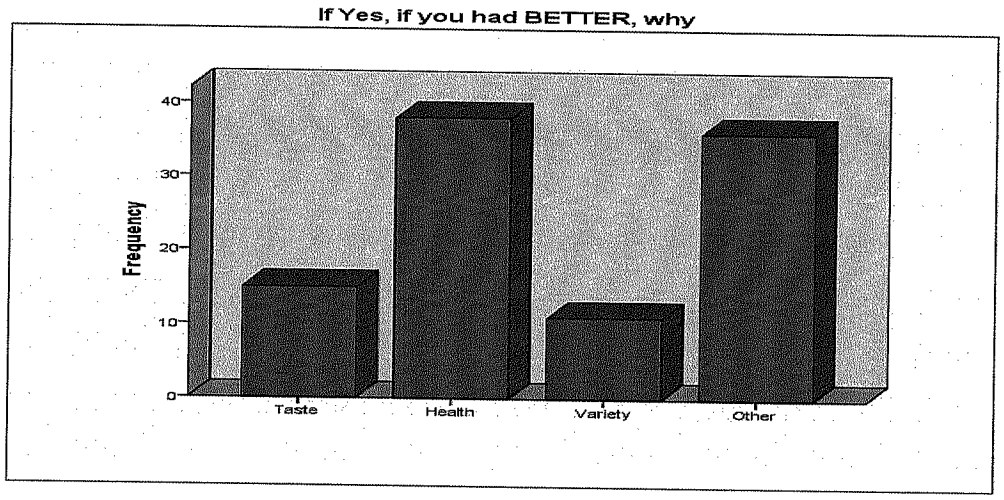


Table 11 shows that only ripeness scored 38%, for local farmers think their product is better and healthier for not been stored in refrigerators.

11 Libya as developed country suffers serious problems in different sectors; in your opinion how important each of the items listed below?

11.1 How important "Unemployment"

Table (12) Distribution of opinion regarding"Q11.1-Unemploymjent".

No	Q11.1 – Importance of "Unemployment"?	Repetition	Frequency
1	More important	71	71%
2	Important	18	18%
3	Less important	11	11%
		Total >	100%

Figure (12) shows the frequency distribution of variable degree of importance of the problem of the unemployment problems in Libya

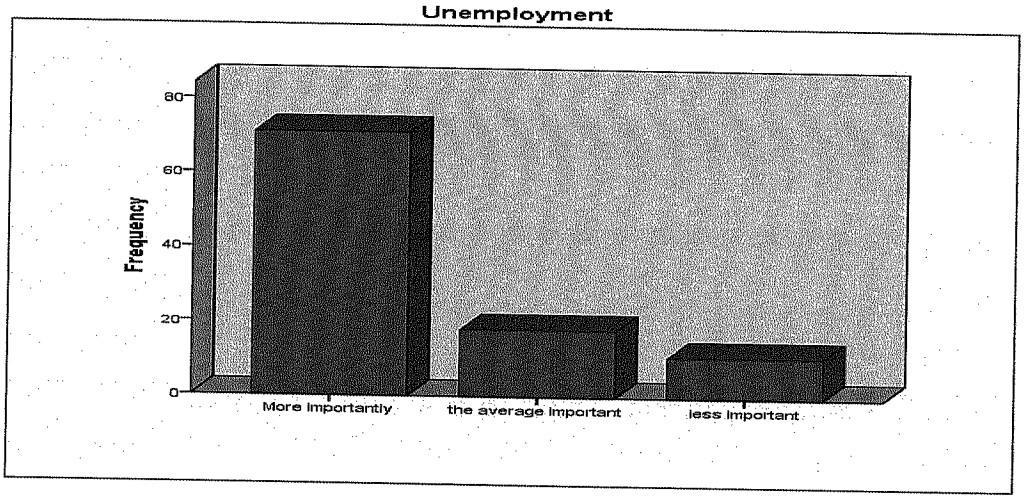


Table 12 shows that the vast majority agrees that unemployment is the main reason behind a number of important issues in Libya. Neverthless social issues which farmers are part of its fabric, economically speaking, will lower production rates, cause hunger and crimes

11.2 How important "Illiteracy"

Table (13) Distribution of opinion regarding "Q11.2-Illiteracy".

No	Q11.2 – Importance of "Illiteracy"?	Repetition	Frequency
1	More important	42	42%
2	Important	42	42%
3	Less important	16	16%
		Total >	100%

Figure (13) shows the frequency distribution of variable degree of importance of the problem of illiteracy problems in Libya

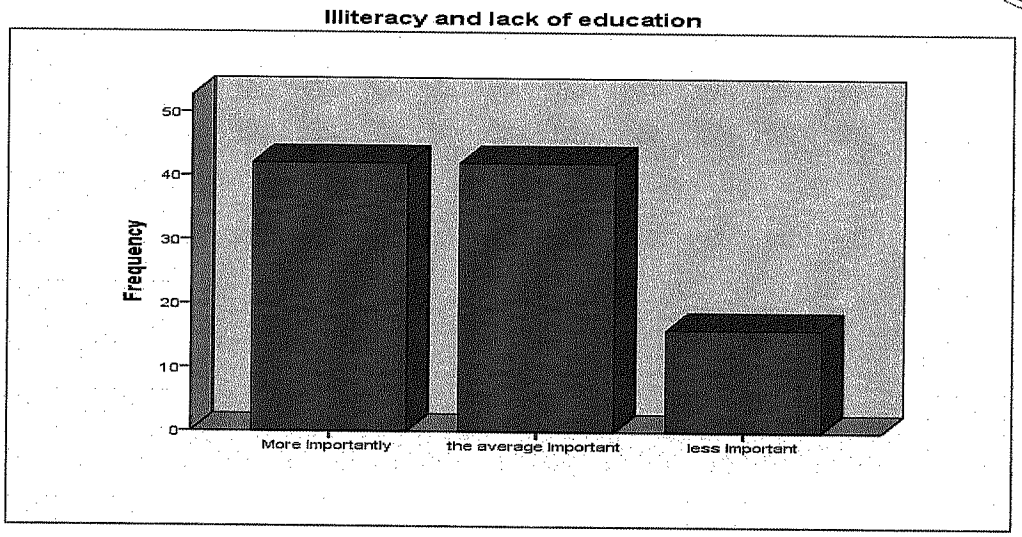


Table 13 shows that illiteracy also scored %84 which indicates its importance to the Libyan farmers as it hinders the ability to learn and apply new developments and new to contributions to the rise of society.

11.3 How important "Transportation"

Table (14) Distribution of opinion regarding "Q11.3-Transportation".

No	Q11.3 – Importance of "Transportation"?	Repetition	Frequency
1	More important	42	42%
2	Important	31	31%
3	Less important	27	27%
		Total >	100%

Figure (14) Frequency distribution of variable and the degree of importance the traffic problems

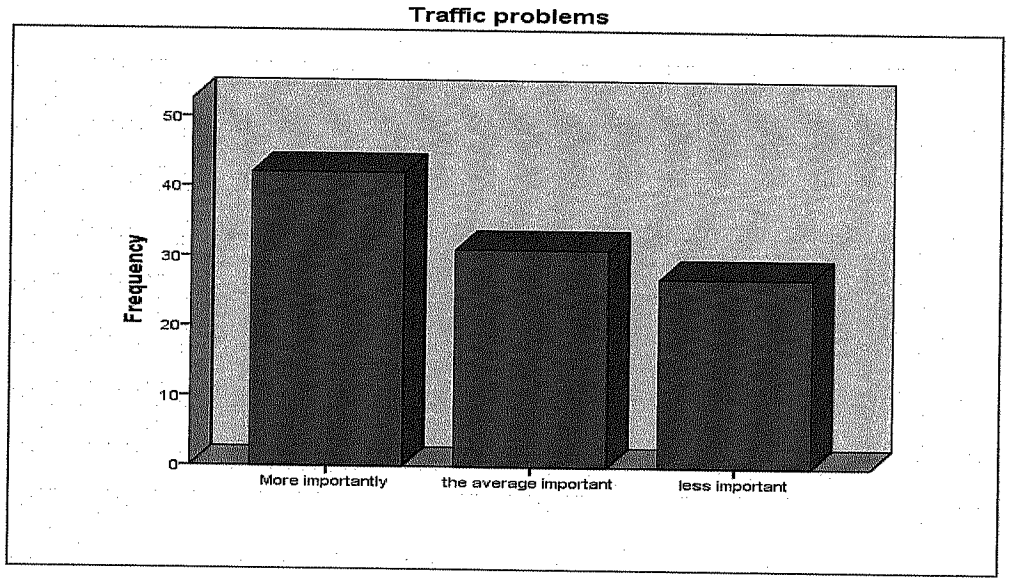


Table 14 shows that 73% believe that traffic jams and designating special transportation route for shipping goods reflect negatively on productivity and the speed of finishing tasks.

11.4 How important "Environment"

Table (15) Distribution of opinion regarding "Q11.4-Environmental Issues".

No	Q11.4 – Importance of"Environment"?	Repetition	Frequency
1	More important	48	48%
2	Important	33	33%
3	Less important	19	19%
		Total >	100%

Figure (14) the degree of importance the related to the environment problems

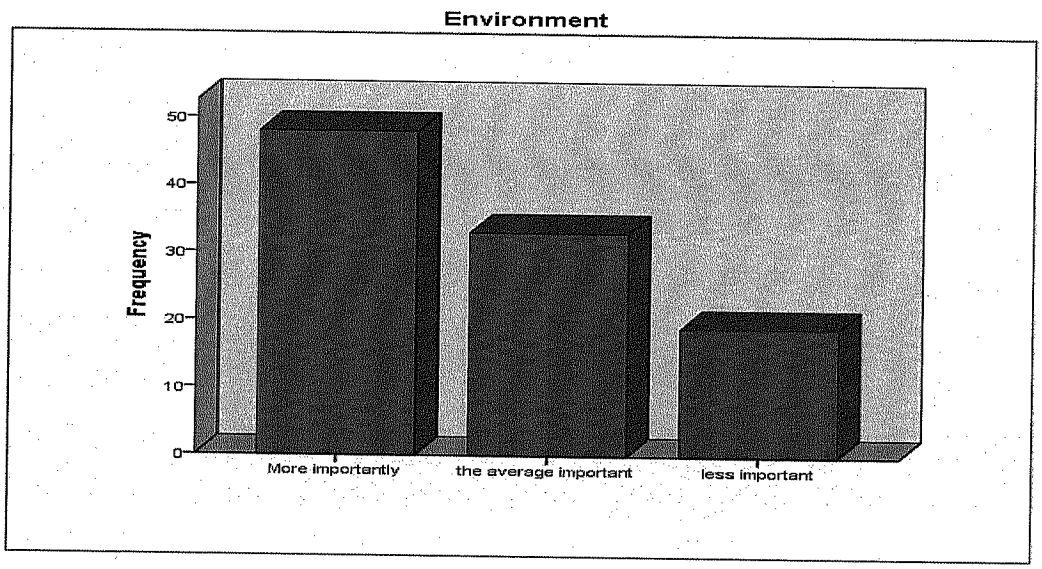


Table 14 shows that 81% consider the importance of the environment. No doubt the levels of pollutions have a serious and negative effect on plants, animals and consequentlyhumans, health wise and also causes lower production rates in agricultural production.

11.5 How important "Health Care".

Table (16) Distribution of opinion regarding "Q11.5-Health Care".

No	Q11.5 – Importance of "Health Care"?	Repetition	Frequency
1	More importantly	52	52%
2	Important	24	24%
3	Less important	24	24%
		Total >	100%

Figure (15) the degree of importance the health problems, as a mean problems in Libya

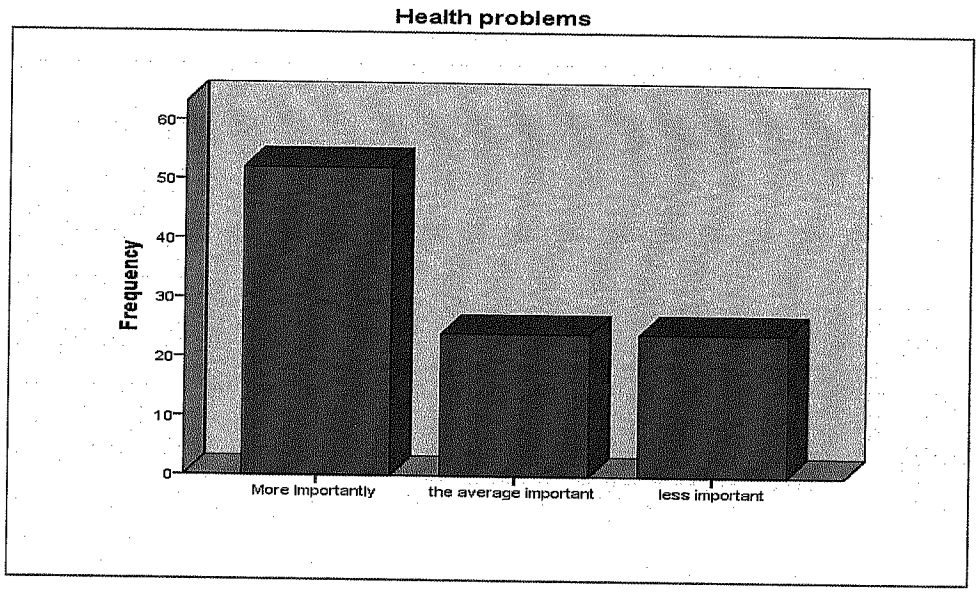


Table 15 shows that again, as seen previously, 76% consider the importance of health care. Local hospitals and clinics poorly treat injured people and are expensive forcing the Libyan citizen to seek acceptable healthcare at neighboring countries costing a furtune and diffentlly lowering production rates in the country.

11.6 How important "Economic Inflation"

Table (16) Distribution of opinion regarding "Q11.6-Inflation".

No	Q11.6 – Importance of "Inflation"?	Repetition	Frequency
1	More important	17	17%
2	Important	41	41%
3	Less important	42	42%
		Total >	100%

Figure (16) the degree of importance the Economic inflation

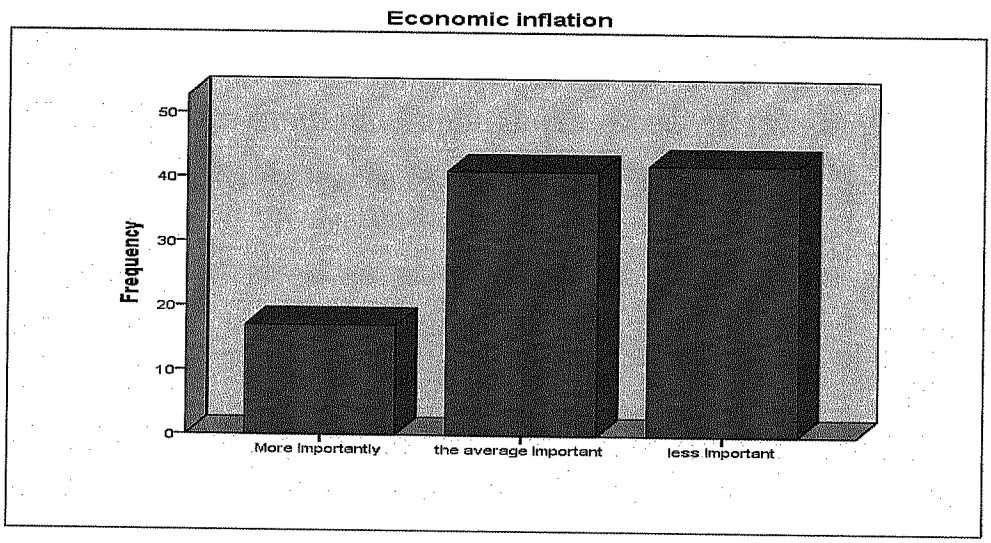


Table 16 shows that inflation for farmers is not largely considered an issue, since the government provides many types of financial aids and subsidizing agricultural supplies and even food supplies like elementary products and fuel as well.

12 There exist a number of contributing factors to environmental problems in Libya. In your opinion what's the degree of importance of each of the factors listed below?

12.1 Degree of importance of "Noise Pollution"

Table (17) Distribution of opinion regarding "Q12.1-Noise Pollution".

No	Q12.1 – Degree of importance "Noise Pollution"	Repetition	Frequency
1	2nd order of importance	3	3%
2	3rd order of importance	7	7%
3	4th order of importance	5	5%
4	5th order of importance	13	13%
5	6th order of importance	11	11%
6	7th order of importance	26	26%
7	8th order of importance	23	23%
8	9th order of importance	12	12%
		Total >	100%

Figure (17) Frequency distribution of variable the importance degree of noise pollution

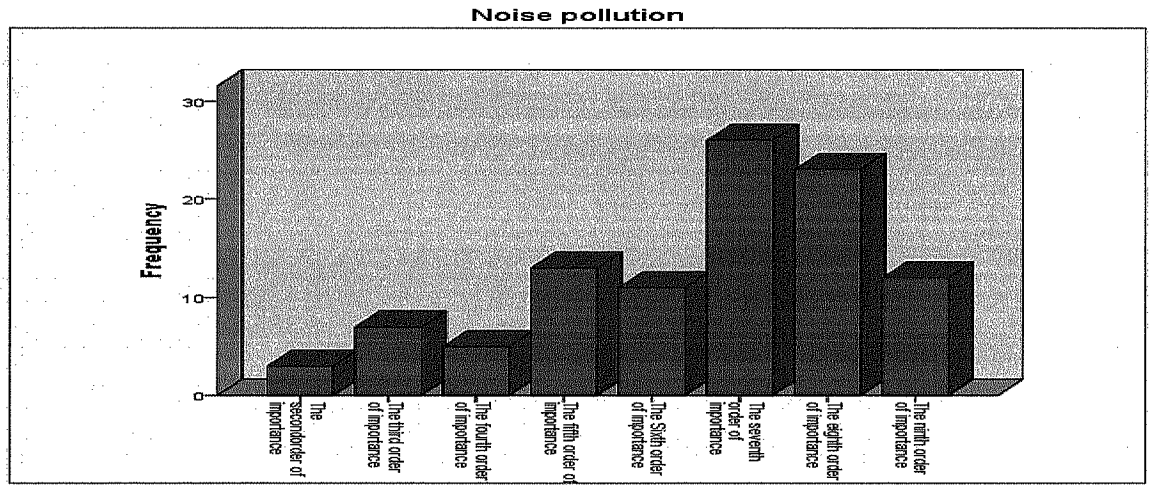


Table 17 shows that the degree of importance scored a lower rank by 61% of subjects due to the fact that farm lands are located away from crowded areas and they don't experience this type of pollution

12.2 Degree of importance of "Air Pollution"

Table (18) Distribution of opinion regarding "Q12.2-Air Pollution".

No	Q12.2 – Degree of Importance "Air Pollution"	Repetition	Frequency
1	1st order of importance	9	9%
2	2nd order of importance	3	3%
3	3rd order of importance	9	9%
4	4th order of importance	17	17%
5	5th order of importance	18	18%
6	6th order of importance	19	19%
7	7th order of importance	17	17%
8	8th order of importance	4	4%
9	9th order of importance	4	4%
		Total >	100%

Figure (18) Frequency distribution of variable and the degree of importance Air Pollution

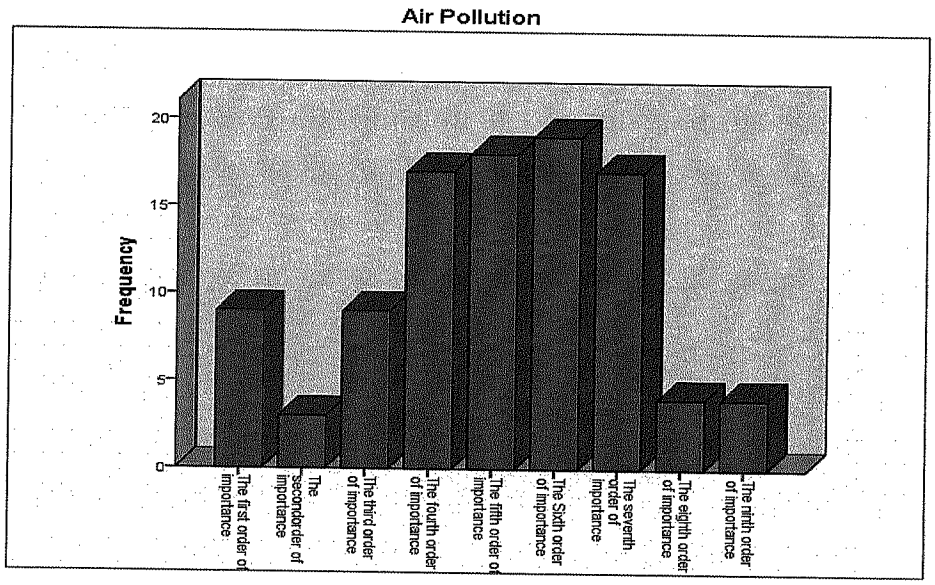


Table 18 shows as in the previous question due to distant location of farm lands from factories and populated areas, air pollution does not have a higher degree of importance.

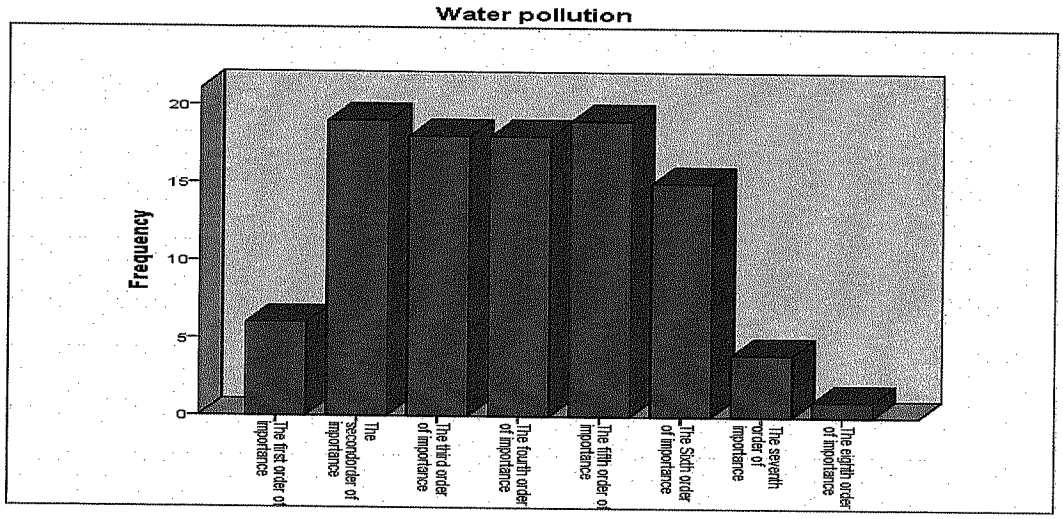
12.3 Degree of importance of "Water Pollution"

Table (19) Distribution of opinion regarding "Q12.3-Water Pollution"

No	Q12.3 – Degree of Importance "Water Pollution"	Repetition	Frequency
1	1st order of importance	6	6%
2	2nd order of importance	19	19%
3	3rd order of importance	18	18%
4	4th order of importance	18	18%
5	5th order of importance	19	19%
6	6th order of importance	15	15%
7	7th order of importance	4	4%
8	8th order of importance	1	1%
		Total >	100%

The table 19 shows that there are different degrees of importance depending on the level effected The majority are considering water pollution as aserious issue by 80%.

Figure (19) Frequency distribution of variable and the degree of importance water Pollution



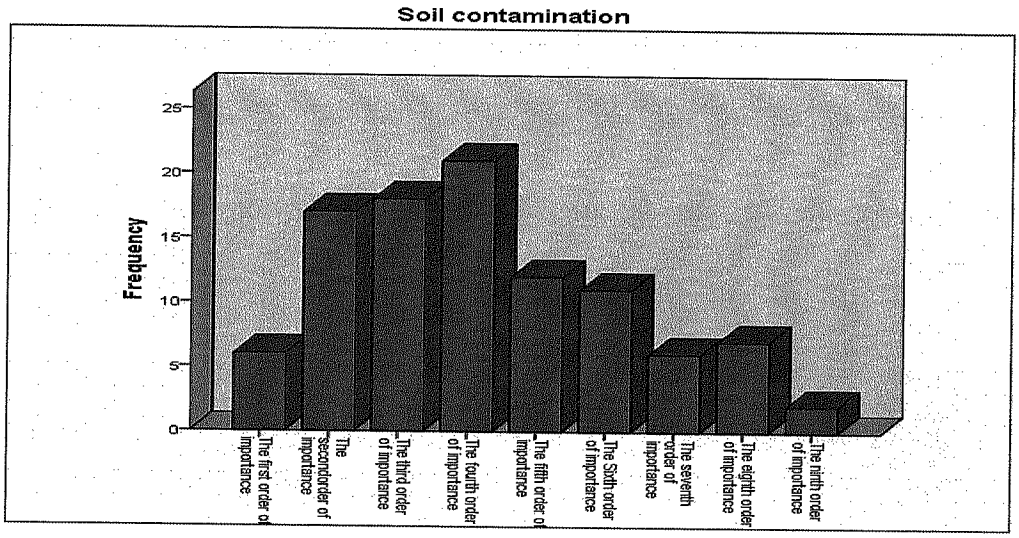
12.4 Degree of importance of "Soil Contamination"

Table (20) Distribution of opinion regarding "Q12.4-Soil contamination".

No	Q12.4 – Degree of Importance "Soil Contamination"	Repetition	Frequency
1	1st order of importance	6	6%
2	2nd order of importance	17	17%
3	3rd order of importance	18	18%
4	4th order of importance	21	21%
5	5th order of importance	12	12%
6	6th order of importance	11	11%
7	7th order of importance	6	6%
8	8th order of importance	7	7%
9	9th order of importance	2	2%
		Total >	100%

Table 20 shows that 62% are consider soil contamination an issue due to its effect on the quality of agricultural produce, and due to ill. knowledge of the proper way of testing soil and balancing its components.

Figure (20) the importance degree of Soil contamination



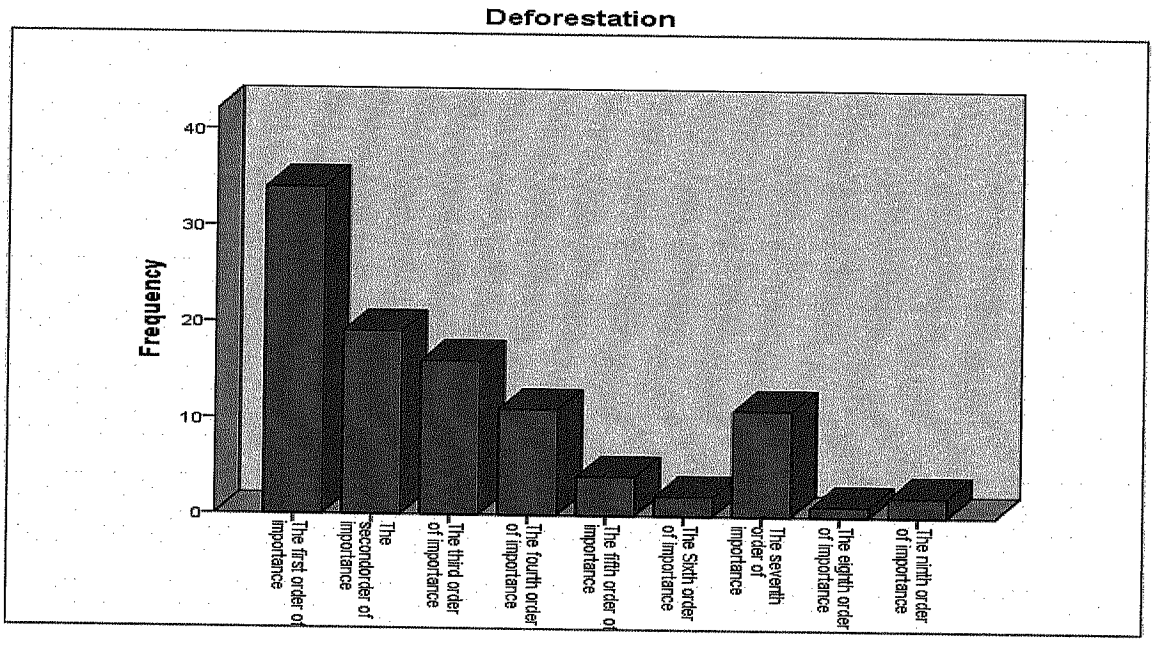
12.5 Degree of importance of "Deforestation"

Table (21) Distribution of opinion regarding"Q12.5-Deforestation".

No	Q12.5 – Degree of importance "Deforestation"	Repetition	Frequency
1	1st order of importance	34	34%
2	2nd order of importance	19	19%
3	3rd order of importance	16	16%
4	4th order of importance	11	11%
5	5th order of importance	4	4%
6	6th order of importance	2	2%
7	7th order of importance	11	11%
8	8th order of importance	1	1%
9	9th order of importance	2	2%
		Total >	100%

Table 21 shows that 1st, 2nd and 3rd place scored the highest percentages which indicates extreme importance as a cause of subsequent related issues, big trees play a role in preserving soil and supporting various animal species.

Figure (21) Frequency distribution of variable the importance degree of Deforestation



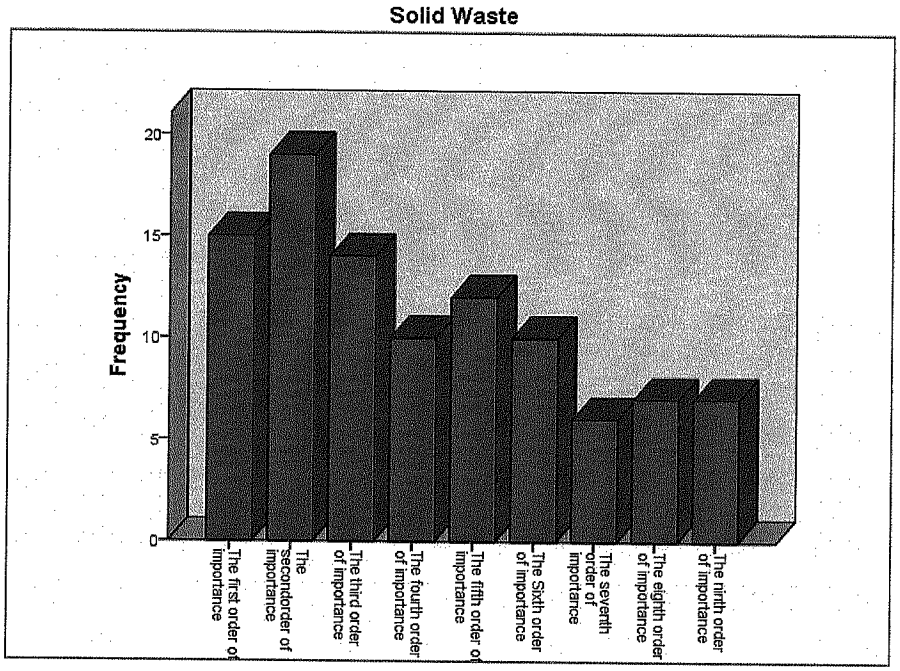
12.6 The Degree of importance of "Solid Waste"

Table (22) Distribution of opinion regarding "Q12.6-Solid Waste".

No	Q12.6 – Degree of importance "Solid Waste"	Repetition	Frequency
1	1st order of importance	15	15%
2	2nd order of importance	19	19%
3	3rd order of importance	14	14%
4	4th order of importance	10	10%
5	5th order of importance	12	12%
6	6th order of importance	10	10%
7	7th order of importance	6	6%
8	8th order of importance	7	7%
9	9th order of importance	7	7%
		Total >	100%

Table 22 shows that again it's the 1st,2nd and 3rd place scoring the highest percentages totaling 48%. This is very expected since cleaning companies are not active in the areas surrounding the city on the contrary, garbage collectors actually find secluded areas to dump their trash. This is a big issue for bugs and rats and other pets to build their hive, spreading disease to the agricultural areas nearby.

Figure (22) Frequency distribution of variable and the degree of importance solid waste



12.7 Degree of importance of "Random Urbanization"

Table (23) Distribution of opinion regarding "Q12.7-Urbanization".

No	Q12.7 – Degree of importance "Random Urbanization"	Repetition	Frequency
1	1st order of importance	24	24%
2	2nd order of importance	15	15%
3	3rd order of importance	12	12%
4	4th order of importance	9	9%
5	5th order of importance	9	9%
6	6th order of importance	16	16%
7	7th order of importance	11	11%
8	8th order of importance	2	2%
9	9th order of importance	2	2%
		Total >	100%

Table 23 shows that some think it's favorable to provide convenience and nearby shops instead of traveling downtown. Others see it as an issue eating away the green areas which can be used to grow produce for future generations. Some think it should be better managed by the coverment to study the areas and predesignate area for such expansion of builings instead of leaving it to people do it by them, selves.

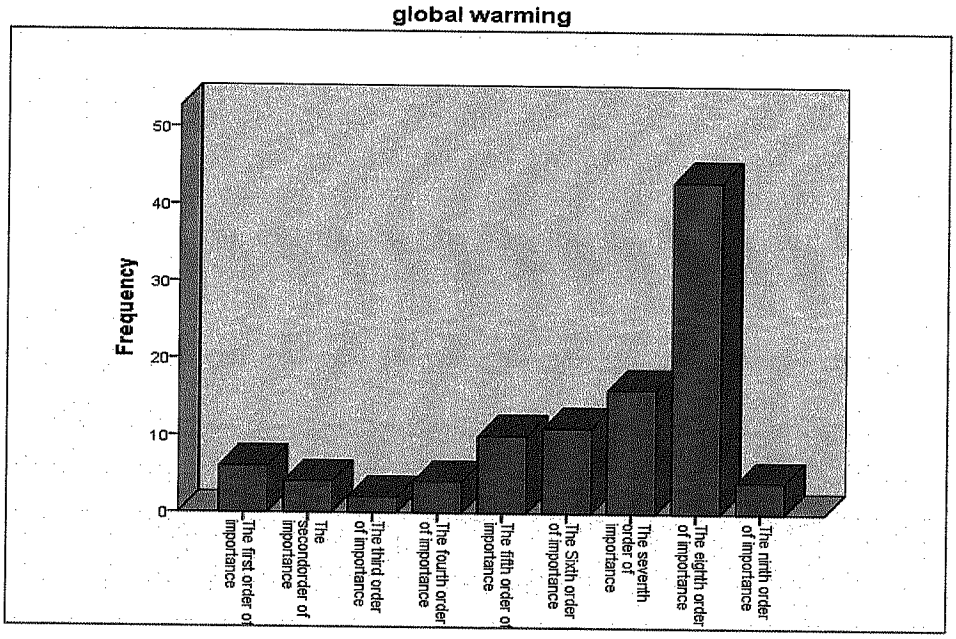
12.8 The degree of importance of "Global Warming"

Table (24) Distribution of opinion regarding "Q12.8-Global Warming".

No	Q12.8 – Degree of importance "Global Warming"	Repetition	Frequency
1	1st order of importance	6	6%
2	2nd order of importance	4	4%
3	3rd order of importance	2	2%
4	4th order of importance	4	4%
5	5th order of importance	10	10%
6	6th order of importance	11	11%
7	7th order of importance	16	16%
8	8th order of importance	43	43%
9	9th order of importance	4	4%
		Total >	100%

Table 24 shows that It's very evident that most people can't even comprehend what's global warming is, let alone the damage, it can cause weather changes or even climate changes. 70% think this is less importance.

Figure (23)The degree of importance global warming phenomena



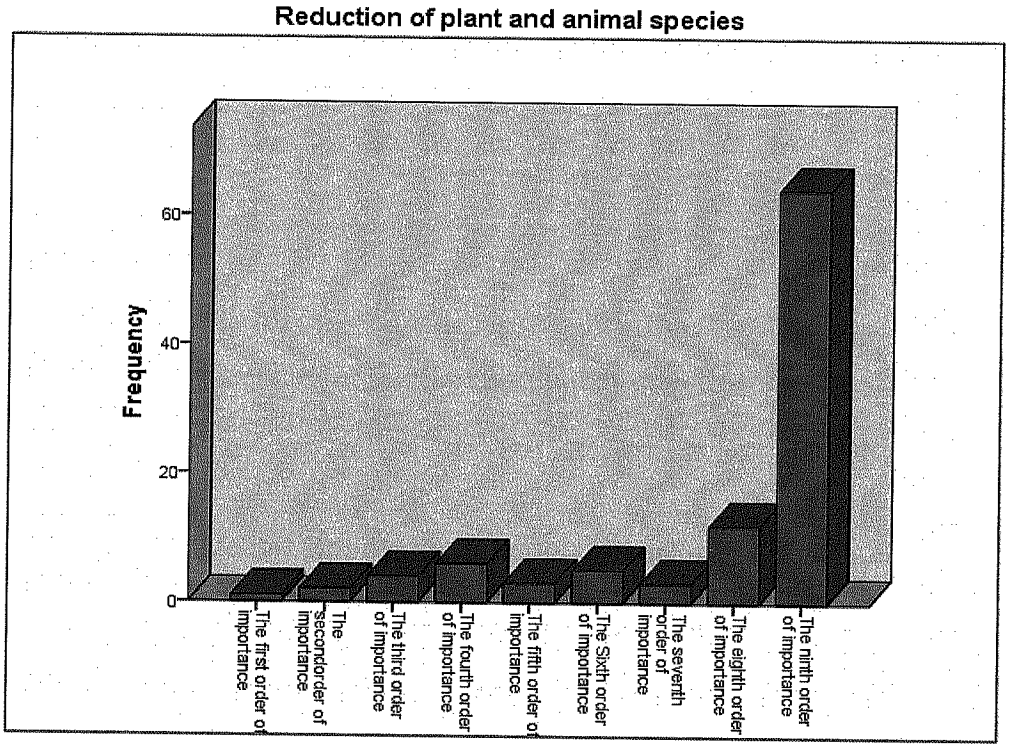
12.9 Degree of importance of "Species Control"

Table (25) Distribution of opinion regarding "Q12.9-Species Control"

No	Q12.9–Degree of importance "Species Control"	Repetition	Frequency
1	1st order of importance	1	1%
2	2nd order of importance	2	2%
3	3rd order of importance	4	4%
4	4th order of importance	6	6%
5	5th order of importance	3	3%
6	6th order of importance	5	5%
7	7th order of importance	3	3%
8	8th order of importance	12	12%
9	9th order of importance	64	64%
		Total >	100%

Table 25 shows surprising results,as the farmers didn't have the knowledge of how foreign species of animal or plant can have the potential of actually change the whole ecosystem. Some farmers without any supervision or monitoring are importing new species into the country and this may extinct other in time.

Figure (24) the degree of importance Reduction of plant and animal species



13 There exist a number of contributing factors to the environmental problem making it worst. From your experience, which are more or less significant?

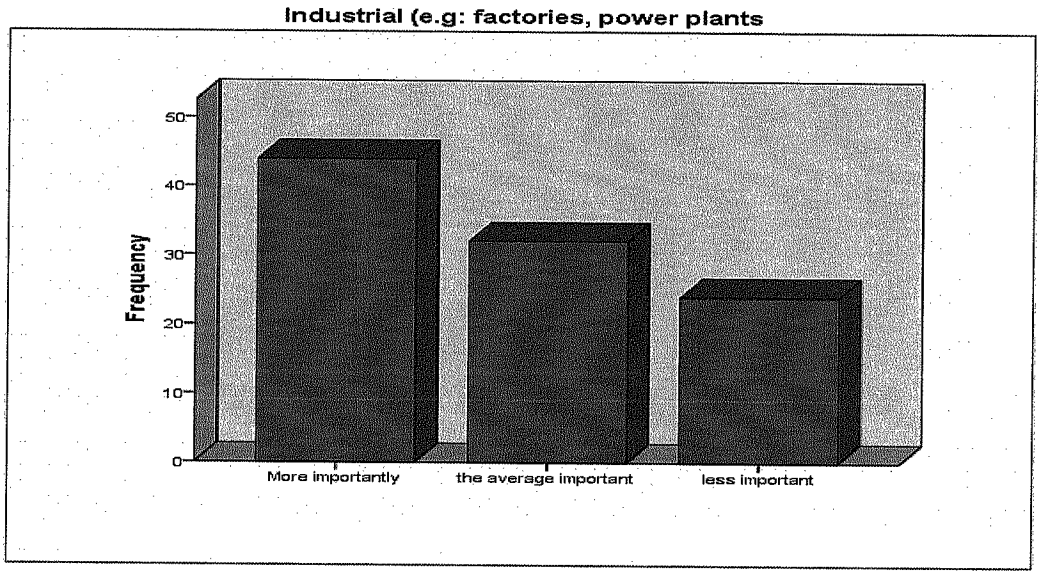
13.1 How significant is "Industrial Emission& Waste"

Table (26) Distribution of opinion regarding"Q13.1- Industrial Emissions".

No	Q13.1 – Significance of "Industrial Emissions & Waste"	Repetition	Frequency
1	Very significant	44	44%
2	Significant	32	33%
3	Less significant	24	24%
		Total >	100%

Table 26 shows that most farmers are dependent on subterranean water to grow their crops and very familiar with the issues of fuel leakage to that source of water and how it can affect water negatively .

Figure (25) the degree of importance Factories, power plants and fuel station



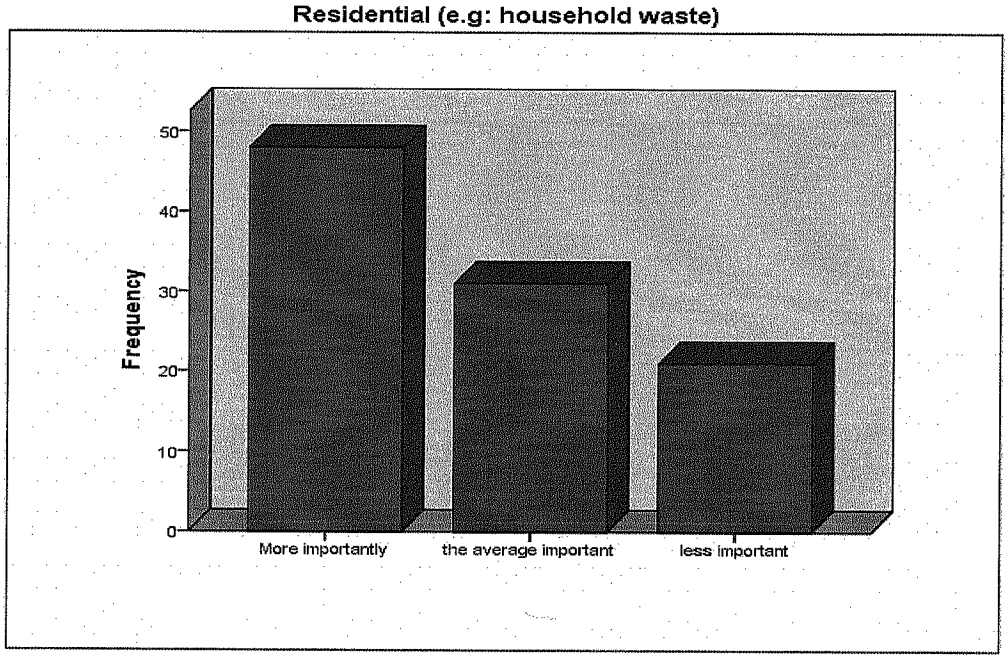
13.2 How significant "Household Waste"

Table (27) Distribution of opinion regarding "Q13.2-Household Waste".

No	Q13.2 – Significance of "Household Waste"	Repetition	Frequency
1	Very significant	48	48%
2	Significant	31	31%
3	Less significant	21	21%
		Total >	100%

Table 27 shows that the biggest problems, pilling of house waste in random areas surrounding rural areas and agricultural productive areas.There fore ,the government needs to step up its program of collecting and safely disposing of this trash.

Figure (26) The degree of importance Household waste



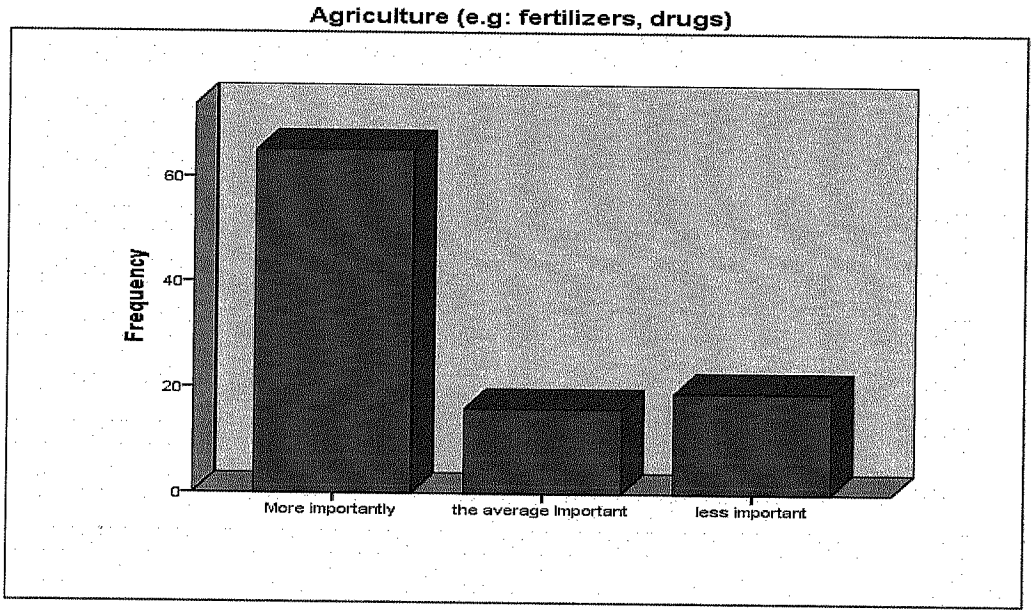
13.3 How significant is "Chemical Contamination"

Table (28) Distribution of opinion regarding "Q13.3-Chemical Contamination".

No	Q13.3 – Significance of "Chemical Contamination"	Repetition	Frequency
1	Very significant	65	65%
2	Significant	16	16%
3	Less significant	19	19%
		Total >	100%

Table 28 shows that excessive use of chemical fertilizers and pestsides disolve in water and leak into water raising phosphate and nitrate componds, 46% of contaminated water is effected by this.

Figure (27) The degree of importance Agricultural pollution caused by fertilizers and chemicals



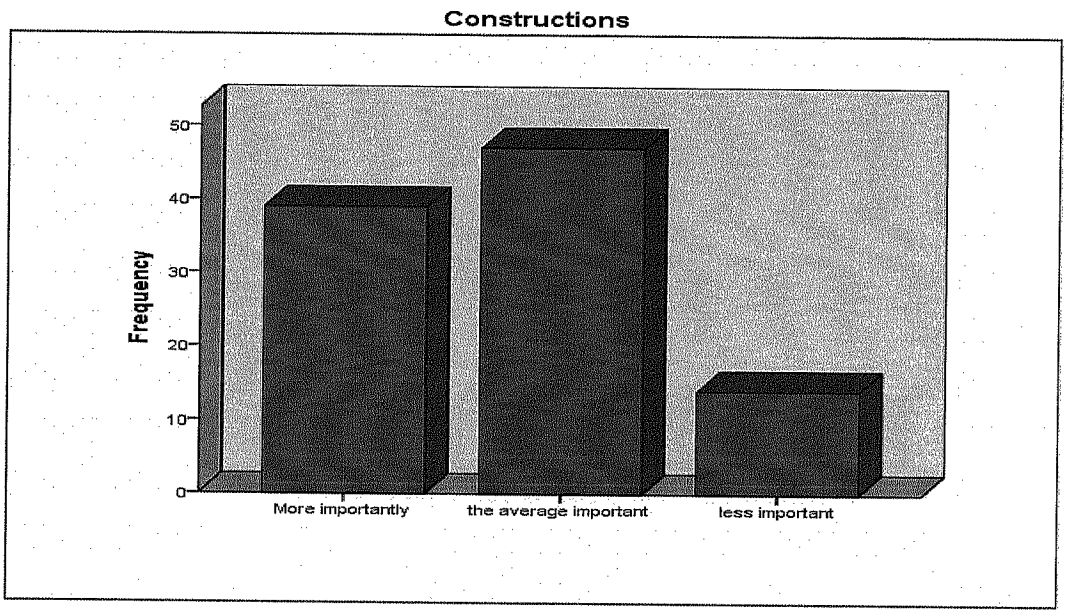
13.4 How significant are "Construction sites"

Table (29) Distribution of opinion regarding "Q13.4-Construction Sites".

No	Q13.4 – Significance of "Construction sites"	Repetition	Frequency
1	Very significant	39	39%
2	Significant	47	47%
3	Less significant	14	14%
		Total >	100%

Table 29 shows that the increase of randomly constructed buildings eating away from the green areas is on top of the list of serious issues for the Ministry of Development. Such development programs do not exist in government plans .

Figure (28) the degree of importance Buildings and construction



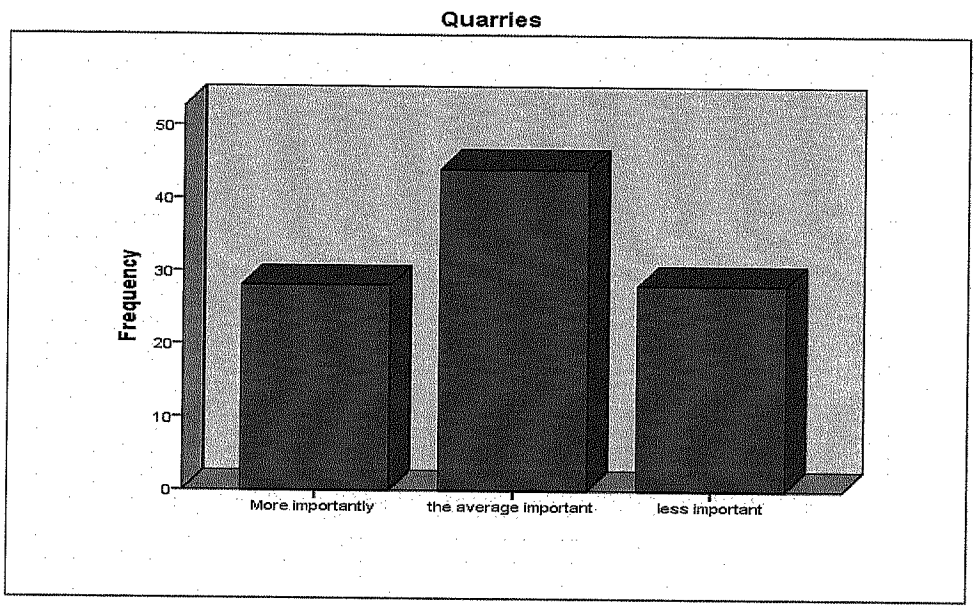
13.5 How significant are "Quarries"

Table (30) Distribution of opinion regarding "Q13.5-Quarries"

No	Q13.5 – Significance of"Quarries"	Repetition	Frequency
1	Very significant	28	28%
2	Significant	44	44%
3	Less significant	28	28%
		Total >	100%

Table 30 shows that farmers were not familiar with the effects of quarries since there were known in the study area, but 44% was the choice most have made just to be nutral to thestudy. Amazingly,the same percentage agreed with the importance.

Figure (29) Frequency distribution of variable and the degree of importance Quarries



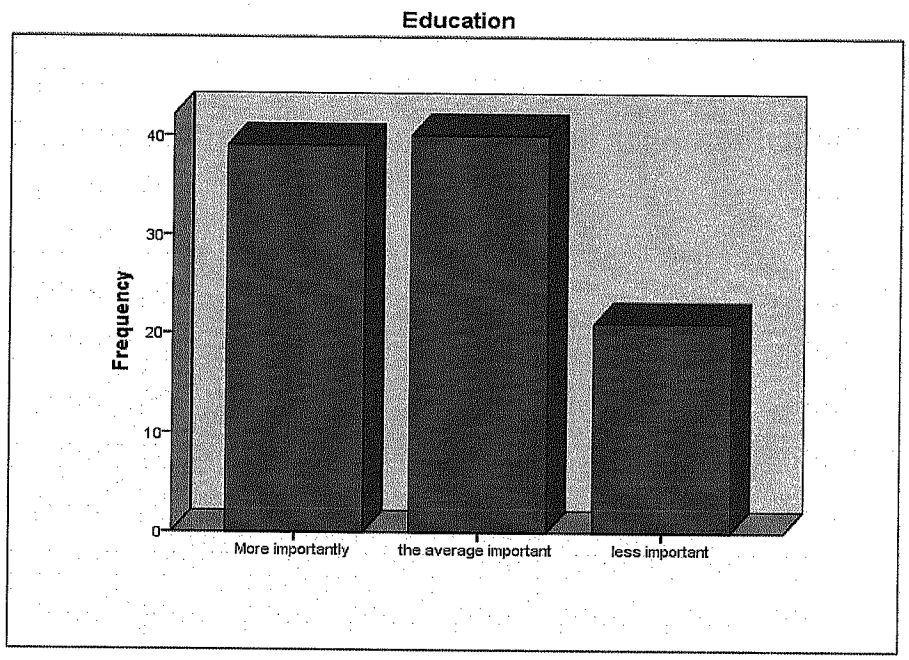
13.6 How significant is "Public Awareness"

Table (31) Distribution of opinion regarding "Q13.6-Education".

No	Q13.6 – Significance of "Public Awareness"	Repetition	Frequency
1	Very significant	39	39%
2	Significant	40	40%
3	Less significant	21	21%
		Total >	100%

Table 31 shows that Education is considered the building stone for most. An educated farmer is far more valuable and an assist.

Figure (30) Frequency distribution of variable and the degree of importance education



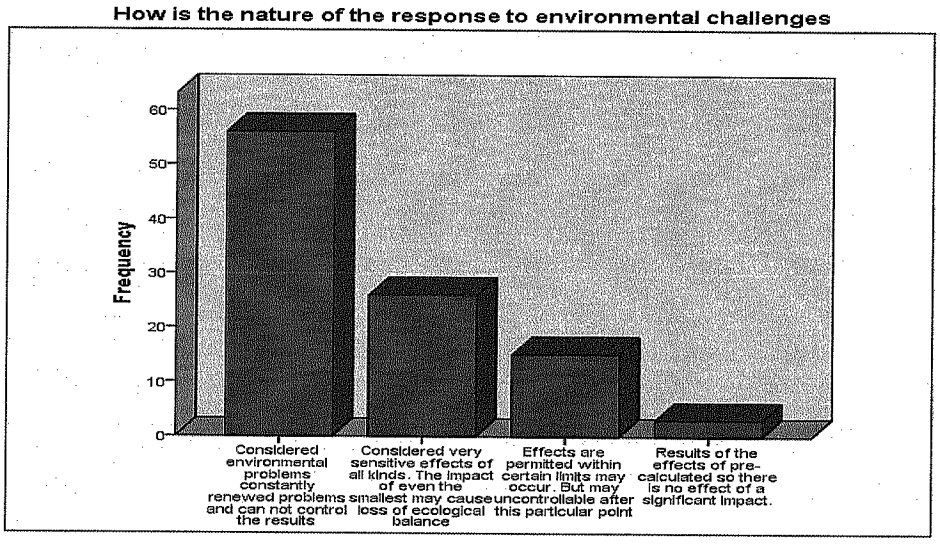
14 In your opinion, what do you think of the response to environmental challenges?

Table (32) The Nature Of The Response To Environmental Challenges.

No	Response to environmental challenges	Repetition	Frequency
1	It is constantly renewed results cannot be controlled.	56	56%
2	It is very sensitive to many factors; The change of any may cause loss of ecological balance	26	26%
3	Effects are permitted within certain limits ,but may uncontrollable after a particular point	15	15%
4	Results of the effects of has no pre-calculated effect significant impact	3	3%
		Total >	100%

Table 32 shows that most agree that our response to environmental changes is not a solution to control certain issue than trying to limit its effect, but due to constant changes in climate and weather, those solutions are effective within a certain period after which it become useless and new solutions are nedded.

Figure (30) Frequency distribution of variable the degree of importance the Environmental Challenges



(Farmers understanding of the subject matter)

To establish a good understanding of farmer's attitude towards their environment, and the way of thinking on how to use its resources, possibly protect it from degradation to preserve it for future generation.

15 How much do you agree or disagree with the following statement regarding the use of natural resources and protection of environment.

15.1 Natural resource is a common property that can be privatized and used alone, without considering the interests of others. "Monopolizing on natural resources"

Table (33) Distribution of opinion regarding "Q15.1"

No	Q15.1 Agreement with "Monopolizing Natural Resources"	Repetition	Frequency
1	Strongly Agree	41	41%
2	Agree	19	19%
3	Neutral	10	10%
4	Disagree	25	25%
5	Strongly Disagree	25	25%
		Total >	100%

15.2 Natural resource is a common property for all mankind, so it must be used for the benefit to all who live nearby. "Sharing of natural resource"

Table (34) Distribution of opinion regarding "Q15.2"

No	Q15.2 Agreement with "Sharing Natural Resources"	Repetition	Frequency
1	Strongly Agree	32	32%
2	Agree	31	31%
3	Neutral	22	22%
4	Disagree	3	3%
5	Strongly Disagree	12	12%
		Total >	100%

15.3 Natural resources is a public property and no one is entitled to encroach on it for the purpose of agricultural reclamation. "Publicizing Natural resources"

Table (35) Distribution of opinion regarding "Q15.3"

No	Q15.3 Agreement with "Publicizing Natural Resources"	Repetition	Frequency
1	Strongly Agree	31	31%
2	Agree	18	18%
3	Neutral	25	25%
4	Disagree	2	2%
5	Strongly Disagree	24	24%
		Total >	100%

15.4 Mankind has the right to make changes in the environment and its natural resources to meet the needs of humanity "Right to alter nature"

Table (36) Distribution of opinion regarding "Q15.4"

No	Q15.4 – Agreement with "Right to alter nature"	Repetition	Frequency
1	Strongly Agree	17	17%
2	Agree	17	17%
3	Neutral	29	29%
4	Disagree	20	20%
5	Strongly Disagree	17	17%
		Total >	100%

15.5 Human intervention always leads to disastrous results on environment and consequently on our livelyhood. "Humans intervention"

Table (37) Distribution of opinion regarding "Q15.5"

No	Q15.5 – Agreement with "Human Intervention"	Repetition	Frequency
1	Strongly Agree	23	23%
2	Agree	30	30%
3	Neutral	24	24%
4	Disagree	10	10%
5	Strongly Disagree	13	13%
		Total >	100%

15.6 People usually tend to overexploit their environment and exhaust its natural resources.

Table (38) Distribution of opinion regarding "Q15.6"

No	Q15.6 – Agreement with "Exhausting natural resources"	Repetition	Frequency
1	Strongly Agree	16	16%
2	Agree	30	30%
3	Neutral	28	28%
4	Disagree	10	10%
5	Strongly Disagree	16	16%
		Total >	100%

15.7 Nature has enough natural resources to satisfy the needs of all humanity

Table (39) Distribution of opinion regarding "Q15.7"

No	Q15.7 – Agreement with "there exist enough natural recourses"	Repetition	Frequency
1	Strongly Agree	23	23%
2	Agree	24	24%
3	Neutral	31	31%
4	Disagree	11	11%
5	Strongly Disagree	11	11%
		Total >	100%

15.8 Forces of nature including environmental balance is strong enough to deal with the effects of industrial pollution "What did not interfere with the human?"

Table (40) Distribution of opinion regarding "Q15.8"

No	Q15.8 – Agreement with "Ecological balance"	Repetition	Frequency
1	Strongly Agree	15	15%
2	Agree	17	17%
3	Neutral	29	29%
4	Disagree	28	28%
5	Strongly Disagree	11	11%
		Total >	100%

15.9 If economic benefit from natural resources must rank the first, then protection of such resources should become the second.

Table (41) Distribution of opinion regarding "Q15.9"

No	Q15.9 – Agreement with "Benefit and protection of resource"	Repetition	Frequency
1	Strongly Agree	15	15%
2	Agree	17	17%
3	Neutral	29	29%
4	Disagree	28	28%
5	Strongly Disagree	17	17%
		Total >	100%

15.10 In some countries and regions, economic situation and social problems are valued more than environmental issues; therefore priority should be given to resolve those issues of concern first.

Table (42) Distribution of opinion regarding "Q15.10"

No	Q15.10 – Agreement with "Priority of Economic and social issues"	Repetition	Frequency
1	Strongly Agree	10	10%
2	Agree	20	20%
3	Neutral	24	24%
4	Disagree	24	24%
5	Strongly Disagree	22	22%
		Total >	100%

15.11 One of the goals of sustainable development should be the monitoring and balancing of resource use to preserve the needs of current and future generations .

Table (43) Distribution of opinion regarding "Q15.11"

No	Q15.11 – Agreement with "Goal of sustainable development"	Repetition	Frequency
1	Strongly Agree	41	41%
2	Agree	26	26%
3	Neutral	8	8%
4	Disagree	13	13%
5	Strongly Disagree	12	12%
		Total >	100%

15.12 Exploitation and preservation of natural resources is not exclusive to just one generation without the other, it is concerns of all humanity. "Protect the use of natural"

Table (44) Distribution of opinion regarding "Q15.12"

No	Q15.12 – Agreement with "Exploiting and preserving nature"	Repetition	Frequency
1	Strongly Agree	38	38%
2	Agree	20	20%
3	Neutral	16	16%
4	Disagree	8	8%
5	Strongly Disagree	18	18%
		Total >	100%

15.13 Plants and animals have the right to coexist alongside with humans. Plants and animals have"

Table (45) Distribution of opinion regarding "Q15.13"

No	Q15.13 – Agreement with "Right to coexist"	Repetition	Frequency
1	Strongly Agree	44	44%
2	Agree	17	17%
3	Neutral	20	20%
4	Disagree	7	7%
5	Strongly Disagree	12	12%
		Total >	100%

15.14 There is exaggeration when it comes to talk about environmental problems

Table (46) Distribution of opinion regarding "Q15.14"

No	Q15.14 – Agreement with "Exaggeration of a problem"	Repetition	Frequency
1	Strongly Agree	12	12%
2	Agree	20	20%
3	Neutral	28	28%
4	Disagree	21	21%
5	Strongly Disagree	19	19%
		Total >	100%

15.15 All generations, even the modern ones should learn how to deal with issues related to the environment

Table (47) Distribution of opinion regarding "Q15.15"

No	Q15.15 – Agreement with "All should become aware"	Repetition	Frequency
1	Strongly Agree	36	36%
2	Agree	37	37%
3	Neutral	10	10%
4	Disagree	12	12%
5	Strongly Disagree	5	5%
		Total >	100%

15.16 "If everything continues as" If everything continues as it does today, , humanity will face major ecological disasters,when dealing with environmental issues.

Table (48) Distribution of opinion regarding "Q15.16"

No	Q15.16 – Agreement with "Future Disaster"	Repetition	Frequency
1	Strongly Agree	43	43%
2	Agree	24	24%
3	Neutral	10	10%
4	Disagree	12	12%
5	Strongly Disagree	11	11%
		Total >	100%

The questions from table 15 show that when analyzing these special results, Libyan farmers within the search area on environmental protection and the use of environmental resources, the task of liquefaction, which shows the extent of the environmental awareness of the farmer, 41% of them are strongly agree on the use of natural resources individually regardless to others, while agreeing strongly about 32% of that which is the right of joint use, (From the point of succulent researcher. There are several points, including the social and economic controlling of the desire, of some farmers), And 31% Strongly Disagree that the Ownership in natural resources is not entitled to use or encroachment upon, in connection with the human right to make changes in the environment. 29% had their answer neutral, while (30% stressed) to enter the human beings in the environment results lead on the environment, and30% agree that the human tends to use the oppressive environment while 28% neutral , 31% believe that natural resources are sufficient for human, 29% believes that the environmental balance sponsor deal with the effects of pollution, while 28% is agree, that protection of the environment in utilization of natural resources in deliberate place , 26 percent gave neutral answers, while an equal percentage considers economic and so cial problems more important environmental problems., 24% is neutral, 0.22% strongly agree. The goals of sustainable development must be consistent with justice between the current generation and future generations (41% strongly agree). 26% agree, on the protection of the use of natural resources. 38% strongly agree. 20% agree, awareness of the importance of sustainable development. 44% strongly agree that the diversity of animal and plant is very important for the environment, while 20% is neutral. 28% is neutral when talking about environmental problems. 21% agree, while 19% agree and 36% strongly agree about teaching generations how to deal with environmental issues. 43% strongly agree that in case of continuation of the current situation human will facing environmental disasters.

16 Environmental degradation will lead to serious consequences globally. How much do you agree or disagree with the following statements

16.1 Increase of global warming which will lead to climate change is considered the top global issue

Table (49) Distribution of opinion regarding "Q16.1"

No	Q16.1 Agreement with "Climate change"	Repetition	Frequency
1	Strongly Agree	39	39%
2	Agree	23	23%
3	Neutral	15	15%
4	Disagree	3	3%
5	Strongly Disagree	20	20%
		Total >	100%

16.2 Will increase poverty and hunger "Increased poverty"

Table (50) Distribution of opinion regarding "Q16.2"

No	Q16.2 Agreement with "Increase of poverty"	Repetition	Frequency
1	Strongly Agree	17	17%
2	Agree	36	36%
3	Neutral	23	23%
4	Disagree	17	17%
5	Strongly Disagree	7	7%
		Total >	100%

16.3 Will lead to a decline in oil production "Declined oil production"

Table (60) Distribution of opinion regarding "Q16.3"

No	Q16.3 Agreement with "Declined oil production"	Repetition	Frequency
1	Strongly Agree	13	13%
2	Agree	20	20%
3	Neutral	40	40%
4	Disagree	19	19%
5	Strongly Disagree	8	8%
		Total >	100%

16.4 Will pollute the sources of fresh drinking water "Water will be expensive "Drinkable water"

Table (61) Distribution of opinion regarding "Q16.4"

No	Q16.4 Agreement with "Polluting water sources"	Repetition	Frequency
1	Strongly Agree	25	25%
2	Agree	44	44%
3	Neutral	16	16%
4	Disagree	6	6%
5	Strongly Disagree	9	9%
		Total >	100%

16.5 Good agricultural practices will gain importance to help reduce environmental degradation "Land degradation"

Table (62) Distribution of opinion regarding "Q16.5"

No	Q16.5 Agreement with "Good practice will be valued"	Repetition	Frequency
1	Strongly Agree	32	32%
2	Agree	30	30%
3	Neutral	21	21%
4	Disagree	5	5%
5	Strongly Disagree	12	12%
		Total >	100%

16.6 Desertification will accelerate

Table (63) Distribution of opinion regarding "Q16.6"

No	Q16.6 Agreement with "Accelerated desertification"	Repetition	Frequency
1	Strongly Agree	41	41%
2	Agree	25	25%
3	Neutral	18	18%
4	Disagree	6	6%
5	Strongly Disagree	10	10%
		Total >	100%

16.7 Natural resource will shrink, especially drinkable water causing disagreement and armed conflict to erupt over resource control "Global conflict"

Table (64) Distribution of opinion regarding "Q16.7"

No	Q16.7 Agreement with "Global conflict over resources"	Repetition	Frequency
1	Strongly Agree	25	25%
2	Agree	27	27%
3	Neutral	27	27%
4	Disagree	4	4%
5	Strongly Disagree	7	7%
		Total >	100%

16.8 Will lead to the melting of glaciers, inundating many coastal areas around the world Idea 24: "Melting glaciers"

Table (65) Distribution of opinion regarding "Q16.8"

No	Q16.8 Agreement with "Flooding of coastal areas"	Repetition	Frequency
1	Strongly Agree	34	34%
2	Agree	21	21%
3	Neutral	32	32%
4	Disagree	6	6%
5	Strongly Disagree	7	7%
		Total >	100%

(Finding solutions)

17 The following measures can be taken to help resolve or reduce environmental issues, give the degree of importance each measure holds as a solution.

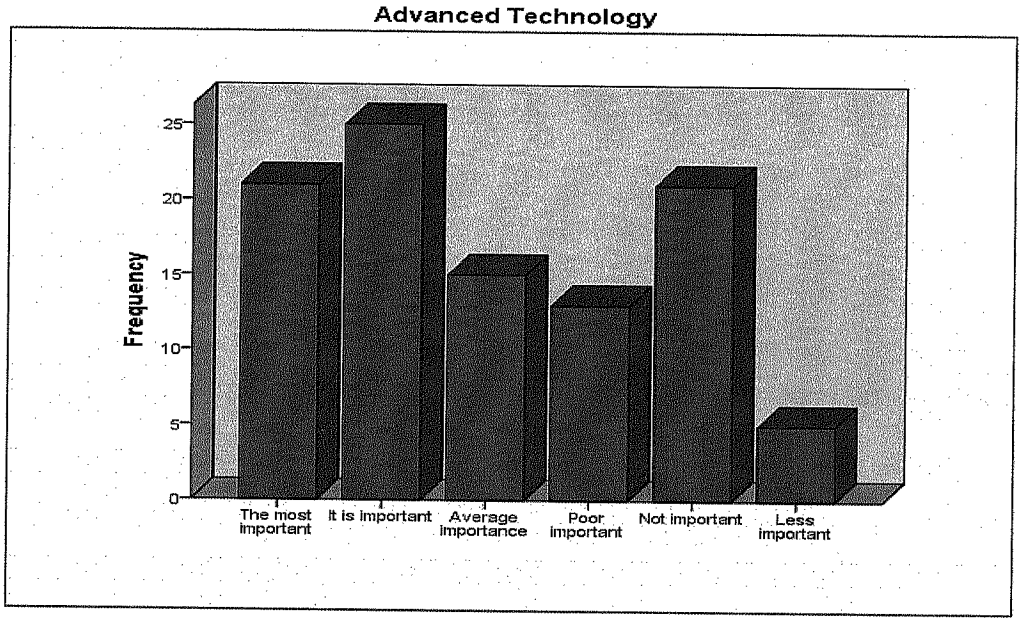
17.1 Degree of importance of "Advanced Technology"

Table (66) Distribution of opinion regarding "Q34-Advanced technology"

No	Q34 – Importance of technology to reduce Environmental Problems	Repetition	Frequency
1	Most important	21	21%
2	Very important	25	25%
3	Important	15	15%
4	Less important	18	18%
6	Not important	21	21%
		Total >	100%

Table 66 shows that 61% of farmers believe that advanced technology can limit a number of issues by implementing new ideas and improved methods which lessen the impact on environment.

Figure (31) The importance of advanced technology to reduce environmental Problems



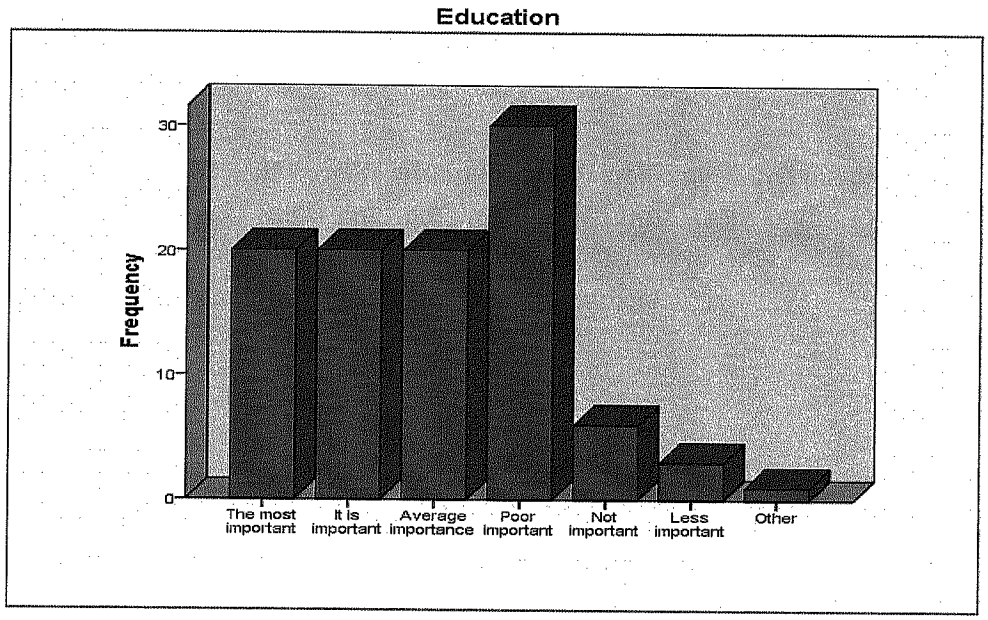
17.2 Degree of importance of "Education"

Table (67) Distribution of opinion regarding "Q35-Education"

No	Q35– Importance of "Education" in reducing Environmental Problems	Repetition	Relative Frequency
1	Most important	20	20%
2	Very important	20	20%
3	Important	20	20%
4	Less important	3	3%
5	Barely important	30	30%
6	Not important	6	6%
		Total >	100%

Table 67 shows that 60 % of Libyans farmers believe to an extent the importance of education and its role to reduce environmental problems and find environmental solutions, there is no doubt that giving the individual information and new ideas are the first stages of behavioral changes and these grow and develop into a knowledge systems of the individual examples that provide farmers with improved crops.New information and new ideas about agricultural innovations as different ,such asImproved crops new fertilizers, machinery, modern irrigation methods, chemical pesticides, animal species produced. Change in individual skills and relating these changes an how to perform easily and mastery to run a particular machine and proper use form safety and efficiency.

Figure (32) The importance of education to reduce environmental problems



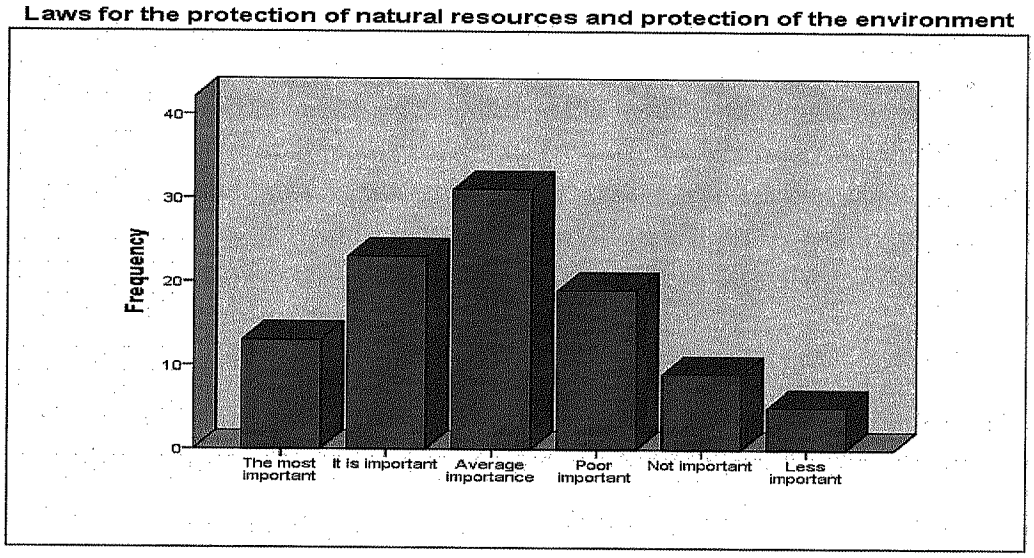
17.3 Degree of importance of "Protection laws"

Table (68) Distribution of opinion regarding "Q36-Protection laws"

No	Q36 – Importance of "Laws" for protecting natural resources	Repetition	Relative Frequency
1	Most important	13	13%
2	Very important	23	23%
3	Important	31	31%
4	Less important	5	5%
5	Barely important	19	19%
6	Not important	9	9%
		Total >	100%

Table 68 shows that 67% of farmers within the study area considered the protection of natural resources possible by laws. Regarding the situation in Libya, there is the Environment Public Authority which is the authority responsible for a legislation to preserve the natural resources and there are many Laws binding to preserve the environment.

Figure (33) the importance of Laws for the protection of natural resources and protection of the environment problems



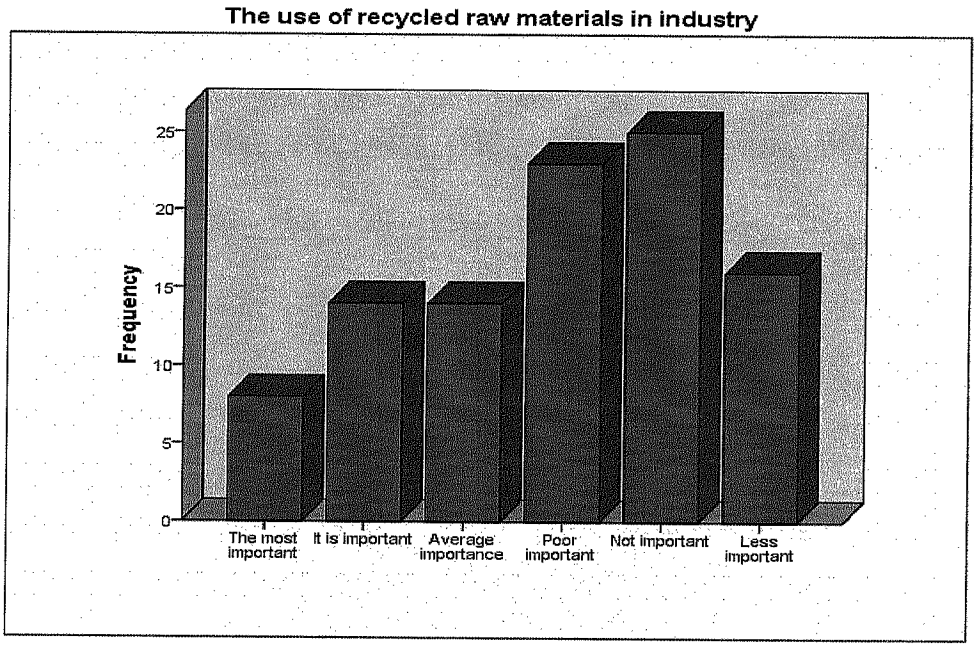
17.4 The Degree of importance of "Recycled Materials"

Table (69) Distribution of opinion regarding "Q37-Recycled materials"

No	Q37 – Importance of "Recycle" in reducing Environmental Problems	Repetition	Relative Frequency
1	Most important	8	8%
2	Very important	14	14%
3	Important	14	14%
4	Less important	16	16%
5	Barely important	23	23%
6	Not important	25	25%
		Total >	100%

Table 69 shows that to avoid or reduce environmental pollution as much as possible the application must follow a sequence of waste management strategies and the promise of raising the efficiency and productivity of materials and energy, which is based on the principles, the use of clean production techniques and composition of closed-circuit.notes on (recycling) - environmentally appropriate disposal of waste and waste.When Notes the results obtained from the questionnaire, show that most Libyan farmers have mixed scores mostly showing the importance of the use of raw materials recycled in the industry to reduce the problems. 36% of them consider the degree of importance while, 64% do not consider the significance. In the opinion of the researcher this is due to the lack of interest by the state or the recycling institutions. There are few individual experiences of some private centers to recycle plastic and some other materials. However, I think astray experiences or very limited operations, and the culture of recycling seem verylimited when applied.

Figure (34) The degree of importance of the use of recycled raw materials in the industry to reduce environmental problems and find solutions



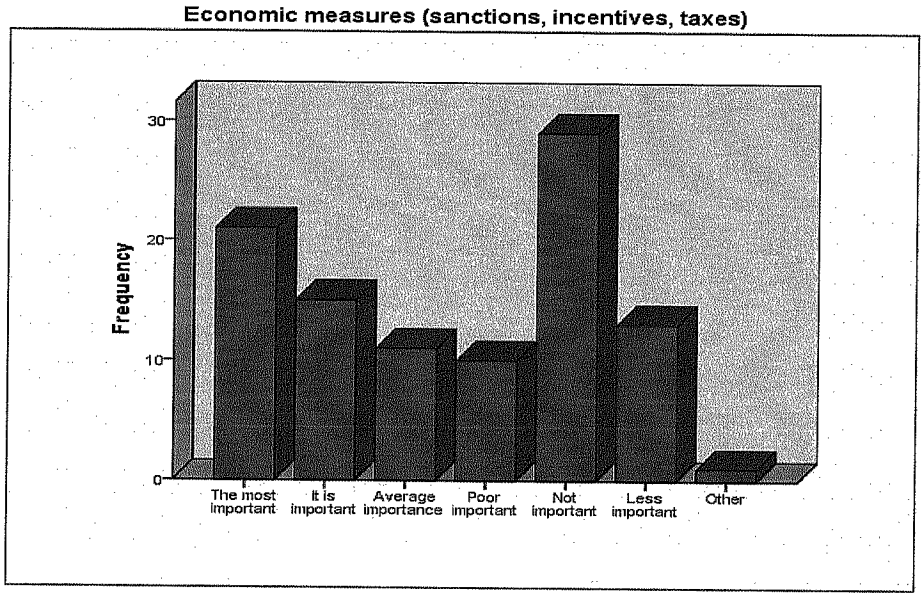
17.5 The Degree of importance of "Economic measures

Table (70) Distribution of opinion regarding "Q38-Economic measures"

No	Q38 – Importance of "Economic measures	Repetition	Relative Frequency
1	Most important	21	21%
2	Very important	15	15%
3	Important	11	11%
4	Less important	13	13%
5	Barely important	11	11%
6	Not important	29	29%
		Total >	100%

Table 70 shows that 47% of the farmers approve, incentives and taxes on the degree of importance to reduce environmental problems to find solutions, while 52% by contrast, a large due to the pastoral state policy support very low taxes.

Figure (35)The importance of the use of recycled raw materials in the industry



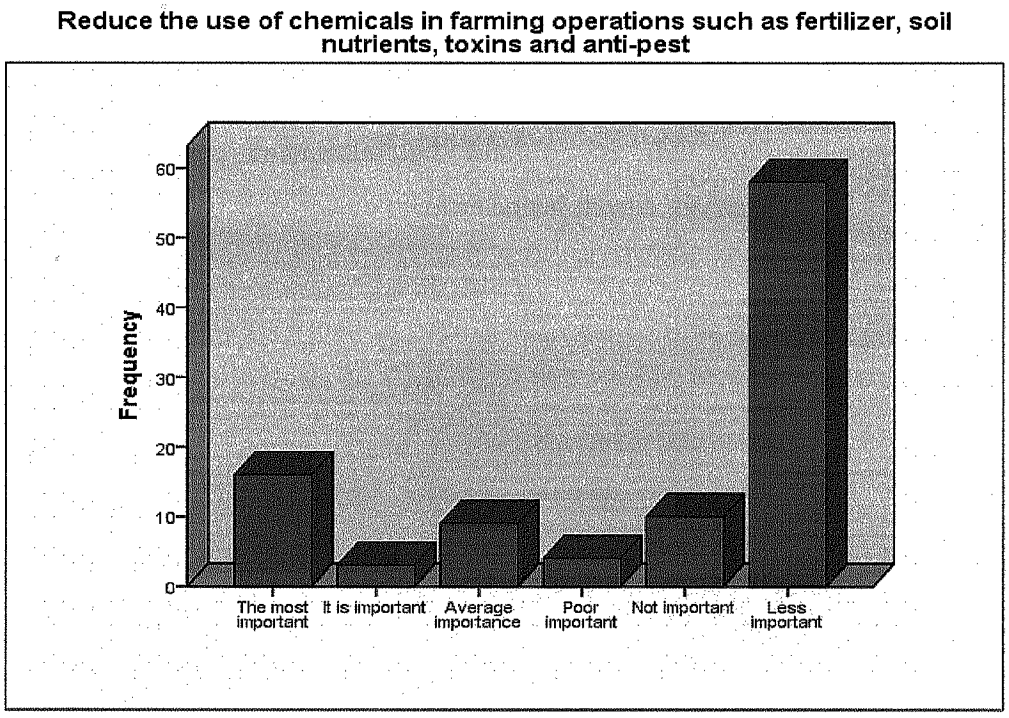
17.6 The Degree of importance of organic farming

Table (71) Distribution of opinion regarding "Q39-Organic farming"

No	Q39– Importance of "organic farming	Repetition	Relative Frequency
1	Most important	8	16%
2	Very important	14	3%
3	Important	14	9%
4	Less important	16	58%
5	Barely important	23	4%
6	Not important	25	10%
		Total >	100%

Table 71 show that 28% of farmers within the search area consider the importance of reducing the use of chemicals in farming operations to avoid environmental problems. 72% of them did not believe in the importance of this factor. Becauce of the lack of chemical alternatives, and the keenness of the farms agricultural products .

Figure (36) The importance of the use of recycled raw materials in the industry



18 What are the best solutions to deal with the weeds in agricultural fields?

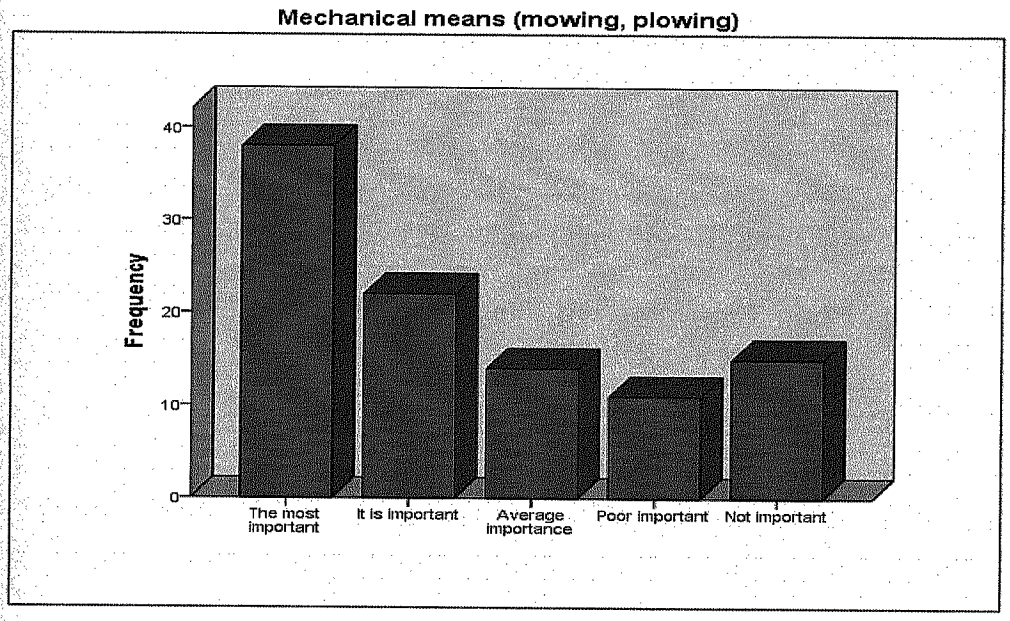
18.1 The Degree of importance of mechanical means

Table (72) Distribution of opinion regarding "Q40-Meachanical means"

No	"Q40-Meachanical means"	Repetition	Relative Frequency
1	Most important	38	38%
2	Very important	22	22%
3	Important	14	14%
4	Barely important	11	11%
5	Not important	15	15%
		Total >	100%

Table 72 shows that grass is considered serious pests that cause damage to many either agricultural production or the various activities of the human being .The same may be harmful to human health and the roads used since man began to grow crops. It may be economically cheaper in certain cases. 74% of the farmers agree on the importance of mechanical means as the best solutions, damaged chemicals and what causes the problems and damage to the environment. 26% see no importance of mechanical means, because they believe the ability of chemicals to better genocide the junkie as well as to ease the use of chemicals (time periods).

Figure (37) The best solutions to deal with the weeds in agricultural fields



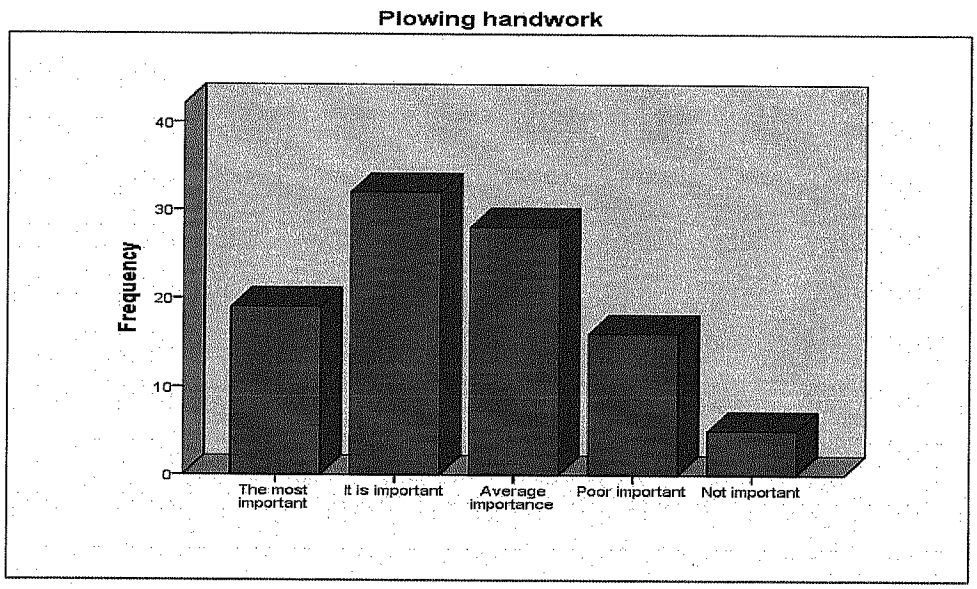
18.2) The Degree of importance of the handwork plowing

Table (73) Distribution of opinion regarding "Q41-Handwork & plowing"

No	Q41– opinion regarding "Q41-Handwork & plowing"	Repetition	Relative Frequency
1	Most important	19	19%
2	Very important	32	32%
3	Important	28	28%
4	Barely important	16	16%
5	Not important	5	5%
		Total >	100%

Table 73 shows that 79% of farmers believe in the importance of plowing the handwork degree (relative importance varying between very important and important), while 21% of them thought the importance of not plowing (as required from time and time as well as effort muscle).

Figure (38)The importance of the handwork plowing. The best solutions to deal with the weeds



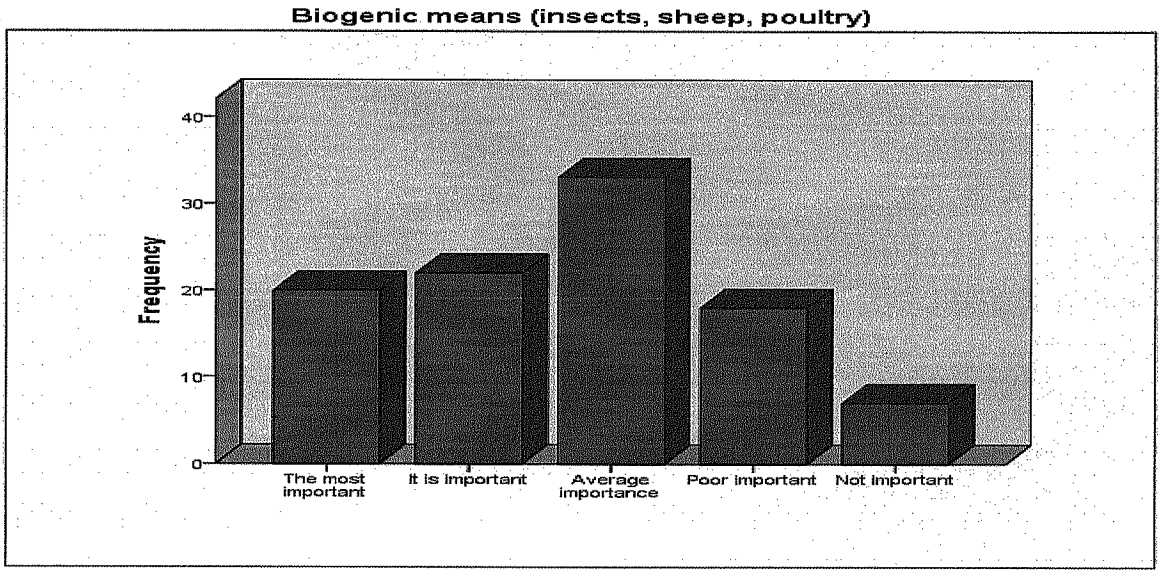
18.2 The Degree of importance of biogenic means and animals

Table (74) Distribution of opinion regarding "Q42-Biogenic means & animals"

No	Q42 – Importance of biogenic means and animals	Repetition	Relative Frequency
1	Most important	20	20%
2	Very important	22	22%
3	Important	33	33%
4	Barely important	18	18%
5	Not important	7	7%
		Total >	100%

Table 74 shows that 75% of the farmers agree on the importance of biotechnology and animal means to deal with the weed, one of the most way spread inside libyan agricultural community (traditional method). 25% of them do not believe in the importance of these methods in dealing with herbs.

Figure (39)The importance of biogenic means and animals (insects, sheep, poultry)



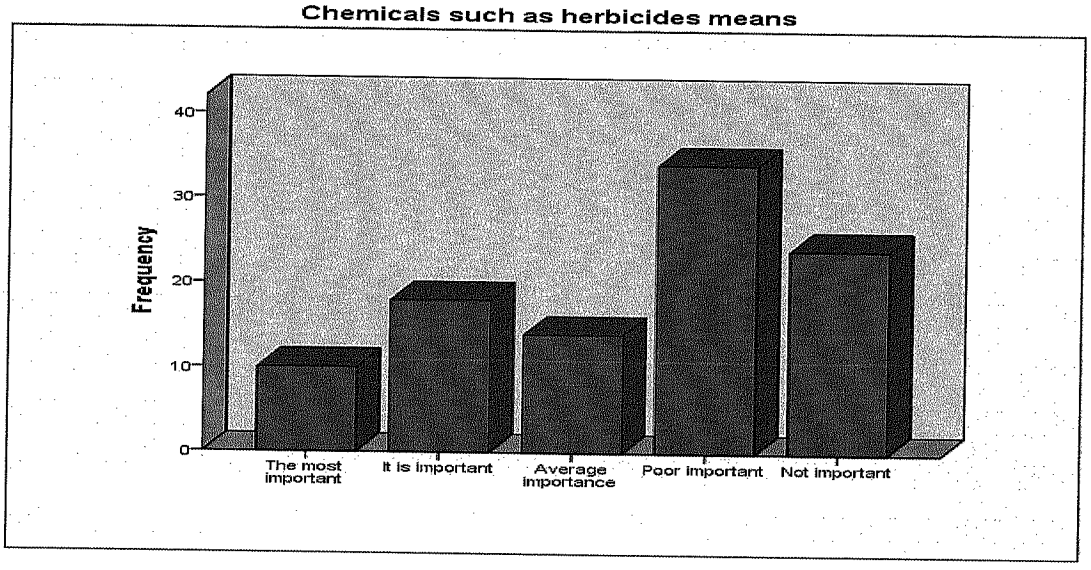
18.3 The Degree of importance of chemical means such as herbicides

Table (75) Distribution of opinion regarding "Q43-Chemical means"

No	Q43 – Importance of chemical means such as herbicides	Repetition	Relative Frequency
1	Most important	10	10%
2	Very important	18	18%
3	Important	14	14%
4	Less important	0	0%
5	Barely important	34	34%
6	Not important	24	24%
		Total >	100%

Table 75 shows that 42% of Libyan farmers, agree on the importance of chemical means as the best solutions to deal with the weeds in the fields, while 58% believe in the importance of biogenic means and animals (insects, sheep, poultry)

Figure (40)The importance of chemical means such as herbicides



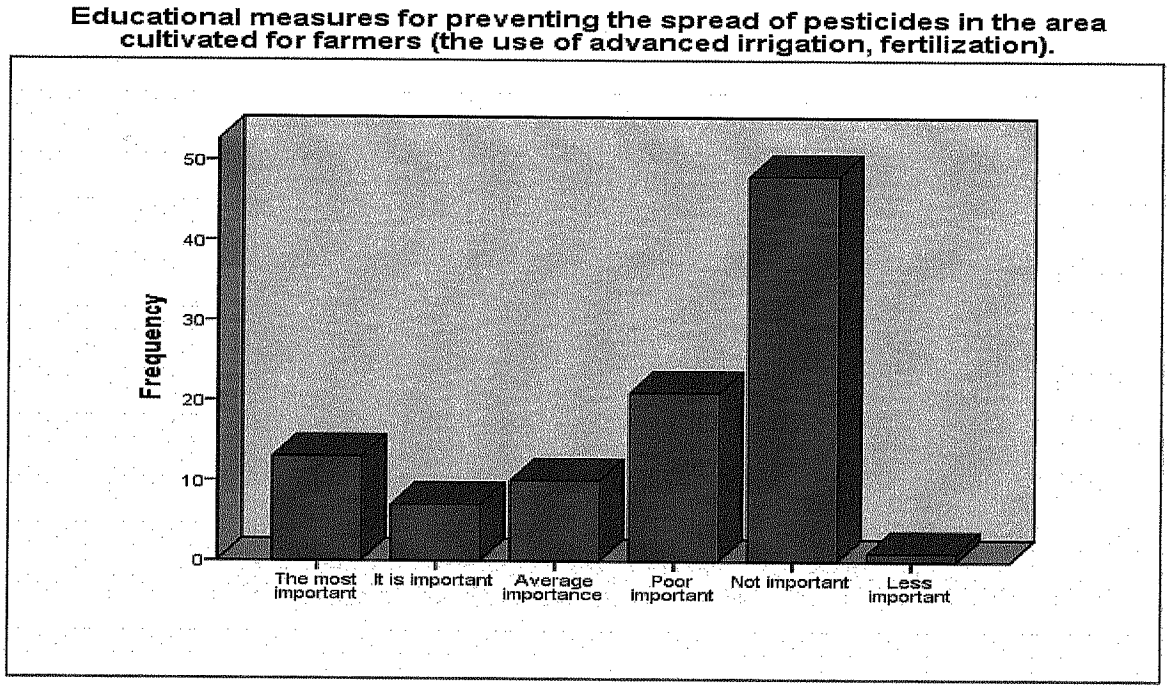
18.4 The Degree of importance of Educational measures such as the use of advanced irrigation, fertilization.

Table (76) Distribution of opinion regarding "Educational measures"

No	Q44 – Importance of Educational measures such as the use of advanced irrigation, fertilization.	Repetition	Relative Frequency
1	Most important	13	13%
2	Very important	7	7%
3	Important	10	10%
4	Less important	1	1%
5	Barely important	21	21%
6	Not important	48	48%
		Total >	100%

Table 76 shows that 30% of farmers believe in the importance of technical measures to prevent the spread of pesticides ,while 70% did not believe in the importance, and this is due to the large proportion of the belief of the importance of the farmers and the need to use pesticides to get good and healthy products.

Figure (41)The importance Educational measures for preventing the spread of pesticides in the area cultivated for farmers (the use of advanced irrigation, fertilization)



19 With respect to the production process one may adhere to, how often did you apply the following applications in your field

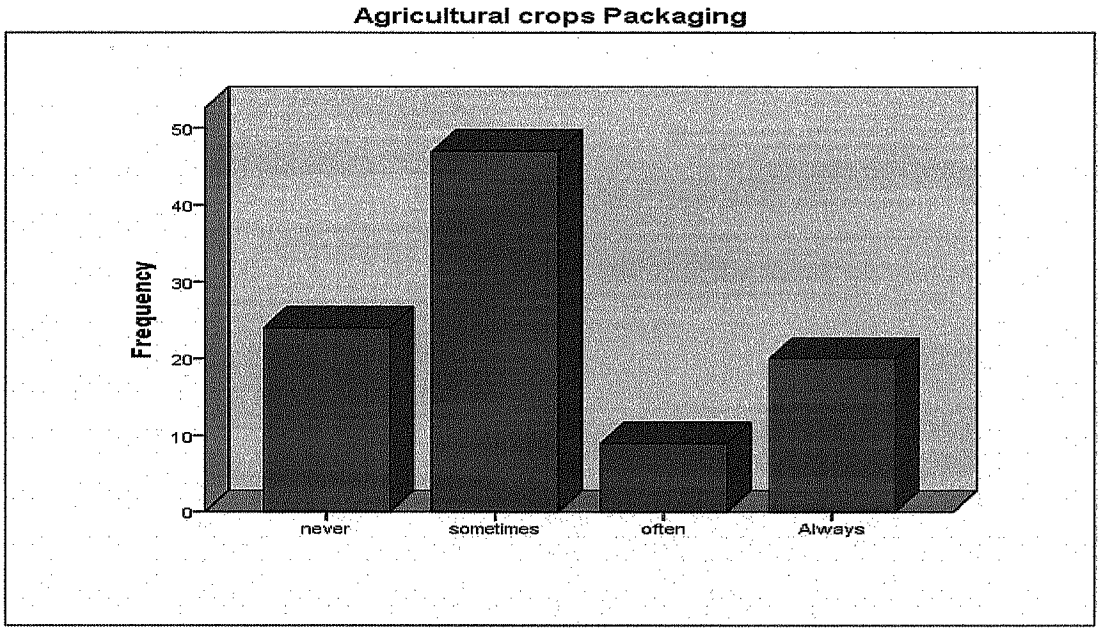
19.1 The use of crop protection wrapping.

Table (77) Distribution of opinion regarding "Q45-"

No	Q45– Importance ofThe use of crop protection wrapping.	Repetition	Relative Frequency
1	Never	24	24%
2	Sometimes	47	47%
3	Often	9	9%
4	Always	20	20%
		Total >	100%

Table 77 shows that only 24% of farmers within the area of agriculture are not doing absolutely packaging their own crops, or the rest of the descent packaging crops.

Figure (42) The packaging of agricultural crops



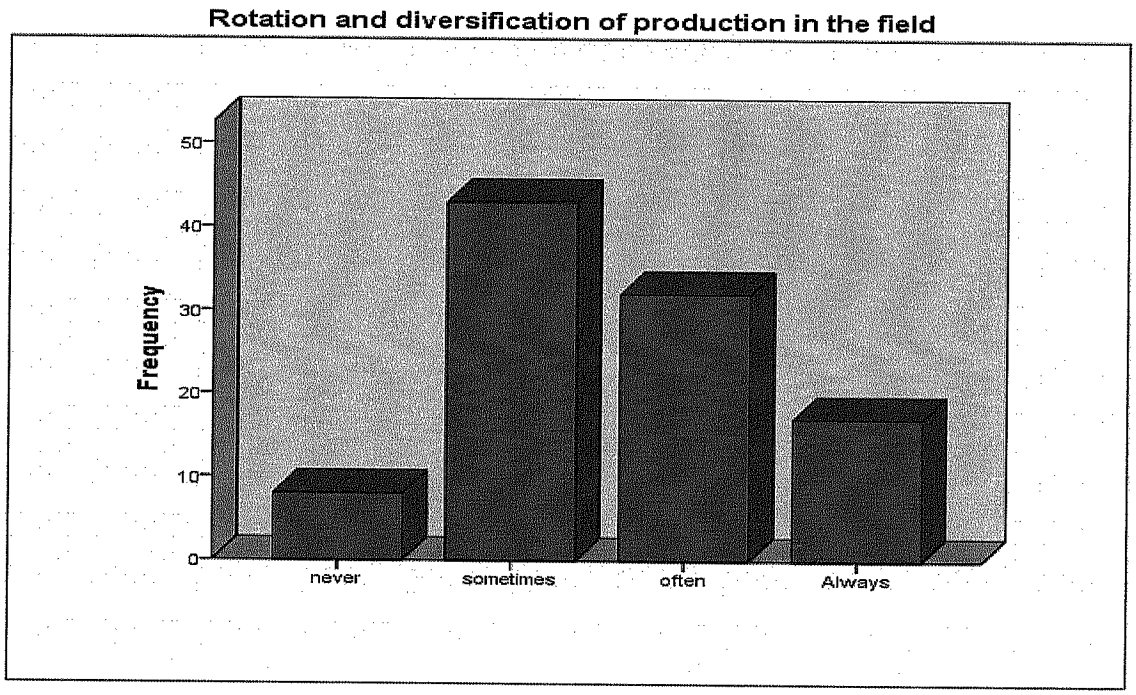
19.2 The use of crop rotation and diversity

Table (78) Distribution of opinion regarding "Q46-Rotational crops"

No	Q46 – Importance of The use of crop rotation and diversity	Repetition	Relative Frequency
1	Never	8	8%
2	Sometimes	43	43%
3	Often	32	32%
4	Always	17	17%
		Total >	100%

Table 78 shows that 43% in some cases, Crop Diversity (seasonal crops), and 32% of them returned what they are diverse, which explains that most of the agricultural products are in the absolute majority as vegetables and fruits.

Figure (43)The frequency distribution of variable rotation and diversity of production in the field



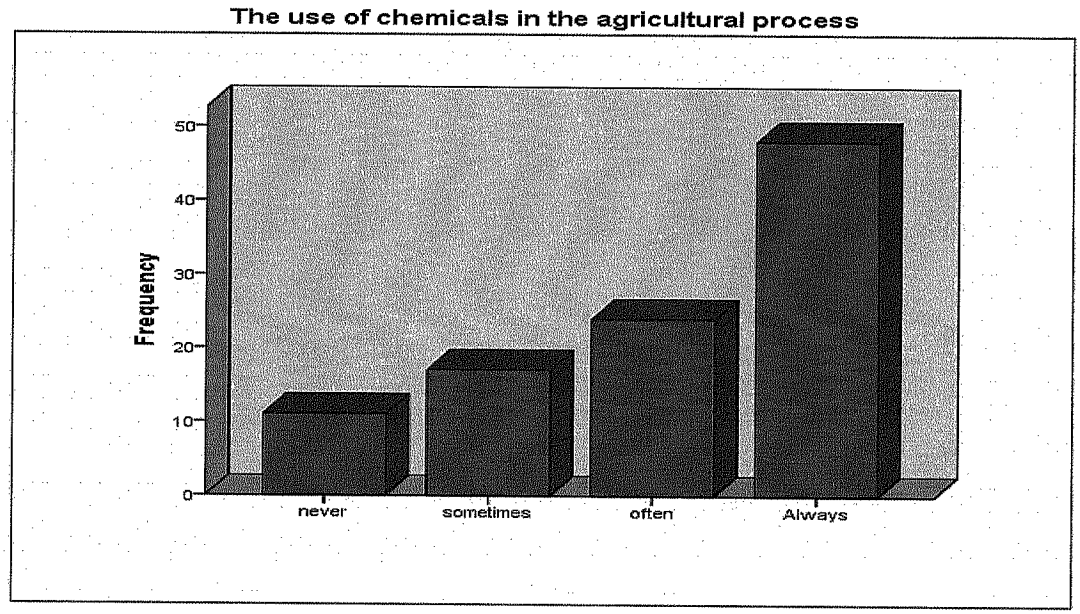
19.3 The use of chemicals

Table (79) Distribution of opinion regarding "Q47-Chemical usage"

No	Q47 – Importance of The use of chemicals	Repetition	Relative Frequency
1	Never	11	11%
2	Sometimes	17	17%
3	Often	24	24%
4	Always	48	48%
		Total >	100%

Table 79 shows that the farmer can not only rely very heavily on chemicals. 48% of them use of chemicals in farming operations and only 11% do not use chemicals.They are the farmers who produce very small quantities for their own consumption.

Figure (44) The production process of chemicals used in the agricultural process



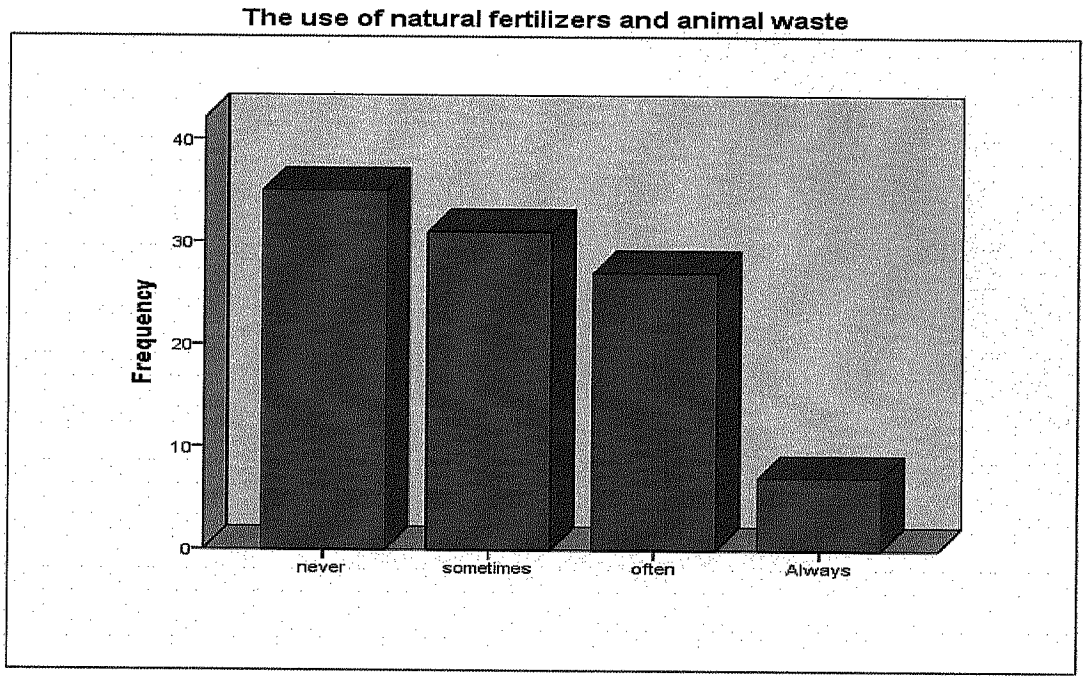
19.4 The use of natural fertilizers and animal waste

Table (80) Distribution of opinion regarding "Q48-Natural fertilizer"

No	Q48 – Importance of The use of natural fertilizers and animal waste	Repetition	Relative Frequency
1	Never	35	35%
2	Sometimes	31	31%
3	Often	27	27%
4	Always	7	7%
		Total >	100%

Table 80 shows that 31% of farmers sometimes use natural fertilizers and animal waste, but 35% of them do not use them at all, relying entirely on chemicals to improve agricultural products.

Figure (45) Using natural fertilizers and animal waste



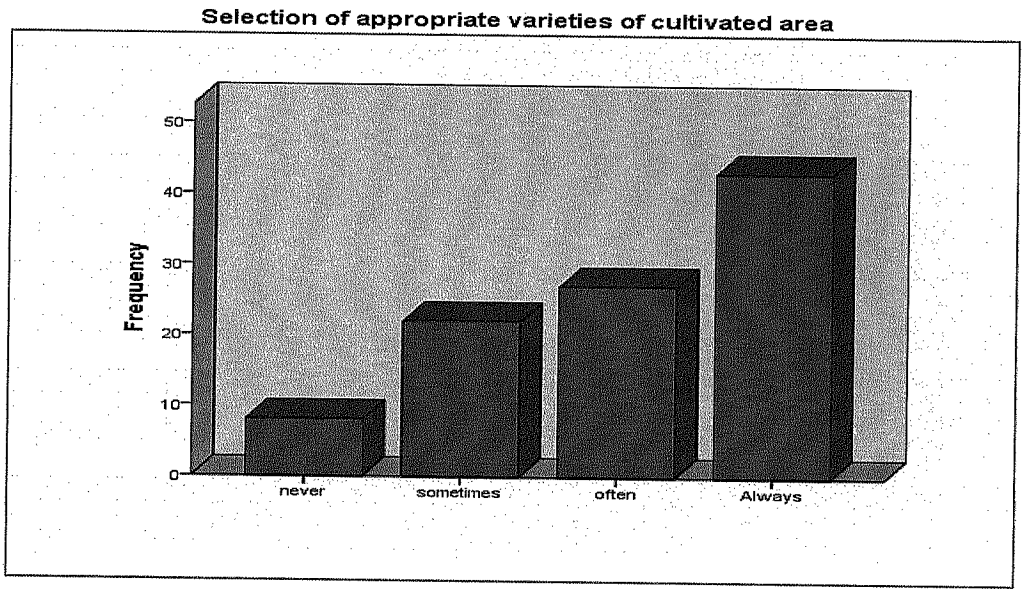
19.5 The use of crop select suitable of the cultivated area

Table (81) Distribution of opinion regarding "Q49-Suitable varieties"

No	Q49 – Importance of The use of crop select suitable of the cultivated area	Repetition	Relative Frequency
1	Never	8	8%
2	Sometimes	22	22%
3	Often	27	27%
4	Always	43	43%
		Total >	100%

Table 81 shows that The vast majority are choosing suitable varieties for the area under cultivation (43% always), a measure carried out by the farmer according to his knowledge of the quality of soil.

Figure (46) Frequency distribution of variable in relation to the production process in your field using natural fertilizers and animal waste



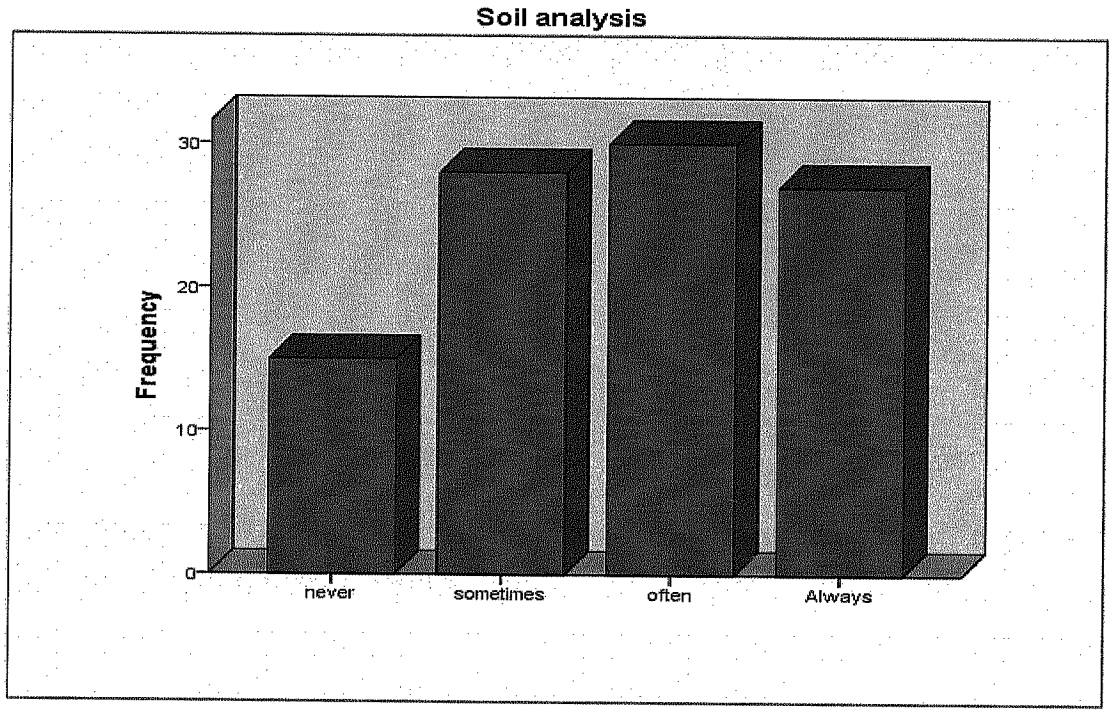
19.6 Conducting soil analysis

Table (82) Distribution of opinion regarding "Q50-Soil analysis"

No	Q50 – Importance of Conducting soil analysis	Repetition	Relative Frequency
1	Never	15	15%
2	Sometimes	28	28%
3	Often	30	30%
4	Always	27	27%
		Total >	100%

Table 82 shows that the vast majority of farmers, analyze the soil . 27% do it always, and 30% usually do it . They are well aware and indicate the proportion of farms awareness of the importance of soil for agriculture.

Figure (47) The production process. Conducting soil analysis



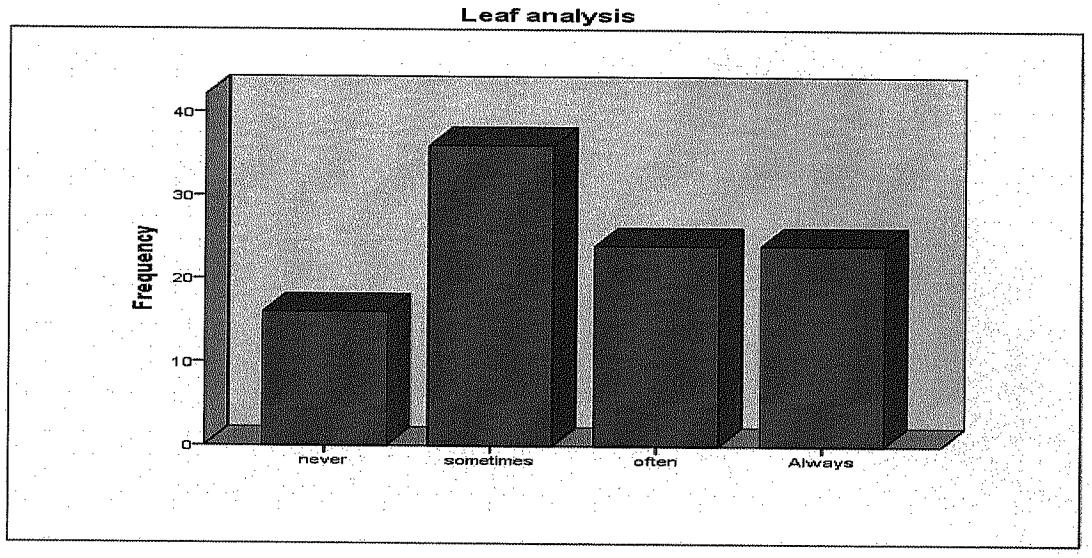
19.7 Conducting leaf analysis

Table (83) Distribution of opinion regarding"Q51-Leaf analysis"

No	Q51 – Importance of Conducting leaf analysis	Repetition	Relative Frequency
1	Never	16	16%
2	Sometimes	36	36%
3	Often	24	24%
4	Always	24	24%
		Total >	100%

Table 83 shows that only 16% of the farmers are not doing Foliar application analysis, while the absolute majority in this analysis.

Figure (48) The production process Leaf analysis



20 List in order of priority your source of assistance when you experience a problem during production.

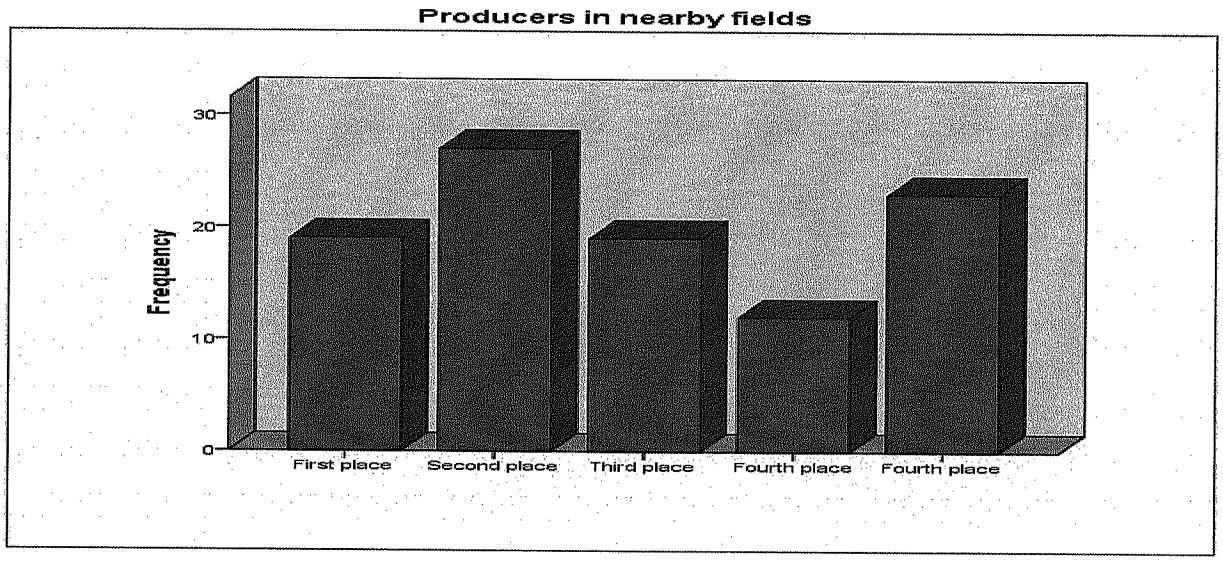
20.1 Assistance from producers in nearby fields

Table (84) request assistance from producers in nearby fields

No	Q52 – request assistance from producers in nearby fields	Repetition	Relative Frequency
1	1st Source of assistance	19	19%
2	2nd Source of assistance	27	27%
3	3rd Source of assistance	19	19%
4	4th Source of assistance	12	12%
5	5thSource of assistance	23	23%
		Total >	100%

Table 84 shows that 27% of farmers request assistance from the producers in the nearby fields. Other ranking the highest percentage. This is the evidence that the agricultural community symbiotic in the first class.

Figure (49) Request assistance from producers in nearby fields



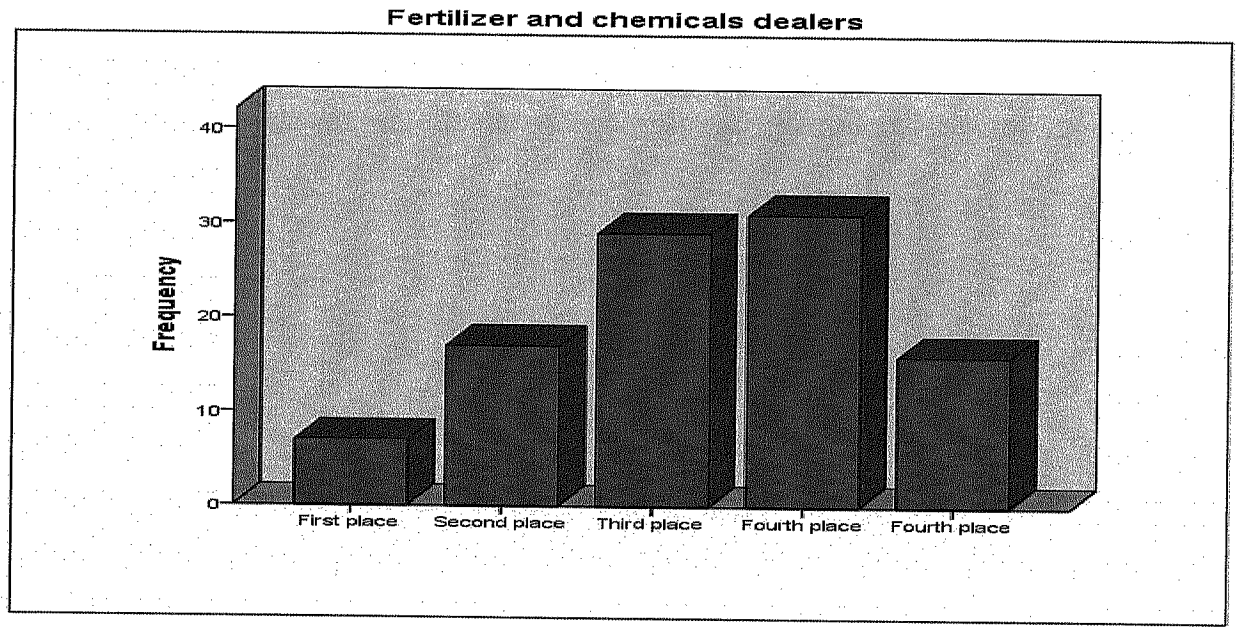
20.2 Assistance from fertilizers and chemicals dealers

Table (85) Distribution of opinion regarding "Q53-Dealer assistance"

No	Q53 – Importance of Assistance from fertilizers and chemicals dealers	Repetition	Relative Frequency
1	1st Source of assistance	7	7%
2	2nd Source of assistance	17	17%
3	3rd Source of assistance	29	29%
4	4th Source of assistance	31	31%
5	5th Source of assistance	16	16%
		Total >	100%

Table 85 shows that 31% of Libyan farmers seek help from fertilizers and chemicals when faced with problems (high order, the fifth order), so as to believe that most of the peasant chemical traders are vim in experience in production processes.

Figure (50) Request assistance from fertilizers and chemicals dealers



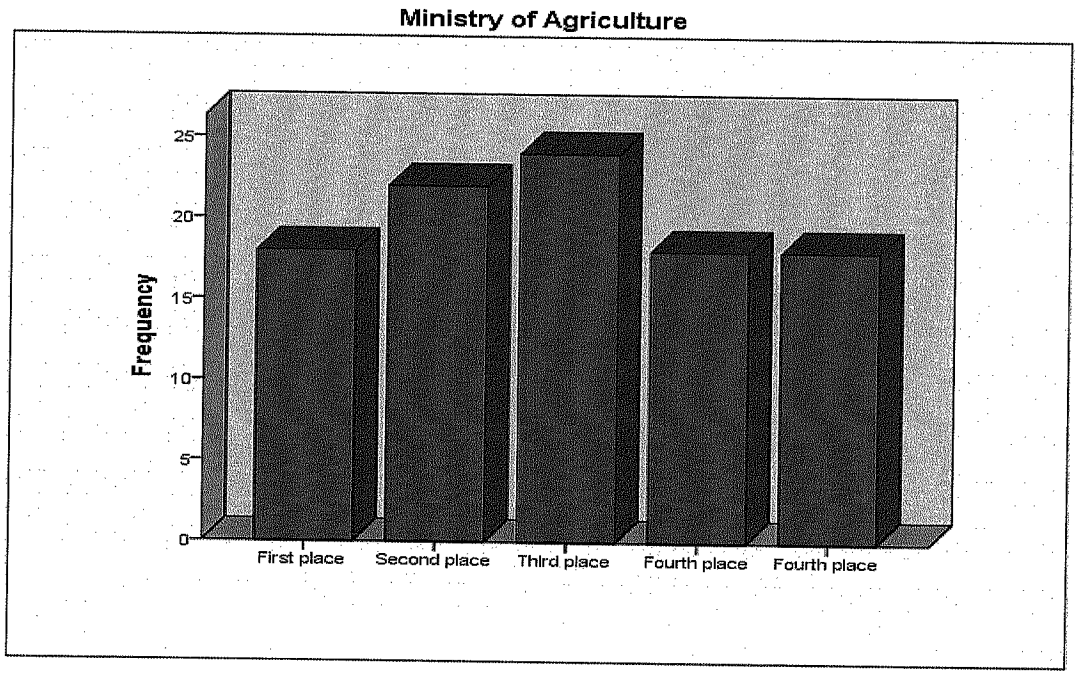
20.3 Assistance from the Ministry of Agriculture

Table (86) Distribution of opinion regarding "Q54-Ministry of Agriculture"

No	Q54 – Importance of Assistance from the Ministry of Agriculture	Repetition	Relative Frequency
1	1st Source of assistance	18	18%
2	2nd Source of assistance	22	22%
3	3rd Source of assistance	24	24%
4	4th Source of assistance	18	18%
5	5th Source of assistance	18	18%
		Total >	100%

Table 86 shows that 24% of farmers seek help from the Ministry of Agriculture, a ratio considered somewhat weak from the perspective of the researcher (the third highest ranking order).

Figure (51) Request assistance from the Ministry of Agriculture



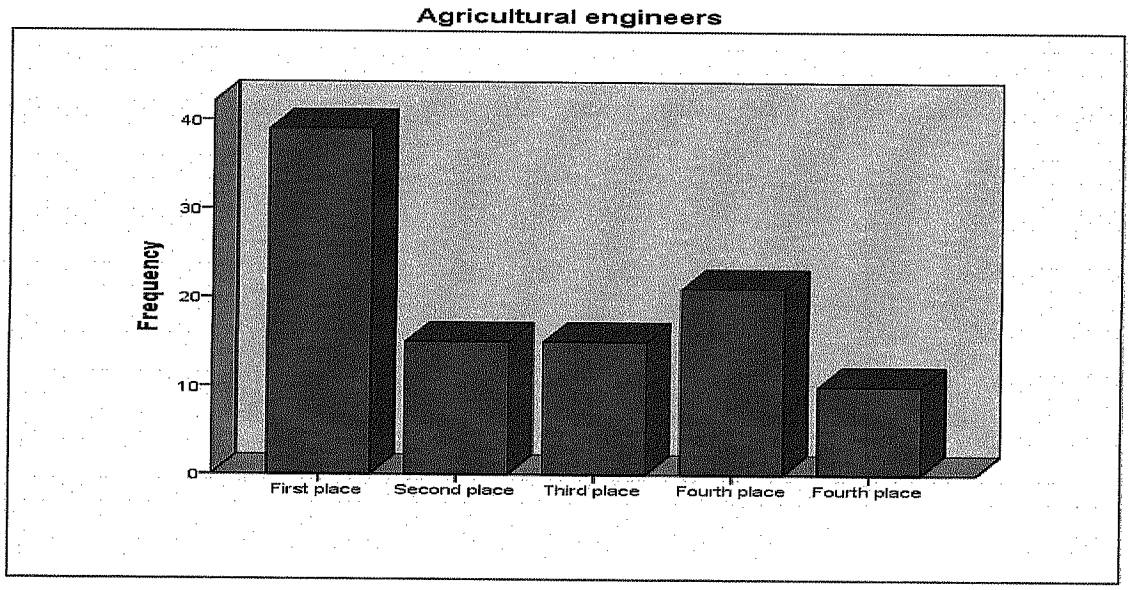
20.4 Assistance from "Agricultural Engineers"?

Table (87) Distribution of opinion regarding "Q55-Agricultural Engineers"

No	Q55 – Requesting assistance "Agricultural Engineers"	Repetition	Relative Frequency
1	1st Source of assistance	39	39%
2	2nd Source of assistance	15	15%
3	3rd Source of assistance	15	15%
4	4th Source of assistance	21	21%
5	5th Source of assistance	10	10%
		Total >	100%

Table 87 shows that 39% of farmers ask for help Agriculture Engineers when faced with problems during production, (first place). this indicates that Del convinced the farmer, the role of agricultural engineers and the importance of the work they do.

Figure (52) Request assistance from Agricultural Engineers



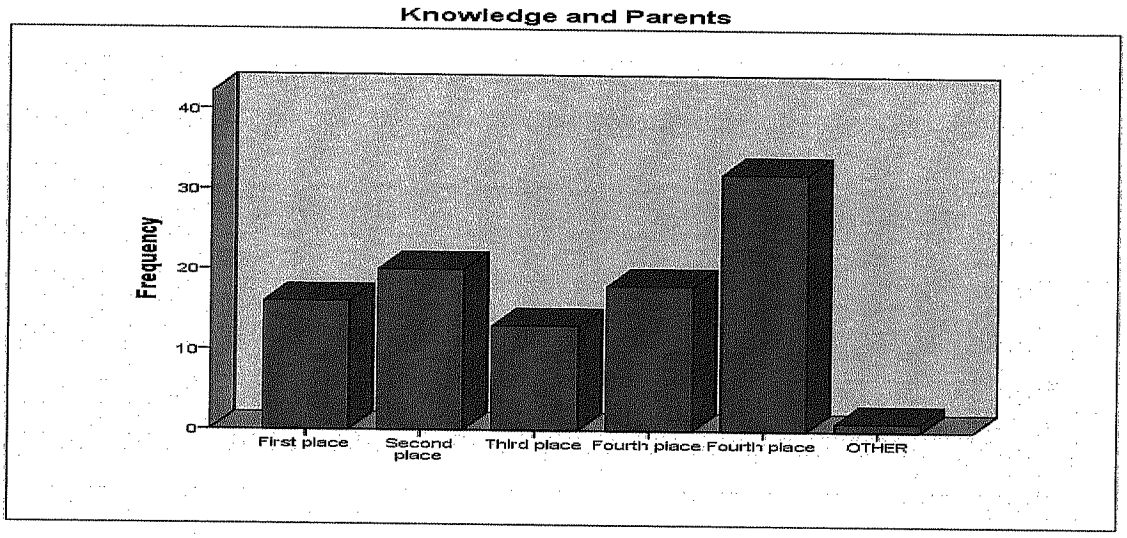
20.5 Assistance from "Families and acquaintance"?

Table (88) Distribution of opinion regarding "Q56-Family assistance"

No	Q56 – Requesting assistance "Family & Acquaintance"	Repetition	Relative Frequency
1	1st Source of assistance	16	16%
2	2ndSource of assistance	20	20%
3	3rd Source of assistance	13	13%
4	4thSource of assistance	18	18%
5	5thSource of assistance	32	32%
		Total >	100%

Table 88 shows that 32% of the farmers ask parents to help and teach , (fifth order), which is a normal human behavior when needed.

Figure (3.56) Frequency distribution of variable request assistance from the knowledge and families



4.2. Statistical Methods Used In the Measurement and Analysis

4.2.1. Cronbachs Coefficient Alpha Reliability test

This section describes the selection of items, and the evaluation of the reliability and validity of these items (24) measurement scales. In this study, the reliable scales were measured by using Cronbach coefficient alpha based on internal consistency of the items in each scale. The acceptable and unacceptable levels of the Cronbach Alpha coefficient are presented in the table blow.

Table (89) Acceptable AND Unacceptable Levels of the Cronbachs Alpha Coefficient

Alpha Coefficient	Implied Reliability
Below .60	Unacceptable
Between 0.6 and 0.65	Undesirable
Between 0.65 and 0.70	Minimally acceptable
Between 0.70 and 0.80	Respectable
Between 0.80 and 0.90	Very good

Besides Nunnallys (1978) guideline ,scale reliability of 0.70 and above is preferred Nunnally (1978) also suggests that items that have less than 0.30 values to total correlation could be deleted to improve the reliability of the scale.

Table (90) The Value of Cronbahs coefficient alpha

Cronbachs Alpha	No of Questions
0.763	24

Table 90 presents Cronbachs coefficient alpha for the scales. Cronbachs coefficient alpha equal to (0.763), within the acceptable range.

4.2.1The Stability of the Scale

The stability of the scale and the scale questions using Cranach's coefficient alpha equation account; where is the equation of extraction methods stability. The researcher extracted stability using this method as the value of reliability coefficient (0.763) and this suggests that the measure has a very high stardard.

Table (91) shows the values of coefficient (Cronbach Alpha) items scale

N	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	78.99	139.646	.033	.735
2	78.77	131.088	.369	.721
3	79.15	123.826	.514	.708
4	79.48	144.616	-.086	.734
5	79.05	138.189	.122	.733
6	79.25	138.210	.124	.733
7	79.08	136.761	.179	.734
8	79.48	140.151	.068	.735
9	79.24	144.386	-.082	.734
10	79.73	152.381	-.328	.735
11	78.74	123.932	.557	.705
12	78.93	128.631	.372	.720
13	78.71	125.036	.532	.708
14	79.60	146.889	-.158	.734
15	78.58	129.781	.464	.715
16	78.69	125.994	.498	.710
17	78.87	124.639	.492	.709
18	79.06	128.542	.521	.712
19	79.34	137.358	.194	.732
20	78.75	130.008	.456	.716
21	78.80	126.222	.535	.709
22	78.64	123.829	.621	.702
23	78.66	129.136	.491	.714
24	78.76	132.831	.337	.723

4.3.Testing Hypothesis also including the result of study

The researcher used the statistical program of Social Sciences (SPSS) in order to get more accurate results. The data entry has been entered according to the Likert scale with five grades, which were described in the table (89).

Table (92) Likert scale Quintet and the corresponding grades

Weight	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Class	**5**	**4**	**3**	**2**	**1**

classification was given as class (5) as a weight for each alternative (Strongly agree) and class (4) as a weight for each alternative (Agree) and class (3) as a weight for each alternative (Neutral) and class (2) as a weight for each alternative (Disagree) and class (1) a weight each alternative (Strongly disagree).

On the other hand the analysis relies on the arithmetic mean of premise. The average measurement tool taken as (3) in order to measure and assess the degree to which obtained responses and relates to the study sample.

The Hypothesis 1: The degree of awareness varies among Libyan farmers concerning "factories, power plants and fuel, household waste, chemical pollution, buildings and facilities, quarries, education" as the most important environmental problems in Libya.

Study Results: Below is the result of this question (Hypothesis).

Table (93): The most important environmental problems in Libya

No	Issues of concern related to environmental issues	Repetition	Relative Frequency
1	Agricultural pollution "Chemical Fertilizers"	65	65%
2	Household waste	48	48%
3	Factories, power plants and fuel	44	44%
4	Education	39	39%
5	Buildings and constructions	39	39%
6	Quarrying	28	28%

Table 90 above shows the disagreement among Libyan farmers on the degree of importance of the most important environmental problems, the table also shows that chemical pollution has ranked the highest (65 %).

The Hypothesis 2: There exist no awareness among Libyans farmers concerning environmental protection and the use of natural resources. The researcher used the following method of testing hypothesis._Null Hypothesis - H_O (Means there exist no awareness among farmers). Alternate Hypothesis - H_1(Means there is awareness among farmers)
To investigate which hypothesis is correct (H0 or H1), the researcher calculated the mean and standard deviation for the answers, counting in all of the sub answers individually.

Table (94): The mean, standard deviation and the direction of the para

No	Mean	Std. Deviation	Item Direction
1	3.46	1.642	Negative
2	3.68	1.286	Positive
3	3.30	1.528	Positive
4	2.97	1.322	Negative
5	3.40	1.303	Positive
6	3.20	1.287	Positive
7	3.37	1.261	Positive
8	2.97	1.226	Negative
9	3.21	1.438	Negative
10	2.72	1.288	Negative
11	3.71	1.423	Positive
12	3.52	1.507	Positive
13	3.74	1.397	Positive
14	2.85	1.282	Negative
15	3.87	1.178	Positive
16	3.76	1.401	Positive
Total	3.36	1.360	

The (Chi-square) test:

Table (95): (Chi-squared) results to the paragraphs of the second hypothesis:

N	Mean	Standard Deviation	Chi-Square	Degree of Freedom	Asymp. Sig.	Level
100	**53.7300**	**7.77961**	**66.400**	**31**	**0.00**	**0.05**

Table 92 shows that the mean is 53.7300 and chi square is 66.400.

The Hypothesis 3: There is no awareness among Libyans farmers concerning environmental degradation. The researcher is used the following method of testing hypothesis. Null Hypothesis - H_O Means there exist no awareness among farmers. Alternate Hypothesis - H_1 Means there is awareness among farmers. To investigate which hypothesis is correct (H0 or H1), the researcher calculated the mean and standard deviation for the answers, counting in all of the sub answers individually.

Table (96) shows the mean, standard deviation and the direction of paragraphs

No	Mean	Std. Deviation	Item Direction
1	3.58	1.519	Positive
2	3.39	1.163	Positive
3	3.11	1.109	Positive
4	3.7	1.176	Positive
5	3.65	1.306	Positive
6	3.81	1.308	Positive
7	3.79	1.175	Positive
8	3.69	1.203	Positive
Total	3.59	1.245	

The (Chi-square) test:

Table (97) shows the results of the (chi-squared) test

N	Mean	Standard Deviation	Chi-Square	Degree of Freedom	Asymp. Sig.	Level
100	**28.7200**	**6.77052**	**36.080**	**26**	**0.09**	**0.05**

The Hypothesis 4: Degree of importance varies among farmers in Libya on the measures which can limit the environmental problems

Table (98) shows how important to limit environmental problems

No	Proposed solutions to limit environmental issues	Repetition	Relative Frequency
1	Advanced technology	21	21%
2	Education	20	20%
3	Protection laws for natural resource & environment	13	13%
4	The use of recycled raw materials in the industry	8	8%
5	Economic measures and workarounds	21	21%

The Hypothesis 5: There exist large differences in opinionamong farmers regarding, what isthe most effective methodto combat weed in agricultural fields.

Table (99) prefered method to combat weed spread

No	Proposed weed combatant solutions	Repetition	Relative Frequency
1	Mechanical means	38	38%
2	Means of biogenic and animals	20	20%
3	Plowing and handwork	19	19%
4	Measures for preventing the spread	13	13%
5	Chemical means	10	10%

Table 96 shows that 38% the farmers prefer the mechanical means to combat weed ,20% used biogenic and animals ,19% plowing and handwork ,10% used chemical means .

The Hypothesis 6: There should exist somesignificant statisticallydifferences in the degree of awareness among Libyan farmers, concerning environmental protection and use of natural resources, based on demographic characteristics.

Table (100) Results of one-way analysis of variance (ANOVA)

Characteristics	Category	Mean	Calculated F	Sig probability
Age Group	From 20 > 30 years	55.0625	0.870	0.485
	From 30 > 40 years	55.0000		
	From 40 > 50 years	51.5000		
	From 50 > 60 years	53.9091		
	60 years and above	52.8333		
Educational Level	Primary	48.4286	1.704	0.129
	Secondary	52.4545		
	University student	56.1471		
	Graduate	53.0476		
	Not graduate	49.6000		
	Uneducated	52.3333		
	Post Graduate	56.5000		
Residence	Tajura	54.3684	0.311	0.818
	Ain Zara	54.0000		
	Tripoli Center	53.7600		
	Wadi Alrabie'a	52.3333		

Table (97) shows the results of one-way analysis of variance (ANOVA) to measure the differences in the degree of awareness of farmers in Libya on environmental protection and the use of environmental resources based on demographic characteristics (such as age, education level, place of residence).

The Hypothesis 7: There should exist some significant statistically differences in the degree of awareness among Libyan farmers, concerning environmental degradation, based on demographic characteristics.

Table (101) (ANOVA) shows the results of the unilateral analysis

Characteristics	Category	Mean	Calculated F	Sig probability
Age Group	From 20 >30 years	28.8750	0.098	0.983
	From 30 > 40 years	29.0000		
	From 40 > 50 years	28.2308		
	From 50 >60 years	29.0909		
	60 years and above	27.6667		
Educational Level	Primary	26.8571	1.309	0.261
	Secondary	30.0000		
	University student	27.0294		
	Graduate	30.3810		
	Not graduate	25.6000		
	Uneducated	27.6667		
	Post Graduate	32.0000		
Residence	Tajura	28.3421	0.578	0.631
	Ain Zara	27.4375		
	Tripoli Center	28.8400		
	Wadi Alrabie'a	30.2381		

Table (98) shows the results of one-way analysis of variance (ANOVA) to measure the differences in the degree of awareness of farmers in Libya on environmental degradation based on demographic characteristics (such as age, education level, place of residence).

CHAPTER IV
CONCLUSION AND RECOMMENDATION

This section includes, the results, the findings and interpretations, discussions about the results and the suggestions developed .

5.1. The results of The Research

In this study, research was practiced in order to have an idea about the framers "awareness of the environment, answers were analyzed by using SPSS 20.0. The findings show the awareness of farmers related to the environmental awareness.

This study determined the degree of awareness among Libyan farmers concerning "factories, power plants and fuel, household waste, chemical pollution, buildings and facilities, quarries, and education" as the most important environmental problems in Libya. In my conclusion, there is disagreement between Libyan farmers the degree of importance of the most important environmental problems. Table 90 shows that chemical pollution has the highest rank .

In table 91 Note that the arithmetic mean value is equal to (3.36), the largest center of the theoretical value (3). Based on that we reject the H0 and accept the H1, This means that there is awareness among Libyans farmers on environmental protection and the use of natural resources is estimated at (67.2%). We also find that the standard deviation of these values ranged between paragraphs (1.178- 1.642) and this indicates a lack of homogeneity. Note from Table (92) that the value of (chi-squared) was (66.400) and that the probability value is (0.000) which is lower than the significance level (05.) This indicates the presence of statistically significant differences in the distribution of responses respondents to the various paragraphs (strongly agree, agree, neutral, disagree and strongly disagree). I braced on a search by Journal Ġbrahim and Serife, (2011), which concluded that the environmental consciousness levels of the trained and not-trained TC farmers were 67.5% and 58.2%, respectively.

Notes from table (93) the arithmetic mean value is equal to (3.59), the theoretical value of (3). Based on that ,we reject the H0 and accept the H1, This means that there is awareness among Libyan farmers concerning environmental degradation and is estimated at (71.8%). Also the standard deviation values ranged between (1.109- 1.519) which shows homogeneity of the sample answers. Note from Table (94) that the value of (chi-squared) was (36.080) and that the

probability its value (090.) which is greater than the significance level (05.) This shows that there are no statistically significant differences in the distribution of responses to various paragraphs (strongly agree, agree, neutral, I do not agree and strongly agree).

Table (96) lists the suggested methods to deal with weed problem in agricultural fields; there exist some differences, then sorted in descending order in terms of the most preferred and favored one, surprisingly the use of chemicals scored the lowest percentage of just 10%.I braced on a search from Since Pimentel et al. (1992), which reported that excessive and continuous use of agrochemicals has damaged the environment, farmers need to optimize the use of chemical methods by incorporating with other methods, such as mechanical. From an environmental perspective, chemical control methods would be the last method for weed management but unfortunately not-trained TC farmers mentioned chemical control as the first method.

Table (97) lists the calculated values of probability, to key demographic characteristic, all values are greater than the significance level of (0.05); which indicates that there were no statistically significant differences in the degree of awareness about environmental protection and use of natural resources based on demographic characteristics.

Table (98) lists the calculated values of probability, to key demographic characteristic, all values are greater than the significance level of (0.05); which indicates that there were no statistically significant differences in the degree of awareness about environmental degradation based on demographic characteristics.

5.2. Recommendations

- The study concluded that the worst environmental issue considered by farmers, was the chemical pollutant, where 65% of them agreed as the most important problems which threaten the environment. Based on that the researcher recommends to design outreach programs on how to use chemicals fertilizers and pesticides in order to minimize the effects of using such materials through rationing as well as how to deal with them safely during application, storage and disposal of empty cans and residual materials, and so on.

- The research recommends increasing attention to agricultural extension due to its importance in raising environmental awareness among farms, as well as find ways to enhance communication and cooperation between the agricultural extension workers and farmers.

- The research recommends the need to activate the channels of communication and enhance cooperation between agricultural research and extension centers among them, and between them and the farms of the other side so as to determine the most appropriate method for pest control and the appropriate conditions to achieve best results in order to protect the environment and maintain it.

- The research also calls to adopt better agricultural methods to increase the results and minimize losses, taking into account the preservation of bio-environment balance and the adoption of the concept of sustainability for the conservation of Nature and resources for future generations.

- The research recommends the need to focus on the sources of information relied upon by farmers in building their knowledge, such as activities organized by the agricultural extension centers like agricultural short courses, field visits, specialized programs on radio and television and so on.

- The research also finds the need to continue raise the level of environmental awareness of farms in Libya on environmental protection and the use of environmental resources, as well as environmental degradations and problems resulting from them.

- Increase awareness of the importance of farm waste recycling, Waste Recycling reduces the demand for raw materials. It also reduces the disposal of waste by burying in landfills or incinerated, and thus helps reduce pollution and global warming. The recycling process as very useful because it does not only reduce the amount of household waste that is sent to landfills and incinerators, which in turn pollute the environment but is also a means to achieve sustainable development where we can help to preserve the environment for future generations.

- Finally the research recommends benefiting from the results of this study, by running further studies elsewhere in Libya.

- These findings concluded that higher literacy level of farmers would be helpful in raising their knowledge and awareness on environmental issues. Hence to increase farmer's environmental knowledge, steps are necessary to be taken for more and more informal environment oriented and adult education programs should be launched in the village's concerned agencies. Large farm size influences its owner to have. (A. Arfin, M. A. Baten, B. S. Nahar and M. A. Sattar, (1999).)

- There is need to integrate environmental education with the field of education in the curriculum at all stages of education. And expand the scope of environmental education in a way they can meet the needs of human development.

- There should be laws that limit the behavior of squatters on the ecological balance and who put the environment contaminated danger to either smoke or auto factories who lay in roads, public spaces and urban areas.

- There should be intensification of the curriculum in line with the foundations of environmental education in force in the world, so that the theme of the environment and including nested within subjects are not separated by a separate topic. (Mohsen Mohammed Amin, 2009).

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ATTACHMENTS

APPENDIX -1

SURVEY PURPOSE FORM

The scale you received to answer will be used in a reseach thesis titled "Measuring Environmental Awareness Among Libyan Farms In Rabi Valley Area ' It is important to get a piece of your mind in order to make the research reliable. Thank you for accepting to answer the scale and for sparing your time. I wish you great success in your life.

Best Regards,

Ehabeddin.M.Elftisi

Near East University, Environmental Education and Management, Master

APPENDIX-2

FARMERS ENVIRONMENTAL ATTITUDE SURVEY QUESTIONS

Age?

How old are you [ ]

Gender?

- ☐ Male
- ☐ Female

Educational level?

- ☐ Primary
- ☐ Secondary
- ☐ University
- ☐ Undergraduate
- ☐ Graduate
- ☐ Postgraduate

Place of residence?

- ☐ Tajura
- ☐ Ain Zara
- ☐ Tripoli Center
- ☐ Wady Elrabi

Financial situation "Source of income"?

- ☐ Agriculture is my only source of income.
- ☐ Agriculture is a secondary job.
- ☐ Agriculture is a seasonal activity.
- ☐ I practice agriculture as a hobby

Have you ever received any agricultural training?

If yes, please specify

What type of crops does the farm produce?

Please specify...

How do you sell farm produce?

- ☐ I sell my product to local brokers.
- ☐ I keep it for family consumption.
- ☐ I direct sell it to local shops and retailers.
- ☐ I sell to my coworkers inside the field.
- ☐ I export my product to neighboring countries.

Is your family dependent on farm income?

- ☐ Yes
- ☐ No

Does your produce differ from other products supplied to the local market, possibly imported from other regions?

- ☐ Yes "Mine is superior"
- ☐ Yes "Mine is inferior"
- ☐ No "Not much of a difference"

If you answer: Yes; "Mine is superior" please choose one reason from below?

- ☐ Taste
- ☐ Ripeness
- ☐ Variety
- ☐ Other, please specify:

.....

Libya as developing country suffers serious problems in different sectors; in your opinion which of the listed below are more or less?

[1=MORE IMPORTANT], [2=IMPORTANT], [3=LESS IMPORTANT]

Items of interest	Value

11.1	Unemployment.	[ ]
11.2	Education.	[ ]
11.3	Transportation.	[ ]
11.4	Environment	[ ]
11.5	Healthcare.	[ ]
11.6	Economic Inflation.	[ ]

There exist a number environmental problem, to your opinion what's the degree of importance for each of the problems listed below?

[1 ~ 9 AS THE DEGREE OF IMPORTANCE]

	Mentality and mind set	Value
12.1	Noise Pollution	[ ]
12.2	Air Pollution.	[ ]
12.3	Water Pollution.	[ ]
12.4	Soil Contamination	[ ]
12.5	Deforestation.	[ ]
12.6	Solid Waste.	[ ]
12.7	Random Urbanization.	[ ]
12.8	Global Warming.	[ ]
12.9	Species Control	[ ]

There exist a number of contributing factor to the environmental problem making it worst, based on your experience which are more or less significant?

[1=VERY SIGNIFICANT], [2=SIGNIFICANT], [3= LESS SIGNIFICANT]

	Mentality and mind set	Value
13.1	Industrial Emissions "Factories & Power plants"	[ ]

13.2	Residential "Household Waste".	[ ]
13.3	Agriculture "Fertilizers, Pesticides".	[ ]
13.4	Constructions	[ ]
13.5	Quarries.	[ ]
13.6	Public Awareness.	[ ]

How is the nature of the response to environmental challenges?

- ☐ Considered environmental problems constantly renewed problems and cannot control the results.
- ☐ Considered very sensitive effects of all kinds. The impact of even the smallest may cause loss of ecological balance
- ☐ Effects are permitted within certain limits may occur. But may uncontrollable after this particular point
- ☐ Results of the effects of pre-calculated so there is no effect of a significant impact.

How much do you agree or disagree with the following statement regarding the use of natural resources and protection of environment.

[1=STRONGLY DISAGREE], [2=DISAGREE], [3=NEUTRAL], [4=AGREE], [5=STRONGLY AGREE]

	Mentality and mind set	Value
15.1	Natural resource is a common property, so it can be privatized and used alone, without considering the interests of others.	[ ]
15.2	Natural resource is a common property for all mankind, so it must be used to benefit all who live near that resource.	[ ]
15.3	Natural resources is a public property and no one is entitled to encroach on it for the purpose of agricultural reclamation.	[ ]
15.4	Mankind has the right to make changes in the environment and its natural resources to meet the needs of humanity.	[ ]

15.5	Human intervention always leads to disastrous results on environment and consequently on our lively hood.	[ ]
15.6	People usually tend to over exploit their environment and exhaust it of its natural resources	[ ]
15.7	Nature has enough natural resources to satisfy the needs of all humanity	[ ]
15.8	Forces of nature including environmental balance is strong enough to deal with the effects of industrial pollution.	[ ]
15.9	If you get economic benefits from natural sources must be a priority so that the protection of natural resources in second place	[ ]
15.10	In some countries and regions, economic situation and social problems are valued more than environmental issues; therefore priority should be given to resolve those issues of concern first.	[ ]
15.11	One of the goals of sustainable development should be the monitoring and balancing of resource use to preserve the needs of current and future generations.	[ ]
15.12	Exploitation and preservation of natural resources is not exclusive to just one generation without the other, it is concerning of all humanity.	[ ]
15.13	Plants and animals have the right to coexist alongside with humans.	[ ]
15.14	It's exaggerated when it talking about environmental issues and natural resources is exaggeration.	[ ]
15.15	All generations, even the modern ones should learn how to deal with issues related to the environment.	[ ]
15.16	If everything continues as it is today, dealing with environmental issues, humanity will have no escape, facing major ecological disasters.	[ ]

Environmental degradation will lead to serious consequences globally. How much do you agree or disagree with the following statements:

[1=STRONGLY DISAGREE], [2=DISAGREE], [3=NEUTRAL], [4=AGREE], [5=STRONGLY AGREE]

	Mentality and mind set	Value
16.1	Increase of global warming which will lead to climate change.	[ ]
16.2	Will increase poverty and hunger.	[ ]
16.3	Will lead to a decline in oil production.	[ ]
16.4	Will pollute the sources of fresh drinking water "Water will be expensive"	[ ]
16.5	Good agricultural practices will gain importance to help reduce environmental degradation.	[ ]
16.6	Desertification will accelerate.	[ ]
16.7	Natural resource will shrink especially drinkable water causing disagreement and armed conflict to erupt over resource control.	[ ]
16.8	Will lead to the melting of glaciers, inundating many coastal areas around the world.	[ ]

The following measures can be taken against environmental problems, list in order of importance (1: most important, 7: least significant).

[1=MOST IMPORTANT], [2=VERY IMPORTANT], [3=IMPORTANT]
[4=LESS IMPORTANT], [5=BARELY IMPORTANT], [6=NOT IMPORTANT]

	Mentality and mind set	Value
17.1	Advanced Technology.	[ ]
17.2	Education.	[ ]
17.3	Laws for the protection of natural resources and protection of the environment.	[ ]
17.4	The use of recycled raw materials in industry	[ ]
17.5	Economic measures (sanctions, incentives, taxes)	[ ]
17.6	Reduce the use of chemicals in farming operations such as fertilizer, soil nutrients, toxins and anti-pest.	[ ]

What are the best solutions to deal with the weeds in agricultural fields?

[1=MOST IMPORTANT], [2=VERY IMPORTANT], [3=IMPORTANT]

[4=LESS IMPORTANT], [5=BARELY IMPORTANT], [6=NOT IMPORTANT]

	Mentality and mind set	Value
18.1	Mechanical means (mowing, plowing).	[ ]
18.2	Plowing handwork	[ ]
18.3	Biogenic means (insects, sheep, and poultry).	[ ]
18.4	Chemicals such as herbicides means	[ ]
18.5	Educational measures for preventing the spread of pesticides in the area cultivated for farmers (the use of advanced irrigation, fertilization).	[ ]

With respect to the production process in your field, how they can be used for the following applications

[1=NEVER], [2=SOMETIME], [3=OFTEN], [4=ALWAYS]

	Mentality and mind set	Value
19.1	Agricultural crops Packaging	[ ]
19.2	Rotation and diversification of production in the field	[ ]
19.3	The use of chemicals in the agricultural process	[ ]
19.4	The use of natural fertilizers and animal waste	[ ]
19.5	Selection of appropriate varieties of cultivated area	[ ]
19.6	Soil analysis	[ ]
19.7	Leaf analysis	[ ]

When you experience a problem during production from any party requesting assistance explained below:?

[1=1ST SOURCE], [2=2ND SOURCE], [3=3RD SOURCE], [4=4TH SOURCE], [5=5TH SOURCE]

	Mentality and mind set	Value
20.1	Producers in nearby fields	[ ]
20.2	Fertilizer and chemicals dealers	[ ]
20.3	Ministry of Agriculture	[ ]
20.4	Agricultural engineers	[ ]
20.5	Knowledge and Parents	[ ]

THANK YOU FOR YOUR PATIENCE AND YOUR INTEREST

CURRICULUM VITAE

My name is Ehabeddin Elftisi, I was born on 27.09.1980 in Libyan Tripoli city, and I graduated from university on 2005, with a major in chemical engineering. After finishing university, I attended the biotechnology research center for. At the same time I worked with the Horizontal Medical Equipment Company working part time doing marketing, sorting, pricing and data entry. Since I worked at the center I finished a special training program in Germany in 2006. Details about this are included in my resume. I have just completed an English course in Vancouver, BC, Canada. My mother tongue is Arabic but my second language is English. Then I decided to move from the chemical engineering to environmental sciences, where I had the good opportunity to travel to north Cyprus to receive a good education in this country.