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Analysis of the Agriculture Sector in Lebanon

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Approval Certificate

Analysis of the Agriculture Sector in Lebanon

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DECLARATION

I hereby declare that this Thesis is entirely my own work and that it has not been submitted as an exercise for a degree at any other University.

Arine Varoujean Tazian

Abstract

In this thesis, we will merge into the Lebanese Agriculture Sector, specifically the Bekaa Valley of Lebanon. Study to search excellence in the agriculture and find solutions in making this sector more performant and competitive.

This topic was driven by concerns from farmers in our village, Anjar (Bekaa), seeking to make profit from their crops. Unfortunately, the farmers in Lebanon do not have any government support and at the end of the season, if their crops survive they sell them at very low prices to commissioners and not directly to the shops.

In order to study the agriculture sector in Lebanon and specifically of the Bekaa valley, we first sought to analyze agriculture situation in Lebanon. Then we did a SWOT analysis and studied the socio-economic background and the agro food sector in Lebanon including water and factors of productions. At the end of the research, we have explored the problem that hinders this sector and find solutions to make the agriculture sector more profitable.

In this research, face-to-face interviews and an interview with the president of farmers syndicate Mr. Antoine Hwayek were conducted, in order to study deeply the current agriculture situation of Lebanon.

Through this research, we will found that this sector could be profitable and competitive if it is provided by many solutions such as the establishment of a private agricultural bank, laboratories, good government support, and realizable export agreements with the MENA region.

Keywords: SWOT, agro food Sector, factors of production, socio economic background, water

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Chapter 1

INTRODUCTION

1.1 General Background about the topic

Last year, in the process of choosing a topic for MIB thesis, we made a visit to one of the seven agricultural warehouses in Lebanon, Forzol. We have explored how the added value of production takes place, in the absence of a good marketing structure.

Our grandfathers used to own many lands and they have planted many types of fruits in the Bekaa Valley. During the season of apple fruit, we used to go and help our grandfather in gathering the fruits and at the end of the week they used to sell it to one of the warehouses present in the region.

Discussing about the agriculture situation it is important to mention that the world's population has alarmingly increased in the last few decades to reach 7.1 billion humans. The agriculture, which is the first necessity to provide food for all populations, has more or less kept up with this growth. However, this is not the case of Lebanon. This country's agriculture has declined in the few decades instead of recording high increases, because Lebanon has the most important resource for agriculture, which is water.

In the Middle East region, Lebanon has the most fertile land thus giving it the potential to compete with the rest of the world. [1]The most advanced agriculture in this region belongs to Israel, which has a small fraction of our water, and yet you can see that they are successfully competing in the international arena.

Keywords: Warehouses, fertile land, fruits

*1: Agri.Med Annual Report 2005

The Lebanese government has neglected this sector for a long time and now is taking bashful majors to enhance it. The whole mentality of the governing people should change in order to see advancement in the agriculture. The Lebanese people do not believe in investments that will pay the return in the long run, thus investing in this field is not appealing to the business sector. Therefore, this sector leads to the widening gap between agriculture and industry and between rural and urban areas.
The climate variety in Lebanon allows most kinds of products to be cultivated, therefore the production does not cease with different seasons. Some production needs altitude, which is available in Lebanon and some other needs sea level, which is also available in our country.

It is obvious that the main deficiency in Lebanon is the extremely limited role that the public sector plays in the development of the agricultural sector and in the enhancement of the sector's role in the national economy.

In addition to the above, it is also important to mention that there should be the creation of a private agricultural bank that will have a well-organized functioning and provides loan and credit to farmers with low interests. This should be accompanied by land renovation projects, the construction of agricultural roads, reservoir construction, and the purchase of agricultural machines.

What concerns the agricultural subsidies; Lebanon has rarely borrowed from international donors and has operated as free market economy with a minimum amount of intervention. Prices have barely been subsidized, although as we know there were subsidies for a food items for a short period, which resulted to the depreciation of the Lebanese Pound.

Keywords: Long-term investments, climate, private agricultural bank, subsidies

In the following chapters, we will discuss the performance of the agricultural sector, factors of production, weaknesses and identify some action items that could be implemented to enhance the functioning of this important sector.

1.2 Need for the study

Improving the agriculture sector in Lebanon will not only benefit the rural population, it will also enhance Lebanon's overall economic performance. Agriculture contributes about [2] 6.8% of GDP and employs 10% of the workforce. Regardless, of the importance of this sector, Lebanon has a widening agriculture deficit. Increased exports can and should bring in foreign currencies thus narrowing the agricultural deficit.

This study is needed since it is a major concern of all the Lebanese farmers. The private sector is finding it hard to compete in the local and international markets. Lebanese farmers are not oriented on what type of crops to plant according to market demands and what type of products to export.

Technology must be introduced to farmers to develop their crops and introduce new varieties through government backed research and financial credit. Lebanese government is spending a lot of money on subsidized classical crops when it should be using this money to fund research and help farmers to develop new varieties.
In the agriculture sector of Lebanon, the production costs are higher than their neighboring countries. The Lebanese economy has been diversifying its activities. The contribution of the agricultural sector in the country's gross domestic product is declining and is expected to continue decreasing in the future.

The role of agriculture is not only to produce food; its responsibility is to grow healthy and well-nourished population.

Keywords: GDP, competition, production cost

2* Hattam J. (2009). Food scares engulfs Lebanon. In: Hürriyet, October 012011.

Therefore, it is related to nutrition and health. As we all know, Lebanese people had fears from eating in restaurants since the poisoned food was spread everywhere in the country. Recent food crisis have brought back attention to agriculture.

1.3 Purpose of the study

The objective of this study is to show the readers the mal functioning of the agriculture sector where it can be a good investment and can contribute to the economy as a whole.

Lebanon is a country rich with lands and water where if we concentrate on this sector without neglecting the others it can generate rapid growth. Unfortunately, the Lebanese government does not consider this sector important as the service sector and therefore there is no quality control in the local markets.

We have the opportunity to make this sector rich and help the farmers to grow where now commissioners abuse them and the government does not intervene and does not play the role of an advisor.

Sometimes farmers can sell their crops and make a small profit and sometimes they cannot even sell a single crop and live all the season in poverty. Who provides aid to them? The government? The commissioners? None of them. Isn't he a part of the Lebanese population? doesn't he have the right to live in peace and at least satisfy his primary needs?

Keywords: Lebanese Government

This is not the case of Lebanon where the government abuses them and promises them with new recoveries but at the end, nothing is left for the farmers.

We will discuss this from a personal experience since our parents are from the Bekaa valley and they have lived there. The government does not even provide them with the minimum lost they make every year; they are not even subscribed in the National Social Fund (NSSF) and unfortunately not treated as Lebanese citizens.

Recently one of our friends bought a kangoo van in order to use it in the lands while planting crops. He bought it from Bekaa valley, he couldn't use the car for 3 months since there are "procedures" to follow because it is considered an agricultural car. He paid additional money in order to make his papers to be done quickly. After three months, they have called him that the papers are ready but he needs to register his van. He went to Zahle to do what is left and take the car but unfortunately, they told him that the registration is in Beirut and not in Zahle. My friend required a paper in order to be able to drive the car back to Beirut but they said to him we cannot make you a paper and you cannot drive the car all along the road you have to take it on towing and pay additional 150$.

This is the objective of the study to show how our government is "supportive" and at the same time to highlight the importance of the Agriculture sector in Lebanon.

1.4 International Perspective

The father of modern capitalism [3]"Adam Smith" highlighted in his book "the wealth of nations" saying that it exists an important relationship between national wealth and productivity improvement in agriculture.

Three – Fourth, of the world's poor population live in rural areas and depend on agriculture. It is a major concern for the world's population that the demand for food would outgrow supply because of rapid population growth and a lack of investments in the sector.

GCC countries are destroying Lebanese agriculture by introducing and exporting cheap products. In further chapters, we will discuss in details the agreements that Lebanon signed with Arab countries and their consequences on the Lebanese market. Waddah Fakhri, head of the Southern Farmers' Association stated that: "The government has negotiated trade agreements without consulting farmers, who bear higher production costs than neighboring countries and lack the standards needed to export".

The food and Agriculture Organization of the United Nations is directing international efforts in order to fight against hunger.

It is known that around 70% of the poor in the MENA region live in rural areas. Rural regions must offer better income opportunities as well as improve living conditions in order to relieve rural urban immigration pressure and generate an attractive business atmosphere.

Agriculture in MENA region especially for rural areas is the most important sector. Dry and semi-dried areas, prone to frequent droughts, account for 85% of the total land area and contain 60% of the population.

Many Arab nations, such as, Tunisia, Egypt, Algeria, Sudan, Morocco, and Jordan, needed to adopt economic modifications and structural regulation programs at the demand of main international contributors such as the IMF and the World Bank. These reforms comprise the removal of certain food and agricultural subsidies, which have often resulted in mass demonstration and political conflict in many of these countries.

3* Office of Technology Assessment Congress to the United States (1995) "Agriculture, Trade, and Environment: Achieving Complementary Policies".

1.5 Brief overview of all chapters

A summary of the Lebanese economy is provided, briefly describing the country's physical and human, characteristics.

First, we will discuss about Lebanon and the agriculture situation in the country specifically in the Bekaa valley. Then we will tackle the socio-economic background and the agro food sector in Lebanon. Water is the forth discussion then follows the factors of production and analysis of the market structure. SWOT analysis is the next main issue that we will study and afterwards we will present our village, which is situated in the Bekaa valley. We will introduce you to Anjar rural community and explore with you the land dimensions, crops production and how the farmers survive throughout the seasons.

To conduct this research, we have first availed publications about Lebanon's agriculture sector, these included books published, M.A. and Ph.D dissertations and web information. These sources helped to gain an idea of the events preceding. A visit to the Forzol warehouse was made.

An interview with Mr. Antoine Hwayek, president of the agriculture syndicate in Lebanon was conducted, in order to inquire about the current situation of the agriculture sector of Lebanon.

Finally three survey questionnaires were prepared and the first one was distributed to 50 farmers, the second survey was filled by 10 supermarkets and the last questionnaire was targeted to a sampled Lebanese population and it was filled by 59 persons.

Chapter 2

LITERATURE REVIEW

Introduction

An introduction was made in the previous chapter regarding the topic of the study, the reason why this study was conducted, purpose of the study, and the international perspective regarding the agriculture sector.

Now in chapter 2 we will discuss the review of literature by presenting Lebanon with its current agriculture situation, socio economic background, agro food sector, water, factors of production, analysis of the market structure, Anjar village and the visited warehouses. Afterwards, we will see together the signed agreements, and the previous researches. At the end of the chapter, we will do a summary of what we have learned from this section.

Agriculture sector is considered one of the most important sectors worldwide, since it contributes to the GDP growth twice than any other sector. Many studies discussed previously about agriculture and the ways to improve the sector. For instance, the journal published by Department of Agricultural and Resource Economics, The University of Connecticut, discusses about the productivity literature in developing country agriculture by quantifying the stage of efficiency for a model of peasant farmers from Eastern Paraguay. The author Robert E. Evenson, suggests considerable room for productivity gains for the farms in the sample through improved use of existing resources given the condition of technology. The productivity enhancement has become increasingly important to Paraguay, as the opportunities to bring additional virgin lands into cultivation have significantly diminished in recent years. No apparent plan to develop farm productivity could be gleaned from an assessment of the relationship between efficiency and diverse socioeconomic variables.

The government must trust the farmers' knowledge and self-interest, and encouraging and enabling them to identify priorities (Chamber, R., & Jiggins, J., 2002). However, if

we compare whatever was written with the Lebanese agriculture sector we can sum up that the farmers in Lebanon have lack of knowledge since there is no control, no trainings, not even encouragement by the government towards this sector. Therefore, the trust must be mutual between the government and the farmers in Lebanon.

The department of Soil, Crop and Atmospheric Sciences, Cornell University published an article which discusses about the traditional agriculture in China's Tailake Region which sustained high productivity for more than nine centuries. This article examines the ecological basis for the high long-term productivity in a historical context, with a focus on the nutrient restriction. From 1000 AD to the 1950s, agricultural technology remained unchanged, as did the yields of rice, wheat and other crops. Human populations are now nearly twice their traditional maximum, and the region remains one of the

world's most productive agricultural regions. Nowadays the climate is a major issue, which affects agricultural emissions. Developed countries are taking steps in order to prevent the damage of their agricultural productions, however this is not the case of Lebanon where the farmers need to take all the steps and do all the requirements in order to protect their production.

In Nepal, the economy is dominated by the agriculture sector. It accounted around 60% of the GDP and 75% of the exports (Hitrakar, P.L., 2007). Agriculture in Nepal has been the highest priority since the economic growth was dependent on both increasing the productivity of existing crops and diversifying the agricultural base for use as industrial inputs.

Farmers adopt sustainable practices since they want to be good guardians of the soil, to decrease ground and surface – water pollution, to create quality produce with reduced amounts of chemicals, and to minimize health risks to farm families and livestock (Drost, D., 1996). Enhanced knowledge of the current farming system will allow researchers, and farmers to develop research agendas and adopt practices that meet present and future farming needs (Roling, 1988).

Prior to World War II, few cooperatives had been observed in United States agriculture. A cooperative is a specific kind of business firm owned and operated for mutual benefit by the users. It is assumed that those in control of the large cooperatives want it to compete effectively so that it may survive and grow (Rhodes, J., 1983).
Lebanon used to have cooperatives that functioned properly and helped farmers when facing difficulties. However, nowadays the function of cooperatives in Lebanon is very weak and the farmers in Lebanon are unable to stand on their own feet they wait around for the government to step in. It was published in Daily Star, Lebanese newspaper that less than 1 percent of both the government budget and bank lending are allocated to agriculture in Lebanon whereas, for example Ethiopia invests over 15 % of its national budget in agriculture.

The water sector, mainly the people and organisms that depend upon freshwater Systems, is one area that is anticipated to experience important stress as a result of climate change. Impacts such as increased droughts, less predictable and more intense storms, and decreased water quality are just some of the direct and indirect consequences of climate change on the water sector (Nassarc, A., & Maacaroun, R. 2004). Lebanon is rich in water compared to Jordan, Israel, or Syria. Lebanese water sector has received significant foreign aid in the form of grants and soft loans from Arab and Western donors. In our country, we have the availability of water resources, however there is a high level of water distribution losses, limited cost recovery for water supply, there is no single village or city in Lebanon that receives an uninterrupted residential supply of water especially in summer, the water shortages are common.

Public water supply falls short of consumer needs with Beirut obtaining the lowest water supply per household. In Lebanon more stress is placed on the quality and quantity with increasing demand for water, poor water management, pollution, new climate change, scarcity of water in the MENA region and high amount of water lost in the sea. Therefore, the water sector in Lebanon will be exposed to chronic water shortages starting 2020 if major steps are not taken to balance supply and demand (Daily Star, 2012).

The mean air temperature at the Earth's surface has increased by 0.5°C in the last 50 years and this warming was due to man-made forcing by increased greenhouse gas levels. Agriculture is considerably affected by climate variables and our climate is changing. Therefore, we expect a change in crop response and we are exploring ways to benefit from these changes. (Romero, C., 2009). The climate in the east Mediterranean is characterized by mild rainy winters and long, hot dry summers. Lebanon's climate is shaped by its specific topography with the coastal strip, the mountain ranges and the Bekaa plateau (Yaua, S. 2004). The Mediterranean is considered one of the most receptive hotspots of the Earth's climate system and is expected to be affected by the projected global warming and related changes (Jones R.G.,2004).

2.1 Lebanon

Lebanon's GDP is around US$ 40 billion and the average annual GDP growth is 4%. It has 4.3 million inhabitants with a GDP/capita is US$ 9,300.

GDP/sector: Agriculture 8%, Industry 20%, services 72%. Inflation rate 6%. Population below poiverty line 30%. Labor force is 1.5 million in addition to 1 million foreign workers. Unemployment rate is 9%.

[5] Life expectancy at birth is 65 years and the infant mortality rate is around 4.3%.

Main industries are banking, tourism, food processing, jewelry cement textiles mineral metal, and chemical products.

Exports 5.2 billion $ and imports 16 billion $. Budget revenues 6.5 billion $, expenses 10 Billion $, budget deficit 10% of the GDP.

The Lebanese economy is an open economy with a large banking sector. The country is ranked 33rd place in the world in term of human poverty index. The Lebanese economy is service oriented. There are no restrictions on foreign exchange or capitals movement.

Keywords: Lebanon's GDP, life expectancy, export import.

5*: Office of Technology Assessment Congress to the United States (1995) "Agriculture, Trade, and Environment: Achieving Complementary Policies".

2.1.1 Agriculture Situation in Lebanon

Lebanon has the benefit of a Mediterranean climate: during summer, the weather is hot, humid on the coast and mild, cool temperatures in the mountains. Winters are cold and wet, with average temperatures rarely below 10 C. regardless of Lebanon's small area around 10,452 sq km, the existence of mount Lebanon causes remarkable climatic differences. These climatic variations directs to the diversified agriculture, which are discussed later in this document.

The agriculture sector in Lebanon contributes 6.8 % to the country's GDP and employs 10% of the labor force. The involvement of the agriculture to the national economy has continuously declined during the last few years.

[6] The calorie intake per capita was estimated to be around 3,046 per day and protein intake about 80 grams per day. These figures may have changed over the years, they are however indicative of the general human, social and demographic conditions in the country.

The agriculture sector in Lebanon leads to the widening gap between agriculture and industry and between rural and urban areas. Although if the government provides more support for this sector it will survive since it is potentially rich and can generate rapid economic growth that boost the Lebanese economy as a whole.

Lebanon does not have any subsidies programs whereas other and most Middle Eastern countries have: Turkey for example has subsidies on agricultural investments and exports.

Keywords: Lebanese economy, climate, labor force

6* Republic of Lebanon, Ministry of Agriculture. Strategy for the Advancement of the Agricultural Sector: Program of Action 2010-2014, December 2009 (Beirut, 2009), 7.2

Syria and Egypt also have subsidies on production costs and agricultural exports and Jordan has subsidies on production costs and long-term loans.

According to an agricultural survey conducted in 2005, the total cultivated land in Lebanon reached 273,000 hectares (27% of the total land area) of which 50% are irrigated. This sector has only 13% of total exports and 15% of total imports (2006). Lebanon agricultural and food imports contribute 2,167 billion LBP whereas the agricultural exports were valued at 438 billion LBP.

In 2009, almost one third of Lebanese agriculture export was destined to GCC states. Where, export to Europe was very limited (15% of total agriculture exports).

Currently, the agriculture sector supports 300,000 farming workforce which operates close the upper poverty line. However, it is viewed that by 2020, approximately 40,824 agricultural workers will fall below this poverty line. This is explained by population growth, climate change and the most important by the mistreatment of this sector.

Recently, On September 13th 2011, the Lebanese Agriculture Minister said: "We do have the capability of improving this sector for it to be able to contribute in the gross national product but what we really need for the time being is good funding,"

As a result, the ministry of agriculture does not deal practically with the agriculture sector's demands while this is one of the most important sectors.

Regional politics played an important role in the agriculture sector. For instance, in 1984, fruit exports reached their lowest level of production since 1962 because Syria had restricted imports of Lebanese products.

The collapse of the Lebanese pound in 1984-1985 also had a major impact on crop production. On the one hand, this collapse improved Lebanon's agriculture sector to com-

pete in foreign markets. On the other hand, local consumption drooped because fruits and vegetables prices increased with an average of 85%.

This fall of the Lebanese pound also resulted in increased price for seeds, fertilizers, feeds, and insecticides, which are all imported. The most productive agricultural region in Lebanon is the Bekaa valley with 40% of the cultivable lands.

The decline in Lebanon's agricultural output took place during the civil war. In 1990s, the government concentrated more on the investments where it started putting the agriculture sector behind.

In 2001, the farmers raised an objection and some replanted illegal crops to manifest government actions toward their difficulty, which left them flattening excess products on the streets. At that time the government reacted by assigning LL50 billion for an export subsidy program called Export Plus, which gave farmers money for exporting quality goods to markets worldwide.

In 2004, in order to save the agriculture sector which was totally abandoned the government and at the same time, the parliament started expanding new subsidies to apple.

The farmers in Lebanon are not oriented on what to plant according to market demands and what types of products to export. Therefore, neighboring Arab countries are swamping the Lebanese market with cheap productions and these results on closing the doors on Lebanese productions.

Recently in 2012, an article was published by the ministry of agriculture that Lebanon needs around US$ 400 million for forestation and turning some barren lands to green areas. Although it is known that, the farmers in Lebanon are neglected despite the fact that 30% of the population earns its living from farming.

Keywords: Cheap production, Arab countries, civil war

Since the implementation of the Taif Accord, less than 1% of the government budget is allocated annually to the agriculture sector.

The ministry of agriculture is doing an effort to boost agriculture production and encourage farmers to improve the quality and quantity of their productions.

In Lebanon as mentioned, before the farmers main concern is to sell their crops with good prices since their crops are either sold below the cost of production or dumped because of failure to find markets for them.

The number of farmers in Lebanon is 200,000. 140,000 of them do not have any medical social coverage, and if a farmer falls sick, he will lose his entire crop.

In further chapters, we are also going to discuss that the majority of the farmers are not qualified to obtain loans from banks to improve their business and if they manage to get a credit line, it will be at a very high cost, whereas other countries in the MENA region are making remarkable efforts on agricultural development. Some examples of Bank supported activities in other regions are as follows:

Algeria: Second rural employment project

Egypt: Second Matrouh Resource management project

Iran: Agricultural policy note

Jordan: Horticultural Export Promotion and Technology Transfer Project

Morocco: Rainfed Agriculture development Project

Syria: Conservation of biodiversity project

Tunisia: Northwest Mountanious & forestry Areas Development Project

West Bank and Gaza:Integrated Community Development Project

Yemen: Rural/Local Development Strategy

Keywords: Tairf accord, Minitstry of Agriculture

As a conclusion of this section, improving the Agriculture Sector in Lebanon will not only benefit the rural population, it will also enhance Lebanon's overall economic performance. Regardless of the importance of this sector, Lebanon has a widening agriculture deficit. Increased exports can and should bring in foreign currencies thus narrowing the agricultural deficit.

In order to have food security in the agriculture sector we must take the following steps:

1. Improve marketing and distribution schemes.
2. Finding new markets
3. Enhancing research
4. Imposing pest and disease control
5. Improving training
6. Providing inspecting services
7. Boosting infrastructure (electricity and water supply)

At the farming level, we should improve the agriculture productivity in Lebanon and strengthening of market-based research on plants varieties marketable locally and for exports.

At the marketing level, the government should Support new marketing channels and develop new market information systems.

At the processing level, the management of the agriculture should be improved, the working condition must be upgraded and modernized, the quality control and the storage conditions must also be improved.

At the policy level, there should be the creation of agricultural cooperatives and farmer groups, good supply chain management and synergies must be created.

2.1.2 Socio-economic background

Lebanon is an undersized country (10,452 km2). Its income is considered upper-middle and the 88% lives in the urban areas. The average family size is 4 individuals and 11% of the families having more than eight members. Almost one third of the Lebanese population is focused in Beirut and its suburb. Whereas the rest of the population is spread in the five other districts (Mouhafazat)

The socio-demographic situation:

- Clear and Fast Urbanization: Decrease in rural population in the Mediterranean and Middle East countries
- Migration to foreign countries: they are the skilled workers looking for better opportunities. Migration is due to unemployment and socio-economic conditions. Families in Lebanon rely a lot on remittances.
- Large number of immigrant workers: The immigrant workers are mainly Syrian laborers and domestic workers who live in insecure conditions.
- Presence of 405,000 unofficially registered Palestinian refugees who are still living in 12 refugee camps throughout the country

The 15-year civil war destroyed Lebanon's infrastructure and the physical assets of all the main sectors. Today, Lebanon has a service-oriented economy with very poor agriculture sector. Major sub-sectors are commerce, tourism, and financial services. The industry and industrialized sector accounts for 21 percent of the GDP. Most of the industrial factories are of small and medium sized. The food industry is the most important section.

The Lebanese labor is estimated to be 1.36 million .It is a young population, 41% being the most economically active and mostly employed in the service sector.

Keywords: Service oriented economy, labor

In the construction and industry 12-15 % are employed and at the end follows the agriculture sector in which only 10% are employed.

As we all know, Lebanese economy depends on remittances from Lebanese citizens living abroad. All sources estimate that Lebanese living abroad send US$ 5-8 billion to their mother country each year.

In the public sector, Lebanon has poor health and education indicators. Poverty is concentrated in the suburbs and in the rural areas. 67% of poverty is recorded in Bint-Jbeil followed by Hermel 66%, Marjayoun 60%, Baalbeck 49% and Tyre 45%.

2.1.3 Agro food sector in Lebanon

The Lebanese economy is a free market economy as mentioned previously. It is dominated by the service sector. The service sector in Lebanon remains the backbone of economy living behind the agriculture and industry sectors. It is destined that Lebanon imports around 85% of the food consumed by its population.

Lebanon's business environment has seen significant changes, since the year 2000. These changes include: food safety, customs, copyrights, consumer protection, trade agreements and long-term facilities provided by the Central Bank.

The agro food sector is considered one of Lebanon's most significant industries.
Pickles, mixed nuts, confectionary, and non-alcoholic beverages, represent the main agro food exports from Lebanon. In order to be able to compete on international standards, Investment Development Authority of Lebanon (IDAL) has launched the Agro Plus Program and the Export Plus Program (discussed in details in further chapters).

Keywords: Remittances, public sector, free market, Agro food, IDAL

The plan is to enhance the agriculture sector by concentrating on marketing and promotion food safety and quality guarantee.

In an article published in a local newspaper, the president of the Lebanese Association of industrialists stated: "The food and beverages industry has grown by 20 percent per annum, however there is a lack of imagination in the sector. You go to European supermarkets and you see more Mediterranean products than you do on shelves in Lebanon." The dealing out with costs from fuel, electricity, and labor, make the Lebanese industrialists unable to compete with other MENA regions in terms of competitively priced commodities. In Lebanon, there is the dependency of food exporters on foreign laboratories in order to test their products since Lebanon has the lack of accredited laboratories.

Food processing in Lebanon especially for fruits and vegetables is believed to be an important part of Lebanon's agriculture. The local distribution market endures from the lack of government quality control, absence of marketing regulations, and competition from lower-priced products from neighboring countries. The quantity of food imports is remarkable. Food imports vary from basic food categories to the finest foods.

Prices of imported goods in Lebanon are subject to custom fees and a value-added tax (VAT) of 10 percent. However, Lebanon has decreased tariff rates on imported products in order to help stimulate domestic growth, to make possible local, regional, and global trade agreements.

The imported goods to Lebanon enter the country either through Rafiq Hariri International Airport or through Beirut Port. The foreign exporters rely on local companies in order to receive the imported goods from the Customs Authority at Beirut Port or at the airport and afterwards to distribute them in the market.

Keywords: Food processing, price

Source: Lebanese Ministry of Agriculture

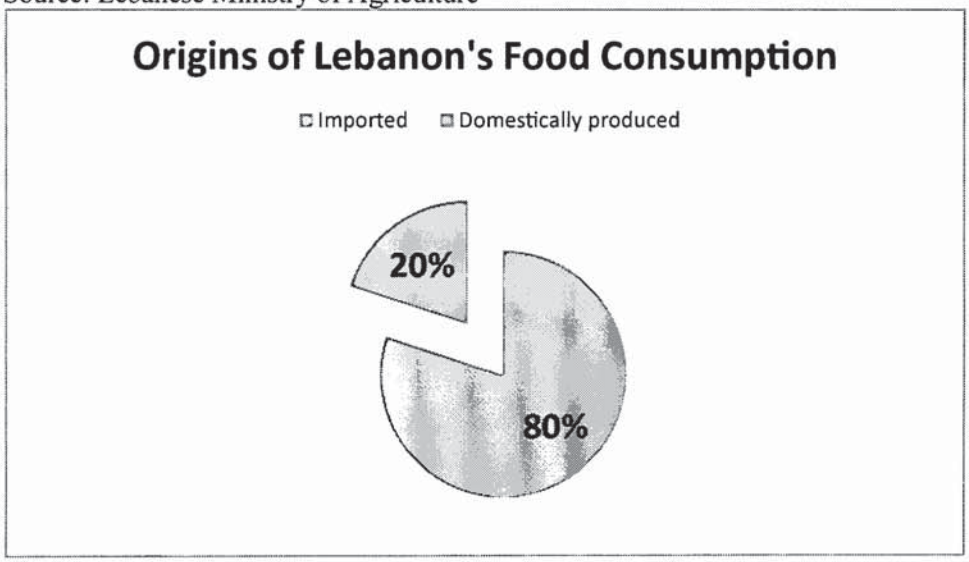

Figure 1: Origins of Lebanon's Food Consumption

Lebanon imports 80% of the food it consumes. Therefore, it is highly exposed to international food price fluctuations. Whenever there is any food crisis in Europe or any other neighboring country Lebanon is directly affected.

2.1.4 Water in Lebanon

Lebanon comparing with other Arab countries has the most important geographical location and climate. The distribution of water is divided into five regions:

- Assi River in the North
- Litani river in the West and South
- Hasbani river in the south
- Coastal rivers such as Nahr el Kabir
- Water collected from rainwater and snow.

Lebanon has a poor water management system. It is known that Beirut obtains the poorest and lowest water supply per household.

Weaknesses of the use of the water in Lebanon:

- Poor wastewater treatment
- Pollution
- Inefficient management
- Scarcity of water in the MENA region
- High amount of water lost in the sea.

Studies show that the water sector in Lebanon will face shortages starting from 2020. Therefore, steps should be taken in order to balance supply and demand.

[7] The water supply in Lebanon is limited. The country receives 7.6 hours of water supply per day in dry season compared to Tunisia and Morocco, which receives 24/7 per day. Beirut, receives the lowest water supply per household obtaining only 3 hours per day. However, Tripoli it is the only district that gets 24/7 water supply during summer season.

Lebanese people rely on the public and private water supply to satisfy their needs. The public water network is connected to 78% of the Lebanese population; however, it represents only 25% of the total sector's revenue, while the private sector accounts for the remaining 75%. The main sources of private water are private bottled water with a 35% share of household expenditure, followed by delivery trucks and small water bottles with 21% and 16%. It is estimated that the domestic and industrial water demand will surpass the agriculture irrigation demand by 2030.

Keywords: Rivers, water, irrigation

7* Nimah, M. 1992. Needs in irrigation water in Lebanon. National seminar on water resources in Lebanon, Beirut, 27-28 November

The Lebanese government did try to control the loss of water. It has set dams such as Qaraoun dam in the Litani river, which is one of the largest dams in Lebanon that is used to manage the flow of river, water for agriculture and generation of electricity.
Assi Dam, Damour Dam etc. There are other dams that are under implementation such as Basri Dam on the Awali River and Khardaji Dam.

The Lebanese Energy minister and the Syrian irrigation minister are also preparing a meeting to discuss a joint dam project on Nahrel Kabir river in the north of Lebanon.
In his report, the General Director of Ministry of Energy and Water stressed the need of 16 to 20 more dams as well as some mountain lakes to protect Lebanon's major water resources. Another project was to spread water wealth and settle a legal framework for issuing permits regarding digging water wells.

It is important also to mention that the Ministry signed two memoranda of understanding with the US government in June 2010 to provide in-kind assistance and capacity building support worth [8] $27.5M for the water sector.

There are many investments to tap water resources; however, there are very little steps to preserve it. Human activities apply strong pressure on the both quantity (water abstraction) and quality (water pollution) of water resources. In addition, many activities affect the water cycle (deforestation, dams, irrigation, drainage canals).

Precipitation in Lebanon is unequally distributed. Up to 90 percent of total precipitation falls between November and April. Several parts of the country experience zero rainfall during the remaining six months, which implies the need for water storage to supply water during dry months.

Keywords: Ministry of Agriculture, dam projects

8* Litany River Authority, 1993. The Master Plan and the 15-Year Plan for the Equipment and the Exploitation of the Litany River Basin, pp. 45-72.

Rivers:

1. 13 Rivers: Flow west from their source in the mount Lebanon range: Ostuene, Aaraqa, El Bared, Abou Ali, El Jaouz, Ibrahim, El Karb, Beirut, Damour, Awali, Saitani, El Zahrani, Abou Assouad.
2. Kebir River: Flows west and traces the northern border of Lebanon with Syria
3. Litani River: Drains the southern Bekaa plain, crosses the southern periphery of the mount Lebanon range and discharges into the sea north of Tyre
4. El Assi River: Flows north into Syria draining the northern Bekaa plain
5. Hasbani River: Crosses the southern border and forms one of the tributaries of the River Jordan

As a conclusion, the main solution for the water supply-demand imbalance in Lebanon could be a sustainable water management system. This might be achieved by efficiently collecting and treating the large portion of water waste through:

- Dams
- Hill lakes
- Increasing the effectiveness and efficiency of the institutions responsible for water supply
- Updating the laws and regulations covering the water sector
- Preparing short and medium investment plans
- Enhancing the quality of the services
- Setting an equitable tariffs and collection system

2.1.5 Factors of Production

The majority of Lebanese farms are small sized. In Lebanon, [9]Fruit trees represent 31% of the total agricultural land used. Then follows cereals (22%), olive trees (22 %) and vegetables (16%). Industrial crops, mainly Tobacco and other crops, occupy the remaining 9% of agricultural land.

The variety of Lebanon's agricultural lands enables the farmers to grow European and tropical crops: Tobacco and figs in the south, bananas, and citrus fruits along the coast, olives in the Shouf mountains and in the North, and fruits and vegetables in the Bekaa valley and avocados in the Jbeil.

It is estimated that almost one-fourth of Lebanon's land is cultivable which is the highest proportion in the Arab World.

According to the Lebanese Ministry of agriculture 2,771.69 Km2 of the total Lebanese surface area was cultivated in 2008. This encompasses almost around 27% of the total Lebanese surface area. 42% of the total cultivated are irrigated. Bekaa valley accounts for 42% of the agricultural land.

The agricultural production was estimated to be US$ 1,963 million in 2007 with 73% in vegetable and fruits production and 27% in animal and livestock production.

Agriculture is considered the largest consumer of water in Lebanon. A larger percentage of cultivated land in Lebanon is being inefficiently irrigated instead of being rain-fed.

When water is used for agriculture purpose, the use of chemical fertilizers and pesticides should be decreasing and the farmers must concentrate more on organic agriculture or even returning to the lands to its natural condition.

Keywords: Tropical crops, cultivable lands, irrigated lands

9* Republic of Lebanon, Ministry of Agriculture. Strategy for the Advancement of the Agricultural Sector: Program of Action 2010-2014, December 2009 (Beirut, 2009).

The lands are cultivated with crops that last for long periods such as fruit trees, nut trees, and vines…Agricultural land refers to the share of land area that is arable, under specific crops.

Water is an essential part of the farming process. In Lebanon, farmers face a major financial burden in irrigating their lands. This is due to the absence of irrigation canals, which delays the proper transportation of water.

According to the Lebanese Central Administration of Statistics, Lebanon has imported around 70,000 tons of fertilizers in 2008.

In Lebanon, we have a major problem in the use of pesticides and fertilizers, which is affecting in exporting our local products. This problem is a mutual responsibility between the government and the private sector. Therefore, it needs combined effort in order to avoid misuse of power and greedy intentions of some suppliers.

Chemicals:

The corruption of food by chemical dangers is a universal public health anxiety and is a leading reason of trade problems internationally.

The fast changing and globalizing food economy has urged international organizations to set up standards for the safe production of fresh crops that can be safely consumed.

It is known for every population that when high quantities of fertilizers and pesticides are used it become contaminants to food and environment. Not only in Arab countries but also in the world the misuse of pesticides and fertilizers is common.

The difficulties that the Arab world faces today are:

- Limited arable land
- Water shortage
- Poor soil fertility
- Low investments in water-saving irrigation techniques
- Inappropriate pricing for agricultural commodities
- Weak marketing system

Fertilizers:

Fertilizers are organic or inorganic material that is added to soil in order to supply one or more plant nutrients essential to the growth of plants.

[10] The consumption of NPK (N+P2O5+K2O fertilizers in the ME region has tremendously increased. The major fertilizer used in agriculture today is the nitrogen, which follows the phosphate fertilizers and then potassium.

The impact of fertilizers on food is the following:

- Sufficient supply of N increases protein quality, quantity, and some vitamins.
- Excessive N supply increases amide content, which results to bad flavor after cooking.
- Low N causes premature ripening, while high N causes delayed ripening.
- Increased amounts of N and K decrease dry matter.
- Low K affects the coloration of fried potatoes negatively and causes black spot in fresh potatoes
- Sufficient Ca supply leads to high quality of different fruits and vegetables. Ca deficiency causes low quality banana fruits.
- Sulphur increases the protein content in grain and the oil content of oil-seed crops.

10* Gary G. Gambill, "Lebanese Farmers and the Syrian Occupation," Middle East Intelligence Bulletin 5, no. 10 (October 2003)

Pesticides:

Pesticides are chemical used to kill harmful animals or plants. Pesticides are used in agriculture.

Some either are harmful to humans from direct contact or are harmful to the environment because of their high toxicity.

There is no exact data in suing of pesticides (herbicides, insecticides, and fungicides). It is studied that the rates of pesticides usage per hectare in Lebanon, Kuwait, and Qatar are 2 to 3 times the rates used in Egypt, Jordan, and Oman. Farmers should start using these chemicals in moderation in order not to send to the market low quality products, especially fruits and vegetables that are consumed fresh.

The Lebanese government should enhance new programs in order to teach farmers about proper methods for the use of agrochemicals and adopt modern laws concerning the use of fertilizers and pesticides. The government also needs to set up laboratories to ensure the safety of the food consumed, produced and exported from Lebanon.

Keywords: Fertilizers, pesticides

2.1.6 Analysis of the Market Structure:

It is known that the market of fruits and vegetables in Lebanon is mainly controlled by intermediaries (middlemen) and exporters that operate over a network of 7 wholesale markets:

1. Sin El Fil
2. Bir Hassan
3. Jbeil
4. Tripoli
5. Saida
6. Qabb Elias
7. Fourzol

It is at this level of the middlemen, that the added value of production takes place, in the absence of a good marketing structures (delivery docks, adequate weighing technologies, refrigerators, storage rooms…) which will result in a decrease in production quality thus profitability of the farmers. At the end of this transaction the marketing activities are left to the commissioners, middlemen and monopolistic wholesale traders, and the resulting low prices are absorbed by the growers.

The existing production of fruits and vegetables does not meet the norms of quality that are demanded by the consumers. The visited warehouses proved that there is mismanagement in the agriculture sector and no control from the government. The commissioners are the sole controller and the price of the fruits and vegetables varies just like the trade market.

Recently, in June 2012, a storm heated Lebanon and the majority of the fruits were destroyed specially the prunes. During this incident, no one from government came to inspect the lands and support the farmers by providing the minimum loss they have made during the season. Unfortunately, this is the case of Lebanon. The farmers work day and

night in order to be able to harvest their crops and during the season sell it to the wholesale markets. However, the wholesale markets buy the fruits and vegetables from the farmers with very low prices and sell it higher to distributors or supermarkets directly.

Sometimes, when the farmer does not have the money to invest in his land, instead of the government the commissioner who already has a shop in the wholesale market inspect the risk and if the land is cultivable and has low risk exposure provides the farmer with the loan. During the harvest season, the commissioner takes 10% commission and sells it with high prices, living the farmer in poor conditions.

2.1.7 SWOT Analysis:

- Strengths:
  - Production is declining in neighboring countries
  - Strategic position
  - Various types of fruits and vegetables can be planted in Lebanon

- Weaknesses:
  - Poor Quality
  - Imports>Exports (Budget Deficit)
  - Marketing Constraints
  - Poor electricity and water supply
  - Lagged behind the technological development
  - Lack of training to the farmers
  - Low Competitiveness
  - Imports worth US$ 719 million in the first half of 2009, accounted for almost 10 times the value of the agricultural exports during the first period.
  - Traditional agricultural and food processing production
  - Poor technical management
  - Technical barriers to export
  - Quality of the products

- Old structures
- High cost of production
- Difficulties in access in distribution networks (lack of supply Chain management)

- Opportunity
  - Shifting from traditional agricultural and food processing production to niche and high value added products.
  - Creation of agricultural cooperatives and farmers group
  - Establishment of laboratories

- Threats:
  - Climate
  - Political Situation

2.1.8 Anjar Village

[11] The land of Anjar belonged to Rushdi Beg and his mother Ayisha Sabarnaz who had inherited it from Ahmad Fehmi Pasha (father of Rushdi Beg and huband of Ayisha) (Havatian 1999: 12).

The village that we have been raised in is called Anjar. It is situated in the central Bekaa valley of Lebanon. Agriculture in our village is the main generating income. The "gardens" are divided into equal plots of two types: Irrigated lands around 6000-6300m each and rain fed lands of 3900-4200m each. Since Anjar is one of the most important agriculture spot in the Bekaa valley.
Land divisions were discussed with 4 of my informants, and all of them stated the size of the agricultural lands in dunum: seven and four dunums for irrigated and rain-fed lands respectively, saying "it is more accurate to speak in dunim".

11* Aprahamian, Sima 1988 The Experiences of the Inhabitants of Haouch Moussa – ' Anjar. Ph.D.Dissertation Department of Anthropology, McGill University

Dunum is a unit of measurement used in the Ottoman Empire. My informants were not certain of the conversion rate to the metric measurement system, some saying one dunum is equivalent to 900 meters; others saying it is equivalent to 1000 meters.
When first our grandfathers settled in Anjar, they have started to plant apple orchards in the irrigated lands to generate income. They have started to plant trees, which require several years after being planted before they give fruits.

The residential area of Anjar is built at the foot of the Eastern Lebanese mountain range, which separates Lebanon and Syria.

In our village as stated by one of the informants, cultivating lands was an initiative of the people and not the result of a higher decision. He explained that in 1952-1953 he sold apples for 10,000LL in one year and in those years 10,000LL was worth the income of ten or twenty years. Almost all the anjarians at that time started doing the same, until one year the apple harvest increased too much in Lebanon that it did not sell and the people incurred losses.

When anjarians started to cultivate their lands in the 1950s, apples had a larger market demand and were rarer and this is what motivated them to plant apple trees. They have planted apple trees and not orange trees because they had to adapt to the climatic and geographical conditions of the area. Anjar was not in a coastal area. In the beginning, they planted apples, pears, and plums but mostly they planted apples. This had its reason, which is valid to this day: the plum blooms very early. For instance, it will bloom in March, while the apple will bloom in mid April. In that one month, it is cold and that cold will annihilate the flowers. That is why they have preferred to plant apple trees. In our village the field is mostly filled with apples; there are lesser pears and plums. That was 60 years ago, now almost everyone is renewing their lands, their trees. Today there are varieties of fruits such as the peach with its varieties, the plum with its varieties the apple too.

If one visits the orchards today, they will see among them very small trees, planted two three and four years ago. In some of those orchards, the anjarians have cultivated vegetables until the trees grow bigger.

In what concerns the rain-fed agricultural lands, they were initially cultivated with wheat, barley, corn, chick peas, or turned into vineyards because these can be grown on rain-fed lands.

After 1960s, Anjarians were able to turn the rain fed lands as well into orchards, by irrigating them through artesian water pumps connected to the spring of Anjar that are used to this day.

The Eastern Lebanese mountain range overlooks Anjar. In winter, it will be covered with snow on the tops. It is this snow, which will melt each spring season and fill the springs. In April, the mountain looked yellow and barren at the foothills, and covered with spaced green trees at the top.

There are two sources of water in Anjar: the spring of Anjar and the spring of Chamsine. The two rivers that flow from them meet at a point on the outskirts of Anjar. These two water currents are named Nahr El Ghozayel. An employee of the irrigation committee stated that Anjarians usually call the rivers karatchi, which means "river" in their dialect. Anjarians, in vast majority, receive piped water in the residential through a water reservoir connected to the spring of Anjar. Some of the newly built houses in the agricultural lands and some of the restaurants receive their water from the spring of Chamsine, which flows to over 60-70 other villages.

The Spring of Chamsine was the only place where there was the presence of military tanks and soldiers. In Anjar they have built water canals, and introducing water wells, that the landscape of the area was greatly modified, allowing Anjarians to engage in widespread and various kinds of cultivation. Water is a constant concern for Anjarians.

The water levels had risen and Anjarians were slightly relieved. "The 2008-2009 winter seasons have passed dryly and the region's water levels have significantly dropped.

Another theme that was raised in relation to water was the cleanliness of the water: There is Anjar's spring, then the Chamsine spring. The two water flows meet and flow towards the Litani River. The river is called Nahr El-Ghozayel. Now, you know, Lebanon's waters have become polluted. The advantage of our village is that the spring is on our land, and we receive clean water. That, of course, is a geographical blessing. The water has no room to be polluted. By the time it reaches the Litani, past our village, sewage water is dumped in the river from all the villages on its way.

[12] During this fieldwork, the research showed that people in this village are engaged in cultivation in two ways: the first group cultivated the large fields, the "gardens," and the second group cultivated the smaller land plots adjacent to the houses. The following discussion is organized in terms of those two kinds of cultivation. The interviews with full-time agriculturalists only revolved around the topic of cultivating the "gardens".

The cultivators included in this section are full-time agriculturalists. Today, there are only about 50-60 full-time agriculturalists in Anjar. Such persons usually rent lands additional to theirs from other Anjarians.

Agriculturalists own cultivated "gardens." These are taken care of by themselves in their spare time, by a family member or a relative who is a full-time agriculturalist, or by hiring full-time agriculturalists and various wage laborers (such as Bedouin and Syrian) who will perform the required tasks for each season.

12* Ayntabian, Hagop 2003, Noranor Nvadjoumner (Newer and Newer Accomplishments), Aztag Daily, September.

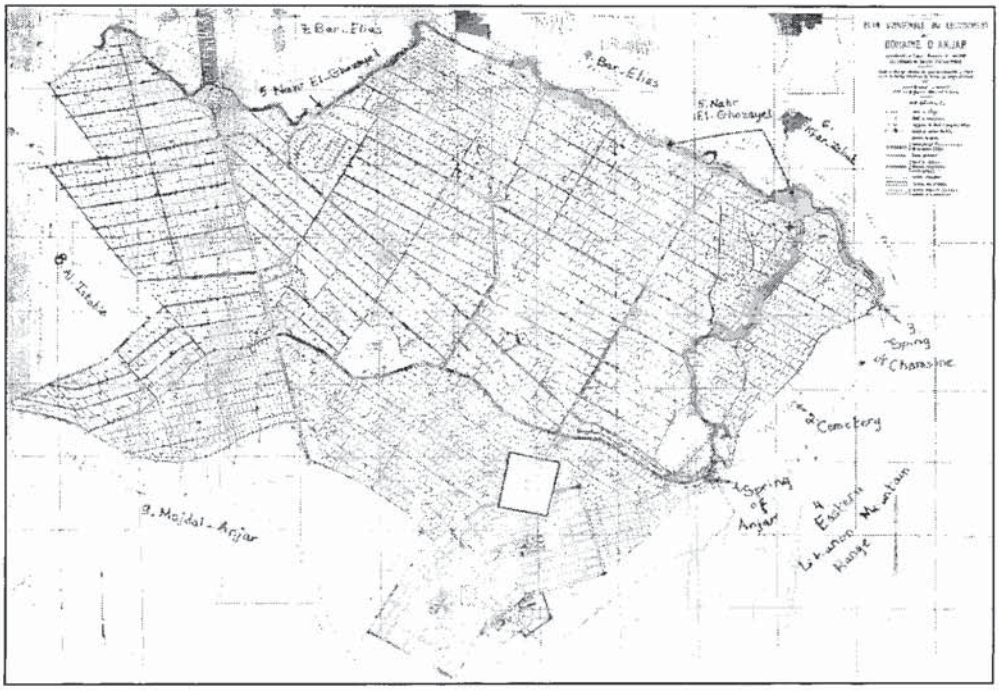

Fig 2: Map of Anjar including the residential area and the gardens

The squared are demarcated by red designated the site of Umayyad ruins. The area demarcated by green designates the residential area. The rest of the map displaying tiny squares designates the individual plots of agricultural land.

The squared area demarcated by red designates the site of Umayyad ruins.
The area demarcated by green designates the residential area.
The remainder of the map displaying tiny squares designates the individual plots of agricultural land.

1. Spring of Anjar
2. The cemetery of Anjar
3. Spring of Chamsine
4. Eastern Lebanon Mountain Range
5. Nahr El-Ghozayel (in blue)

Neighboring Villages:

Kfar-Zabat
Bar Elias
Al-Istable
Majdal-Anjar

2.1.9 Visited Warehouse, Forzol:

Forzol warehouse is one of the main warehouses present in the Bekaa valley. It is a private institution that belongs to a person from Forzol. In this warehouse, many stores are rented to commissioners who sell fruits and vegetables. The stores open every day at 3 am. In winter they go to Beirut , Sayda and Sour warehouses in order to bring fruits and vegetables and sell them in the Bekaa valley. However, during summer they come from Beirut warehouses to buy the needed crops.

The warehouses in Lebanon are commissioners, for instance the farmer visit the warehouse and put his crop for sale , at that moment the commissioner takes instantly 10% commission on the goods. The price of the product present at the warehouse varies depending on the demand of the goods. For example if the demand on garlic is high, the price will be high and when the demand on garlic decreases the price decreases.

In forzol warehouse, they mainly sell potato, garlic, and onions. One of the shop owners at Forzol was explaining that at the end of winter the farmer comes and says that he will plant 100 dunum of onions. The commissioner on his turn goes and checks the land that he is willing to plant if he agrees with the farmer he pays all the money he needs and when the season arrives and the farmer brings his crop to sell it, the commissioner takes 10% commission on the products.

One of the questions asked was that if the fruits and vegetables are stored in the refrigerators, he replied that only apples are stored in refrigerators.

There is a calendar of agriculture in Lebanon. Each month there is a country that imports to Lebanon fruits and vegetables without paying taxes. For instance on 1/1/2012 KSA, imports vegetables to Lebanon for 3 months without paying taxes. Afterwards comes the turn of Egypt till 31.03.2012. Finally, there is the Akkar potato that Lebanon exports without paying taxes. The most country that we export to is Syria. The recent political situation in Syria affected the Lebanese agriculture. 90% is exported to Syria and only 10% to other Arab countries.

This year, 2012, regarding the current Syria's political situation, 200,000,000 LL garlic deficits were incurred. In Bekaa they used to plant 80-100% sugar beets and 20% vegetables. There was a factory for sugar beets production, which was closed and since then everybody started to plant fruits and vegetables.

As a conclusion, the farmers have high input costs at the start of their production and low returns when attempting to sell their crops. High input costs result from higher prices for fuel, pesticides, fertilizers, and labor cost that did not previously exist.
Farmers have two options when selling their crops:

- Sell the fruits and vegetables to middlemen
- Sell the fruits and vegetables to the end consumer

As a result, farmers consider that they are capable of selling their crops with higher prices if they sell it to middlemen. However, they can also chose to store their products for few months before selling them in order to get higher prices during the season. Unfortunately, the high cost of refrigerators discourages them for doing so.

Keywords: Forzol, commissioners, calendar of agriculture, sugar beets

13* Ministry of Agriculture and FAO (2001). The agriculture in Lebanon FAO: Lebanon

These intermediaries usually take advantage of the lack of government existence to hold off on payments to farmers until they sell their products and even then are not held accountable if they not succeed to provide farmers with correct statements of sale.

Finally yet importantly, it is significant to highlight that over the past few decades the commissioners used to demand a five percent commission on sales of the crops. Today, and according to farmers interviewed, middle men demand ten to eleven percent commission.

2.2 Previous Research

The 1970s marked the beginning of agricultural development in Saudi Arabia. The government promoted a wide program in order to encourage modern farming, technology, to establish rural roads, irrigation networks and storage facilities and finally to also support agricultural research and training institutions.

We can say that Saud Arabia is a country that is self-sufficient in a number of foodstuffs. Today KSA, exports wheat, dates, dairy products, eggs, fish, poultry, vegetables and flowers to various markets around the world.

It is important to mention that since 1985, unlike Lebanon the local farms present in Saudi Arabia were able to satisfy domestic demand for many products. The country was an importer of wheat now it is an exporter.

[14] The kingdom is a major exporter of fruits and vegetables to its neighbors. The main crops are: watermelon, grapes, citrus fruits, onions, squash and tomatoes.

Regarding Lebanon many Previous researches were, where most of them highlighted the importance of the sector and in the same time the lack of the government support for this sector. A lot of plans were suggested to the Ministry of Agriculture , however only a small part of them were implemented.

Keywords: Cooperatives, middlemen, research, Saudi Arabia

14* Sayegh, A.H., Khazzakah, K., El Khatib, A., Sfeir, S. and Khawlie, M.R. 1990. Soil mineralogy of Lebanon. Soil resources land and water development division (FAO).

2.2.1 Signed Agreements:

Lebanon signed trade agreements in order to liberalize trade with main partners and to open up with new markets. However, the opening up on new markets other than traditional Arab markets is very difficult since there is an absence of quality norms and products not suitable for such markets.

Bi-Lateral and multi-lateral agricultural trade agreements:

[15] The Lebanese government applied a specific tariff for the agricultural sector. The import of all types of agricultural products is allowed and custom duties became the only type of border protection.

Taysir Agreement:

This agreement was signed in 1981; ratified in 1985.

This agreement was the Implementation Program for the Facilitation of Trade among Arab countries Agreement for the establishmentof a Greater Arab Free Trade Area (GAFTA) within ten years from the beginning of 1998.

Bi-Lateral Arab Trade Agreements:

Lebanon has bilateral free-trade area agreements with Syria, Egypt, Kuwait and UAE. This agreement was signed in order to implement free trade of specific agricultural products between Lebanon and these countries.

European Union-Lebanon Association Agreement:

Signed in 2002; ratified in 2006. The agreement provides with reduction in tariff rates and import quotas. It also includes agricultural exports to the EU.

EFTA Agreement:

Signed in 2004. This agreement covers trade in industrial goods as well as agricultutal products and eliminate duties and other restrictions for the products upon entry.

15* Ministry of Agriculture and FAO (2001). The agriculture in Lebanon FAO: Lebanon

WTO Agreement:

Lebanon became observer at the WTO as of April 1999. The ministry of agriculture has started to review and evaluate trade measures that are being applied on agricultural products of plant or animal origin and modify those that do not comply with the WTO agreements.

Agricultural Export Subsidies:

In August 2001, Lebanon passed a new investment law that established the autonomous Investment Development Authority of Lebanon (IDAL) to promote investment and agricultural exports in Lebanon.

IDAL

IDAL is the government agency (Investment Development Authority of Lebanon). It was established in 1994 and the aim was to help foreign investors to set up in Lebanon. Since [16] IDAL was established, Foreign Direct Investment improved to reach US$ 3,485 million in 2007.

"Export Plus" Objectives:

- Increase the quantities of Lebanese agricultural exports
- Entry to new export markets
- Supervise the quality of agricultural exports to be on the level of international standards
- Transfer of technology and expertise to farmers and exporters.

16* Daily Star, www.dailystar.com.lb+

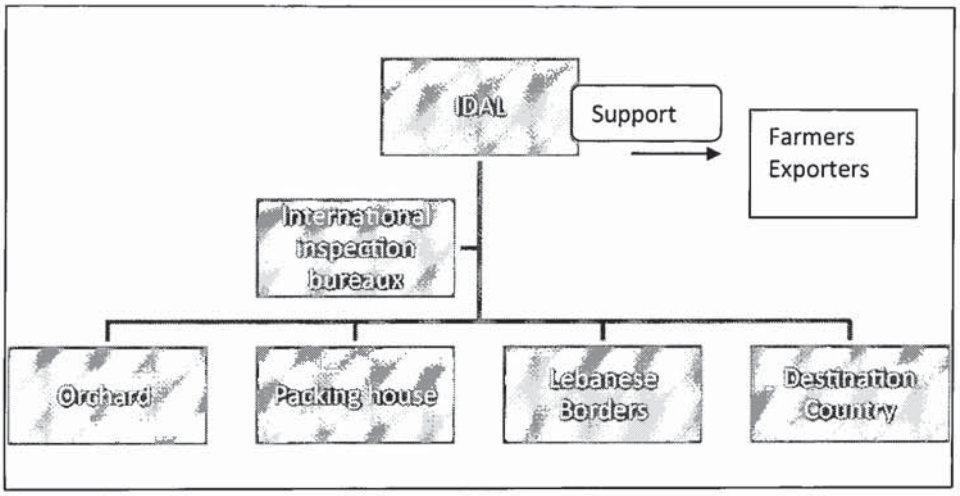

Figure 3: The Function of IDAL

2.2.2 Export Plus

Export Plus Market Entry Conditions:

Consumer Preferences:

- Taste
- Safety
- Price

Specific Standards:

- Organic
- Environment

Standards and Regulations:

- Food Safety
- Quality Standards
- Labeling

IDAL assigned two International Bureaus each responsible for specific georgraphical areas:

1. Bureau Veritas – Liban which consists of: Bekaa, South Lebanon and Nabatiyeh
2. SGS-Liban: North, Beirut and Mount Lebanon

After the establishment of IDAL, the program was successful: Exports of fruits and vegetables increased more than 15% during the first year. Farmers and Exporters started to understand and apply International standards and quality control measures. Finally, exports were able to tap to new markets such as France, UK, and Belgium…

Export Plus Mechanism:

1. Export demand from the exporter to the quality control company
2. organization between the exporter and the quality-control company on the time and date of the control actions
3. Packaging and controlling the products, and evaluating the varieties to the Lebanese standards
4. arranging an inspection report on the exported products
5. The quality-control company locks the container
6. The driver when reached to the Lebanese borders and customs control presents the inspection report to the quality control company
7. After the tuck's arrival to the importing country, the exporter presents the transport documents to the quality control company to prove that the products arrived to the importing country.
8. The quality-control company presents a final inspection report to IDAL

From a personal point of view, Export plus was unable to change the farming conditions. Thus, the government after 5 years of implementing the program decided to decrease the export plus support by 20$. This decision resulted in two major scenarios:

1. Taking away the subsidies, that had made them able to compete with their Arab neighbors.
2. Different type of investments the farmers have made when they shifted towards producing the supported crops and by requiring them to quickly discover new crops with which they could realize a comparative advantage.

In an article published recently it was stated that IDAL will reimburse subsidies due to agricultural exporters. " IDAL will pay up to 90% of reimbursements to exporters for various agricultural productions", " the reimbursements are part of the "Export Plus" program and will cover payments due in the second half of 2011".

2.2.3 Main Public Projects in the agriculture sector:

Council of Development and Reconstruction, CDR approved the realization of the agricultural projects. Prior of setting the agricultural strategy, CDR assumed the completion of urgent projects that would contribute to the improvement of the infrastructure of agriculture and irrigation.

The aim of these projects was to strength the Ministry of Agriculture's (MoA) abilities and institutions (the Green Plan and the Lebanese Agricultural Research Institute) through:

- Contracts for the treatment of agricultural extension centers in Sour and Abdeh
- The rehabilitation and equipment of laboratories and green houses for research institutes in Sour, Fanar and Tal Amara.
- Technical assistance, studies, training, and maintenance necessary for these institutions were provided through consultancy services contracts.

The IFAD loan also allowed the construction of small hill lakes in locations specified by the Green Plan in Becharre, Mechmech, Bkaasfreen, Bkoufa, Hermel, Deir el Ahmar and Kfarmishki, and the provision of agricultural extension services in all areas of irrigated agriculture, through the implementation of consultancy contracts with NGO's.

In the sight of MoA's need for technical help in conducting sector studies and agricultural censuses, the financing and accomplishment of the agricultural planning assistance project was provided through CDR by a funding from the European Union. This resulted in setting the elements of the agricultural policy and its master plan, in coordination with the agricultural census technical assistance project implemented by CDR through a contract with FAO partially financed by the World Bank's loan destined for this project.

The result was setting the agricultural strategy and MoA's agenda for five years (2005 – 2009).

27 thousand hectares of agricultural lands were rehabilitated through the World Bank's loan intended for the rehabilitation of irrigation projects in Qasmiyeh (3600 ha), western Bekaa (2000 ha), Yammouneh (4500 ha), Diniyeh (4400 ha), Akkar el Bared (1500 ha) in addition to medium and small projects in the North and Mount Lebanon (7500 ha) and in the South (3200 ha).

This loan also served for financing contracts for the institutional support of the Ministry of Hydraulic and Electric Resources (MHER) and the Litani River Authority (ONL), and for the provision of vehicles, equipment, instruments, consultancy contracts, training and studies that facilitated the implementation of these projects.
In the framework of the above project, institutional support was provided to the Litani River Authority by extending the consultancy services and technical assistance contract until the end of 2008.

Several consultancy contracts were also signed with NGO's for the provision of agricultural extension services, as well as contracts covering the construction of hill lakes, most of which were implemented, and CDR is trying to overcome the obstacles impeding their delivery

The main contracts signed in 2008

The major part of outside funding intended for the agricultural sector after the war of July 2006 was allocated to the Lebanese Recovery Fund (LRF) set up after the Stockholm Conference to provide assistance for sectors damaged by the Israeli war. Donor countries contributed by the provision of grants that were implemented through LRF or MoA or directly, with the support of the United Nations Development Program (UNDP) or the Food and Agriculture Organization (FAO) or local associations.

The main projects under preparation (2009 – 2011)

The"HASAD" (harvest) project is being prepared. It covers the construction of agricultural development hill lakes that will provide as an additional irrigation source in summer in poor rural regions suffering from water shortage. CDR procured funding through a loan by IFAD, and it is working on providing additional external funding through a loan by OPEC. The above project will be implemented through the Green Plan.

CDR is currently preparing a project for "supporting local development in northern Lebanon", to be financed by a special grant from the European Union. A schedule will be set for the implementation of urgent projects concerning the rehabilitation of water facilities (including irrigation), the provision of technical assistance for local communities in the fields of administrative strengthening, water management and agricultural extension, and the contribution to the preparatory study for the establishment of a national natural reserve in Akkar.

2.2.4 Agricultural Banks

Establishing an agricultural bank will help to address the resource constraints for achieving food security and encourage the long-term investment.

The major source of capital needs to come from private investors, public investment cannot meet the needs; however, it can stimulate the private investment in the agriculture sector.

Agriculture must play an important role in the economic growth. Investments in this sector are an effective instrument to improve poverty and enhance food security. Previous researches have suggested that GDP growth originating from agriculture is twice as effective in decreasing poverty as GDP growth related to the non-agricultural sectors.

In developing countries, agriculture generates on average 29% of their GDP and employs 65% of the labor force (World Bank, 2007:3,6).

Therefore, the Bank Agricole is a great need for development of agriculture in Lebanon through providing Finance and supporting services. The Bank can drive the opportunities in agriculture by reorganizing its development focus towards rural areas.

Purpose:

- Clarifying delivery interventions
- Agriculture Management
- Agriculture development
- These funds provided by the bank can also be used to purchase equipment, improve facilities and increase working capital

Strategic Objectives:

- To create strategies to development
- Implement agricultural reform programs
- To enhance agricultural development, rural development

Agriculture plays an important role for economic growth, consequently investment in this sector has shown an efficient mechanism to improve poverty and increase food security.

Kafalat:

The financing options in Lebanon have seen important enhancements. The number of loans granted to the agriculture sector has increased in the last two years, through loans provided under the Kafalat loan guarantee program.

Kafalat is a Lebanese financial company that supports small and medium sized enterprises (SMEs) in order to access commercial bank funding. This financial company provides loans based on business plans and feasible studies.

Kafalat targets the following economic sectors:

- Industry
- Tourism
- Agriculture
- Traditional crafts
- High Technology

Kafalat signed an agreement with the European Union and the Ministry of Economy and Trade of Lebanon in order to increase the amount and the size of the loans assigned for the private sector. Kafalat targets at ensuring guarantees for loans provided by Lebanese banks to Small and Medium sized enterprises. All is based on feasibility studies that show the possibility of the proposed business activity and its capacity in order to pay back its loan.

The characteristics of the Kafalat loan are as follows:

- Lending is through commercial banks
- SMEs profit form an interest rate subsidy, paying 7% per year
- Loans can be repaid over 7 years including grace period
- Loans cover the buying of raw materials, spare parts, working capital and purchase of machinery and equipment.

2.2.5 Proposed Solutions:

- A strategy should be settled up in order to define the needs of the farmers and then establish a mechanism of general registration for farmers.
- Improve the quality of Lebanon's agro-food production in order to be able to compete in the outside market.
- The establishment of a Bank Agricole
- Research
- Laboratories
- Agricultural food processing fabrics
- Control the overused pesticides

In addition to the above solutions, the government should help the farmers to reduce their costs by helping them strengthen their cooperatives and associations, providing services and agricultural equipment at reduced prices and improving the quality of their production.

The farmers must get training sessions through technical assistance from agricultural engineers in the production chain and training on the importance of the protection of natural resources.

The government should also link the farmers to international and local markets by putting them in direct contact with exporters and buyers and informing them of market trends and channels.

2.3 Conclusion

We have seen in this chapter that the agriculture sector in Lebanon is facing many problems. The sector contributes only 6.8% of country's GDP and employs 10% of the labor force. The Ministry of agriculture does not deal practically with the agriculture sector's demands and consequently it is unable to compete with foreign markets.

As discussed in this chapter one of the reason for making this sector weak, is the 15 years war that destroyed Lebanon's infrastructure and the physical assets of all the main sectors.

Lebanon is a free market economy; the service sector is the backbone of economy living behind the agriculture and industry sectors. Lebanon imports 80% of the food it consumes. The Lebanese farms are small sized, however they have the ability to grow European and Tropical crops.

When we have discussed in this chapter about water, the main thing that was mentioned is that the agriculture is the largest consumer of water. In Lebanon, there is the use of chemicals and pesticides with wrong quantities, since the farmers lack the knowledge and are not aware of the international standards and norms.

The farmers living in Anjar village does not trust the shops that sell pesticides. They said in a face-to-face interview that they do not know what pesticides or chemicals to use on the crops, however the shops that sell these products they do not sell them the right and the needed chemicals.

In order to avoid such incidents and to enhance the agriculture sector in Lebanon there should be the establishment of cooperatives who will help these farmers to overcome the difficulties that they face every season. There should be the presence of laboratories in order to test the products, the farmer needs to be included in the National Social Security Fund and the access to credit, and loans should be simplified.

Current problems that face the agriculture sector in Lebanon are the following:

- Using old production technology
- Absence of economies of scale
- Lack of standards, norms and quality controls
- Huge number of middlemen (commissioners) who attempt to reduce income among the smaller and mid-size farmers
- Expensive prices for storage and transportation and unsatisfactory storage facilities
- Lack of technical assistance
- Absence of irrigation systems and the usage of inefficient means of irrigation
- Lack of qualified workers
- Absence of public policies aimed at reforming the agriculture sector
- Lack of marketing structures
- Poor Supply Chain Management

Chapter 3

Procedures and Methodology

3.1 Introduction

In chapter 2 we have discussed about Lebanon and the current agriculture situation that faces the country. A socio economic background was presented and then we have discussed about the agro food sector in Lebanon mentioning that it is a free market economy and the service sector is the backbone of economy living behind the agriculture and industry sectors. In the next section we discussed about water and that, the agriculture is the largest owner of water. Analysis of the market structure was presented with a SWOT analysis. At the end of the chapter, some solutions were suggested and a conclusion was made for all the sections that were discussed.

Now we will discuss the methodology that was used to obtain data, evidence, or information as part of this research project.

The aim of this research study is to show that the agriculture sector has never been a priority to the Lebanese government. Although, the sector can be profitable since it has all the needed potentials. For this purpose, questionnaires were prepared in order to investigate the problem and provide the possible solutions. Agricultural research is mainly observation oriented. Observations are most often gathered through accurately designed experiments. In order to investigate such observations a methodology is necessary to provide valid conclusions regarding the objectives of the experiments.

3.1.1Main Research Question:

What happens if the Lebanese government provides more support to the farmers in Lebanon?

Sub Questions:

- What is the role of the central bank in providing support for the agriculture sector?
- What types of security the farmers have in Lebanon?
- Why the potential of the sector is limited?

3.1.2 Interviews:

In order to enhance the research, several interviews were conducted. The first interview was with the president of the agriculture syndicate where he highlighted the main problem that the agriculture sector is facing.

At the beginning of the interview, he discussed about over production and he gave an example by saying that if we assume a farmer is willing to sell his fruits $ 1.5. Another person arrives and sells it $1 due to overproduction. This usually happens because of the GAFTA agreement.

Some countries state that GAFTA is one of the most important economic achievements in the area, since it contributes towards establishing the Arab common market. In 2005, they have started implementing a full trade liberalization of goods through the full release of custom duties and charges except Sudan and Yemen being less developed countries.

The Council of Arab Economic Unity has under its umbrella a number of agreements that aim to encourage Arab investments:

- Non-Double Taxation, Tax Evasion, and Establishing Common Rules on Income and Capital Agreement, signed on Dec. 3rd 1997. Members up to date are Jordan, Sudan, Egypt, Syria, Iraq, Libya, and Yemen.

- Non-Double Taxation and Income Tax Evasion Agreement, signed on Dec. 6, 1998. Members up to date are: Jordan, Sudan, Egypt, Syria, Iraq, Libya and Yemen.
- Investment Promotion and Protection Agreement signed on June 7th 2000. Members up to date are: Jordan, Sudan, Egypt, Syria, Iraq and Libya.
- Investment Dispute Settlement in Arab countries, signed on Dec 6th 2000. Members are Jordan, Egypt, Syria, Iraq and Libya.

The president of the syndicate also highlighted that Lebanon does not really benefit from this agreement since it has a different regime regarding all the Arab countries. Lebanon is a Liberal country where it follows the market prices whereas the other Arab countries when exporting to Lebanon their governments are a back up that they support every single transaction in order at the end of the business they are profiting and not loosing.

Two major aspects need to be taken into consideration before discussing any issue regarding the agriculture sector in Lebanon as stated by the interviewee:

1. The Natural Disasters:
   The farmer when investing and producing vegetables and fruits he is not 100% sure that his production will survive till the season of harvesting.
   In order to avoid such incidents there should be the creation of a general agricultural institution whose role will be securing the harvesting period of the farmer.
   Procedure: For example if the farmer will harvest apples on 5000 meter square he applies to this institution where in his turn the institution will suggest a certain premium and the government will be an advisor to help the farmer.
   The president also stated that they have already suggested this solution to the ministry in 2005, however it was rejected and instead there was another suggestion by the ministry to make cooperatives for each village.

Keywords: GAFTA, natural disasters, custom duties

2. Custom Duties:

   Since there is the GAFTA agreement and there is no custom duties applied for the imported goods from the Arab countries. There should be additional requirements in order to be able to enter the Lebanese markets such as packaging, labeling… in order to increase the price of the imported goods and to protect the internal production.

The above two mentioned requirements should be implemented and successful in order to start discussing about the agriculture sector in Lebanon as stated by Mr. Antoine Hwayek.

However, it is important to mention that the farmer does not have any registration; he is unknown in the government. Whereas in the economic sector each businessmen is registered and known. Therefore, he suggested making an agricultural registration for the farmers.

"There should be the creation of agricultural rooms where the farmer has the right to enter and has the right to be registered as farmer".

The other interview was conducted at Qab Elias Warehouse with one of the shop owner. He is a commissioner; he said during the interview that the farmer is not benefiting anything during the transactions. They are living in very bad conditions; they do not have any money to invest or to sell their crops directly to the supermarkets or shops. The interviewee insisted many times about the current Syria's situation and that they have been affected a lot specially in selling garlic because most of the Lebanon's garlic is sold to Syria.

Fruits and vegetable shops constitute an important share of the retail market. They get what they need from wholesale markets and less from farmers directly. Road retailers have a minimal share comparing to others since their activity is informal.
Small and medium farmers they send their fruits and vegetables to storage or packing units or they give it to Damman, which means a person comes and agrees with the farmer on the price, and he comes and does every packing of the fruits and weighs them and pays the agreed amount to the farmer. In his turn the Damman person sales the fruits to wholesalers or semi wholesaler.

The stored and packed unit will be exported or again will be sold Damman. Afterwards the goods will reach to the retail market and finally to the consumer or the restaurants, hospitals…

The producers take the products to the commissioners present at the one of the wholesale market that would sell the product with a 10-15% commission without considering weight fluctuation. It is also important to say that wholesalers do not store products. Most of the selling transaction in wholesale markets is done in the morning. The prices of the goods are lower in the afternoon where most of the Beirut wholesalers buy their products.

Keywords: Damman, warehouse, fruit and vegetable shop

3.1.3 Methods of arriving to the research question and to the objectives

The methods of arriving to the research question and to the objectives are as follows:

- Recognizing the problem, understanding the problem
- Data collection, observation
- Data analysis through SPSS, descriptive analysis
- Drawing conclusions
- Checking the data for its reliability and validity

Our family was raised in the Bekaa Valley and since we were kids, we have always visited the lands and seen how our grandfather used to harvest fruits and sell it to the commissioners. Sometimes we used to hear that this year the fruits were destroyed from the snow or this year there is no market to sell the fruits.

After growing up, we have started realizing that our grandfather's only income was generated from his land and from his fruits.

Now that we have been in the stage of consciousness, we have asked to ourselves many questions such as: if our grandfather's only income was his land, what used to happen if he could not sell one year his harvested crops? How they used to live? How they used to buy fuel in order to protect themselves from the cold?

Therefore, when we got deeper in this subject, questions were asked to relatives who already work in the farming field.

After listening to many farmers, the research question was formulated.
In order to prove that the agriculture sector in Lebanon is abandoned, three questionnaires were prepared and distributed to the farmers, supermarkets and to the Lebanese population and after analyzing the data, we have reached to my research objective, which is the lack of support to the agriculture sector in Lebanon.

Survey Sampling Procedures:

The first survey was conducted during February 2012, at Anjar in the bekaa valley of Lebanon. Anjar was chosen because bekaa is the center of agriculture and almost all the population work in the agriculture field.

The second survey was conducted in supermarkets and the third Survey was conducted randomly in order to trace the thinking of the Lebanese population regarding the agriculture sector.

1. Anjar Survey

   In order to achieve the goals of the agriculture sector research, a standardized questionnaire in English was designed (annex 1). A questionnaire is said to be standardized when each respondent is to be exposed to the same questions. Questions composing the questionnaire were elaborated in a way to meet the objectives of the study and to get a deeper insight into the sector. The questionnaire was developed after several discussions in order to first identify what kind of information we need to know from respondents in order to meet the survey's objectives. Therefore, the questions were formulated elaborated in a way to be easily understood.

   Depending on the type of information being asked and the available knowledge from literature, closed questions with multiple responses were asked.

2. Supermarket Survey:

   The supermarket survey questionnaire (annex 2) was developed in order to know how much local fruits and vegetables are sold comparing to the imported crops. Closed questions were asked with single and multiple responses..

3. Miscellaneous Survey:

   The aim of this survey (annex 3) was to know the overall Lebanese population thinking regarding the agriculture sector. The survey was distributed in Bekaa, Jbeil, Beirut, Meshref, South etc…Closed questions were asked with single and multiple responses.

3.2 Propositions and Recommendations

- Whenever the Lebanese government provides the required support to the farmers in Lebanon, it can enhance the overall economic performance and growth.
- Providing financial support to this sector by the government would be a feasible action.

3.3 Methodology Used

The prepared questionnaires are qualitative and quantitative. A qualitative research seeks to find out the following:

- Meanings that participants attach to their behavior
- How they interpret situations?
- What are their perspectives on specific issues?

During this research, there was a close interaction with the farmers in order to know and obtain an inside knowledge about their daily lives.

The interviews were based on casual conversations, in order to tap into the reality of the situation and discover the main problem that the agriculture sector faces in Lebanon.

3.3.1 Test the propositions and recommendations

The propositions and recommendations were based on the lack of government's support to the agriculture sector in Lebanon. As mentioned before in previous chapters, the farmers in Lebanon are underestimated, they have no security; the sector is not even considered as a part of the Lebanese economy. I think if some feasible actions as recommended below will be implemented it will contribute the growth of the agriculture sector.

3.3.2 Data Used

Primary Data:

The primary data used in my research study consists of: surveys, interviews, and focus groups.

The primary data is the data that has not been yet published. It is derived from a new research study and collected directly from the source. It is more reliable since it shows latest information.

Secondary Data:

The secondary data is a primary data collected by someone else. It helps to gain knowledge about issues and facts. Researchers use information as a secondary data since it is easier and less expensive to collect.

Examples of secondary data:

- Official Statistics
- Technical Reports
- Scholarly Journals
- Review Articles
- Reference Books
- Research institutions
- Universities
- Libraries, Library Search Engines
- Computerized Databases

In this research, we have referred to online publications, books, and articles as secondary data. However, I have more concentrated on the primary data in order to be more accurate and up to dated regarding the agriculture sector in Lebanon especially in the Bekaa Valley.

3.3.3 Analyzing the data

The first survey was distributed to 50 farmers and each questionnaire that was handled by a farmer was clearly explained and spent almost 10 to 15 minutes per question. For instance in this survey the majority of the farmers were unsatisfied, and had concerns such as:

- The lack of government interference and support
- The concept that they are not included in the National Social Security Fund
- The old technology that they are using
- The high cost of production
- The current Syria's political situation
- The abuse they face by the commissioners
- Difficulty of taking loans from the commercial banks

As mentioned before this survey was conducted in the Bekaa valley since it is the central of the agriculture sector. During the survey, each farmer had something to say about his daily works, especially now that it is the harvesting period.

All the farmers had fear; some of them already lost the majority of their crops during the storm that heated in March. For instance, during an interview with one of the farmers, he said that he has a land which is 7000m2, prunes are the fruits that he had harvested since ten years ago. Last year he had in his land 20tones of prunes and sold them all to Damman with a price of L.L. 17,000,000. However, this year because of the storm that heated Lebanon and because of the cold weather that they have faced, he has only 3 tones of prunes and the Damman persons are giving a price not more than L.L. 4,000,000.- the farmer added at the end of his interview that his income is only generated from agriculture. When such incidents occur, which we can explain it as a force majeure, the government should support the farmer by providing at least the expenses that he paid. This farmer and many others who have harvested prunes, except their daily expenses have to buy fuel in order to be able to survive in the winter. The only way to

live on is to borrow money. When he borrows he need to repay the money and in this way, many farmers have accumulated depts.

Damman persons are agricultural traders. Every fruit season they come to inspect lands in order to buy the crops. After inspection, they ask for the price if he agrees with the farmer he pays it and collects the fruit. The majority of Damman persons put the fruits and vegetables in refrigerators in order to sell it afterwards with higher prices. On the other hand, the minority sell it to one of the 7 warehouses present in the country,

In the second survey, which was directed to the Lebanese population, it was inquired that, the majority of the interviewers were careless about the agriculture sector and did not show any interest regarding the farmers. The majority replied that the agriculture sector is not profitable; however, it might be if the government provides more support and funds. When in the fourth question it was asked what type of fruits they prefer to buy the majority replied imported and the reason behind it is the following:

- Lack of trust to the local production
- Quality is poor
- Made in Lebanon image is not promoted efficiently
- Lack of marketing and advertising

In the last survey, which was distributed to ten supermarkets, it was found out that supermarkets sell imported and local fruits and vegetables. The customers buy both types of production but the majority goes for the imported, since the labeling and the packaging is much more attractive.

All the supermarkets replied that if support is provided to the agriculture sector in Lebanon, it can be very profitable and they have blamed the government for the abused of this sector.

3.4 Conclusion

This chapter enriched the research topic, where it made us go deeper into the subject by getting detailed information from interviewees. In chapter 2 we learned about literature review, the weaknesses of the agriculture sector. However, in this chapter we tried to find out what are the reasons behind the malfunctioning of the agriculture sector and the role of the government in providing support for the farmers in Lebanon.
Three questionnaires were prepared and distributed in order to investigate the problem that faces the agriculture sector in Lebanon, specifically in the Bekaa valley and provide possible and feasible solutions.

In order to investigate the problem a methodology was used in order to provide valid conclusions regarding the objectives of the agriculture sector.

The research question was generated through personal experiences and face-to-face interviews with some farmers.

The interviews were based on casual conversation, in order to tap into the reality of the situation and discover the main problem.

What concerns the data; both primary and secondary data were used in order to enrich the content of the thesis and in order to support with good evidences the proposed propositions and recommendations.

Chapter 4
FINDINGS

4.1 Introduction

In the last chapter, we will discuss about the findings that were generated from the surveys. In the first survey questionnaire, which is the farmers' survey, 11 questions with single and multiple responses were asked to 50 farmers living the Bekaa region.
The second survey was directed to supermarkets. 14 questions were asked with multiple and single responses. In order to conduct this survey 10 supermarkets were chosen in the Beirut district and the Bekaa district.
The third and last survey was a miscellaneous survey directed to the Lebanese population regardless of their age and gender. In this questionnaire 10 questions were asked with multiple and single responses.

4.2 Descriptive Statistics

Descriptive statistics is the summary about the sample and about the observations. It provides simple summaries in order to present the data in a more meaningful way. In this type of statistics we include numbers, tables, charts and graphs. In these surveys, descriptive statistics were used in order to describe the current agriculture situation in Lebanon, its weaknesses and what could be done in order to enhance the overall performing.

4.3 Main Results

Farmers Survey

In this survey as mentioned previously 11 questions were asked and distributed to 50 farmers.

In the first question: What type of a farmer you are, 23 farmers replied that they harvest fruits, 16 harvest fruits and vegetables, 7 responded that they only harvest vegetables and only 4 replied that they are irrigated producers. This means 46% are farmers who

produce fruits, 32% produce fruits and vegetables, 14% only vegetables and 8% are irrigated producers.

In the second question, regarding the farming experience, 22 farmers (44%) responded that they have 20-30 years of experience, 15 farmers (30%) had 10-20 years of experience, 10 farmers (20%) 5-10 years of experience and only 3 farmers (6%) are beginners with 0-5 years of experience.

The third question, what are your major concerns regarding the Lebanese agriculture sector, 20 farmers (28.6%) replied that the main concern is the lack of government interference. 24 farmers (34.3%) are worried that they are not included in the National Social Security Fund, 26 farmers (37.1%) responded that their main concern is the weather. While filling the questionnaires, all 50 farmers had all the mentioned concerns, however they have responded to the most appealing to them.

The 4th question, the agriculture sector can be profitable, 23 farmers out of 50 (46%), responded that if made in Lebanon image is promoted. 12 farmers (24%), replied that if value added technologies are used. 10 farmers (20%) replied that if the credit procedures from banks are simplified and only 5 farmers (10%) responded if know how is transferred.

In the 5th question, the statement that most farmers agreed with was as follows:
24 farmers (48%) agreed that they are underestimated. 22 farmers (44%) replied that there is high cost of production, and 4 farmers (8%) responded that there is lack of supply chain management.

The 6th question, how do they sell their crops, 27 farmers (54%) replied that they sell it to Damman. 23 farmers (46%) sell their crops to warehouses.

In the 7th question, how many days prior to harvest the chemicals are applied, 31 farmers (62%) responded prior to 7 days, 19 farmers (38%) replied prior to 10 days.

When reaching the 8th question, do you trust the shops that sell pesticides, 26 farmers

(52%) responded it depends. 24 farmers (48%) responded that they do not trust the shops that sell pesticides.

The 9th question, is there any control from the government before and after harvesting period, 50 farmers (100%) responded firmly and with confidence that there is no control from the government.

In the 10th question, do you trust the warehouses in Lebanon, 46 farmers (92%), responded that they do not trust the warehouses in Lebanon. 4 farmers (8%) responded that yes they do trust the warehouses in Lebanon.

The last question, Do you think that the current Syria's political situation affected the agriculture in the Bekaa region, 50 farmers (100%) responded that the Political Situation in Syria had a major impact on the agriculture situation in Lebanon.

Supermarket Survey:

In this survey, 13 questions were asked with single and multiple responses and was distributed to 10 supermarkets in Beirut district and in the Bekaa valley.

In the first question, what type of fruits and vegetables do you sell in your supermarket, all the responded replied that they sell both imported and local fruits and vegetables.

The second question, from where do you buy the needed fruits and vegetables, 8 supermarkets (80%), responded that they buy it from distributors. 2 supermarkets (20%) located in the Bekaa valley answered that they buy it directly from the wholesale market.

In the third question, the customer prefers to buy local fruits and vegetables or imported, 4 supermarkets (40%) responded that they prefer to buy local fruits and vegetables, 3 supermarkets (30%) replied that they prefer to buy imported fruits and vegetables and also 3 supermarkets (30%) responded that it depends.

The forth question, do you think if more support is provided to the agriculture sector it can be a good investment, 10 supermarkets (100%) without hesitating replied yes.
In the fifth question, what are the reasons of not concentrating on the local agriculture production, 4 supermarkets (40%) responded that because of the poor quality consumers prefer to buy imported fruits and vegetables. 2 supermarkets (20%) responded that the intense use of chemicals force the buyer to purchase imported fruits and vegetables. 2 supermarkets (20%), responded that the taste is a major concern of not concentrating on the local production and finally also 2 supermarkets out of 10 (20%) answered that main reason is the poor labeling and packaging of the Lebanese production.

The sixth question, in your opinion who you will blame for the malfunctioning of this sector, 10 supermarkets (100%) responded that the government is the one to be blames for the malfunctioning of the agriculture sector in Lebanon.

In the 7th question, how often do you buy fruits and vegetables, 5 supermarkets (50%) answered daily and also the remaining five supermarkets (50%) responded that they buy fruits and vegetables four times per week.

The 8th question, what is the added value of the imported fruits, 5 supermarkets (50%) responded that the quality of the imported goods is better than the local. 3 supermarkets (30%) answered that the imported production has more attractive packaging. 2 supermarkets (20%) replied that the taste of the imported production is better than the local.

The 9th question, do you think that the farmers in Lebanon are lacking the necessary knowledge regarding the sector, 7 supermarkets (70%) answered yes. 3 supermarkets (30%) out of ten responded no.

The 10th question, the fruits and vegetables that are not sold, do you store it in refrigerators, 7 supermarkets out of ten (70%) responded yes and the remaining 3 supermarkets (30%) answered no.

In the 11th question of the survey, does the supermarket comply with all the relevant country regulations, 8 supermarkets out of 10 (80%) responded that there are no specific regulations to follow. The 2 remaining (20%) supermarkets answered that yes they regularly follow the country regulations.

The 13th question, are the transport vehicle inspected prior to loading and unloading, 10 supermarkets out of 10 responded yes.

Finally in the last survey question, are the transport vehicles allowed to carry any nonfood and non-produce products, 10 supermarkets out of 10 responded that they do not carry any nonfood and non-produce products.

Miscellaneous Survey:

This survey was directed to the Lebanese population in order to know their feedback regarding the agriculture sector in Lebanon. The survey was distributed in various parts of Lebanon such as, Beirut, Meshref, Bekaa and Jbeil. 10 questions were asked with single and multiple responses.

In the first question, do you think the agriculture sector in Lebanon is profitable, 32 responded out of 59 (54.2%) that the sector is not profitable. The remaining 27 respondents (45.8%) answered that it might be if the necessary actions are provided.

The second survey question, what do you think about the farmers in Lebanon, 30 respondents (50.8%) answered that the farmers are underestimated. 15 answered (25.4%) that they have the lack of knowledge regarding the sector. The remaining 14 (23.7%) respondents replied that the farmers in Lebanon are abused.

In the 3rd question, if your answer to the previous question was negative, what is the reason behind it. 28 respondents (47.5%) answered that the reason behind it is the lack of government interference. 20 (33.9%) replied that the reason is the lack of training sessions to the farmers and finally 11 responded (18.6%) that the technology that is used is very old.

The 4th question, what type of fruits do you prefer to buy, 32 interviewees (54.2%) responded that they prefer to buy imported fruits and vegetables. 18 respondents (30.5%) answered that they prefer to buy both imported and local fruits and vegetables.

The 5th question, do you trust the agriculture sector in Lebanon, 33 respondents out of 60 (55.9%) answered that they do not trust the agriculture sector in Lebanon. 26 (44.1%) interviewees responded that they trust the agriculture sector in Lebanon.

In the 6th question, where do you buy your fruits and vegetables from, 30 respondents (50.8%) answered that they buy it from supermarkets. 25 (45.4%) answered that they buy it from semi wholesale markets and 4 (6.8%) answered that they buy it from the warehouse.

The 7th question, what forces you to buy imported fruits and vegetables, 18 respondents (30.5%) replied that the mal irrigation of the Lebanese fruits and vegetables urge us to buy imported fruits and vegetables. 15 (25.4%) replied that there is no quality control over the Lebanese production.
14 (23.7%) answered that taste of the imported production is better than the local. 12 (20.3%) responded that the excess use of chemicals in the local production forces us to buy imported fruits and vegetables.

In the 8th question, investing in this sector is it profitable, 36 out of 59 respondents (61%) answered that if the sector will have the needed requirements, yes we can consider the agriculture in Lebanon a profitable sector. 17 responded (28.8%) replied that investing in this sector is not profitable and 6 out of 59 respondents (10.2%) answered that investing in this sector is profitable.

The 9th question, do you think that the farmer needs to subscribe in the National Social Security Fund, 59 respondents (100%) answered that it is a must to include the farmers in the NSSF.

The final question, do you think setting and managing cooperatives must be implemented in Lebanon with a good control from the government, 59 (100%) responded yes.

4.4 Discussion of the findings

Farmers Survey:

In this section we will discuss the findings that were extracted from the surveys which was directed to the farmers in the Bekaa Valley.

The majority of the farmers (44%) in the Bekaa valley have a farming experience from 20-30 years. 30% have 10-20 years of experience, 20% have 5-10 years of experience in the field. However only 6% have 0-5 years of experience, this shows that the new generation in the Bekaa valley is not interested in the agriculture they prefer to work in another field rather than agriculture. Regarding the harvested crops, it is important to note that 46% of farmers harvested fruits in their lands, because they believe that the fruits in Lebanon have a better market than the vegetables. 32% harvests both, fruits and vegetables. These farmers have lands that the trees are still young to give crops, therefore, they harvest vegetables until their trees generates the required fruits. 14% only harvests vegetables, these farmers have made agreements with restaurants they harvest the needed vegetables and sell them directly to the restaurants. 8% only are irrigated producer, these farmers along with their job they irrigate the lands as per the farmer's request.

The main concern of all the farmers that have filled the questionnaire was that they are not included in the NSSF. Although all the farmers when filling the questionnaire responded that all the mentioned concerns are true and that they face it in their daily lives. 28.6% responded that the major concern is the lack of government interference, which I totally agree. All these years the farmers never have seen a single action from the gov-

ernment to improve the agriculture sector in Lebanon. In contrarily they watch the new, they see that new projects will be published and implemented, however none of it is applicable.

What concerns the weather, it is a major concern and it is a force majeure, nothing can be done in order to stop the cold weather. 37.1% of the interviewees feel that this has the highest importance than the other choices. As discussed with one of the farmers, he said "if one year I don't sell my fruits, the coming year we live in famine".

46% of farmers replied that the made in Lebanon image should be promoted in order to discuss about a profitable sector. During the interview, many farmers talked that the price of the imported fruits and vegetables are affecting the local production. For instance, if the farmers in the Bekaa valley are planning to sell 1Kg of apples LL 2,500, the imported apple will enter the Lebanese market with a price LL 1,500. As a result, the Lebanese farmer is obliged to sell his production the same price as the imported in order to be able to put them on the market. 24% of the farmers said that the technology that they are using is still very old therefore; if it will be replaced by new technologies we can start discussing about a profitable sector.

When discussing about financing issues and loans in the agriculture sector, the farmers replied that they never think to take a loan from a bank since the required letters and procedures in order to get it is beyond their abilities. Therefore, the farmer who does not have the required money in order to harvest his crops, he borrows money from commissioners and repay it back or leave it to the next year with accumulated interest. A farmer said the following : " last year I didn't have the requires amount of money in order to able to take care of my land, therefore I met with a commissioner and asked him if he can lend me money, he came and inspected the land and gave me the needed amount of money. When I collected my fruits, I took them to the wholesale and gave the fruits (apples) to the commissioner, on the spot he took 10% commission, and when he sold he gave me the half of the amount that I have borrowed and till the date I couldn't repay the amount of the borrowed money".

In the part of the question where I have asked which statement they agree with, 48% of the farmers responded that they are underestimated and when I have asked why, most of them replied that the fruits that they have is very well harvested and have a very good taste, however the price in the market is very low. The commissioners are the only persons who benefit from these transactions and make profits. One of the farmer stated that, last year they bought 1Kg of apple directly collected from the tree LL 500 and they have sold it LL 2,500 in the warehouse.
The cost of the production as stated 22% of the farmers is very high, sometimes they cannot even cut their primary expenses and along the year they cannot make profit.

Most of the farmers, 54% sell their production to Damman persons and 46% they sell it to the warehouses. The persons who sell it Damman, it is in order to escape from the headache causes by the commissioners at the warehouses.

62% of farmers apply chemicals on their fruits and vegetables 7 days prior to harvesting and 38% 10 days prior of harvesting, this depends on the type of the fruit that is harvested.

The farmers in the Bekaa have lack of trust to the shops that sell pesticides. 62% replied that they do not trust these shops, when I have asked why they replied: "Sometimes they don't have the needed pesticides they sell us the wrong one. We apply these purchased pesticides and after 1 month our crops receive diseases". Therefore, I believe in this case training must be provided to the farmers in order to know what type of pesticides to use and when to apply them.

Prior of harvesting and after there is no one from the government not even a single person from the ministry of agriculture that visit the lands and listen to the needs of the farmers.

The majority of the farmers 92% they don't trust the warehouses in Lebanon. They think that the government replaces these warehouses and the work they do is unprofessional and abusive.

Most of the fruits and vegetables are exported the Syria. However, The current Syria's situation played an important role in the agriculture of the Bekaa valley, since they couldn't export the needed amount of the Lebanese production.

Supermarket Survey

The supermarkets sell both local and imported fruits and they buy it from distributors. Only 2 supermarkets that are located in the Bekaa valley they buy it directly from the warehouses. 40% of the consumers prefer to buy local fruits, vegetables, and 30% imported. The 30% of the consumers prefer to buy imported since they do not trust the local market, the quality of the product is poor, the taste is different, and the packaging is very poor.

All the interviewee replied that if more support is provided to the agriculture sector it can be a very good investment and can contribute to the overall economy performance.

The managers at the supermarkets, all of them replied that the only person to be blamed is the government. The Lebanese government, specially the Ministry of Agriculture does not provide any support to this sector. "All we hear is that they are signing an agreement in order to improve the sector, after one month, two months nothing is applied, the issue is already forgotten".

Some supermarkets buy daily fruits and vegetables from distributors and other supermarkets they buy it four times per week. This depends on the quantity sold. 70% of the supermarkets have warehouses where they store the unsold fruits and vegetables, the other supermarkets (30%) that purchase daily they get it the quantity they need it and the next day they buy it again.

Lebanon is known for its intensive regulations; however, no one applies it, since there is no control from the government. The majority of the supermarkets 80% were unaware of

the updated regulations and the other 20% complies with all relevant country regulations.

All the transport vehicles are inspected prior to loading and unloading and they are not allowed to carry any non food and non produce products.

Miscellaneous Survey

The results of this survey showed that 54.2% of the sampled population thinks that the agriculture sector in Lebanon is not profitable. However, the remaining 45.8% of the population thinks that it can be profitable if the government provides the needed support. The interviewees agreed that the farmers in Lebanon are underestimated and they have lack of the knowledge.

The majority of the sampled population prefers to buy imported fruits because they do not trust the local production; they think the quality is poor and does not meet the international quality standards. One of the best achievements is to settle cooperatives in each district to follow up with the daily tasks of the farmers and provide them help and trainings when needed.

Not only the farmers nor the supermarkets but also the sampled Lebanese population thinks that the agriculture in Lebanon is a good long-term investment, however the government neglects the sector, no security is provided to the farmers, and the commissioners react selfishly.

In this research, most of the responses in the distributed questionnaires were qualitative; and most of the questions had multiple responses. Therefore, applying correlation between the variables were insignificant.

The gathered data showed that the government performance towards the agriculture sector in Lebanon is very weak and a single positive step towards this sector can boost the overall economic performance.

4.5 Conclusion

The link between this chapter and chapter 2 is that in the review of literature, a general background about the topic was presented with details explanation of each factors of production including water.

The weaknesses of the sector that were highlighted in chapter 2 helped to reach to the conclusion that the government does not provide the needed support to the farmers in Lebanon. From this conclusion, the research question and the hypotheses were formulated.

The statistics used was a descriptive statistics, which included numbers, tables, charts, and graphs. The data obtained from the surveys supports the research propositions and recommendations where the government has neglected the agriculture sector in Lebanon and does not provide any help in order to improve the sector.

Chapter 5

CONCLUSION and RECOMMNEDATION

2.2 Conclusion

The limitation of this research was the difficulty of communicating with some farmers, since they were trying to respond with short answers.

The data that presents the agriculture of Lebanon is not updated. They are still using old evidences and numbers.

In Lebanon the agriculture sector is known by its high production cost and limited competitiveness due to the free market economy and signed trade agreements.

The geographical location of Lebanon is a good asset to the country. However, the country does not seize opportunities, does not use its water properly.

What concerns the agricultural warehouses; they are not stable and have an unhelpful effect on farmers' income due to the weakness and lack of transparency of marketing operations.

The rural cooperative movements present in Lebanon are not well organized and does not provide the needed support for the farmers. The government failed to activate its role and coordinate between administrators concerned with the agricultural sector. Moreover, the technical and marketing information related to agriculture is unsatisfactory, despite some achievements and the support provided by the national program of agriculture export support, "export plus", lunched by IDAL.

What concerns the water sources in Lebanon, it is known that the growing demand on water in the coming years will need:

- Providing extra sources by building water storage dams, lakes, and facilities.
- Rehabilitating and modernizing surface water and groundwater facilities
- Regulating water use in order to make it more efficient, by adhering to a suitable legal framework

The increasing water demand will necessitate setting an integrated development plan for using available water resources by recovering existing facilities, finding supplementary water sources and building dams and lakes, and by rationalizing water use and management, including maintenance and operating. The implementation of irrigation projects will increase the area of irrigated lands between 36 and 50 thousand hectares in the next thirty years, which will result in an increased agricultural production and improve farmers' income.

The agricultural production has the competitiveness related to production and marketing factors, specifically: selecting processed agricultural products with value added features, ensuring con market supply of quality products in enough quantities and in the required times, and examining the expansion of usable farming units.

In view of the principal role of technical, statistical, and marketing data in the field of agricultural development, administrative facilities and professional organizations are expected to add great importance to the creation of an information system that allows all those working in the sector, farmers in particular, to get the information they need, whenever they need it. The future role of the Lebanese government is to develop strategies and action plans.

The Israeli war of July 2006 had a very negative shock on the Lebanese economy in general, including the agricultural sector, which, in addition to its main problem of lack of outlets, witnessed serious losses that fatigued those working in it and increased Lebanese farmers' frustration. To face all these disagreements, it was very important to evaluate damages, make a quick emergency plan, and provide the necessary funding for it.

The Lebanese government should focus on developing laws regulating the exploitation of agricultural lands, quality assurance and quality control, as well as laws on the work of agricultural and marketing organizations.

Rural development has become a obligation for balanced development. It is based on the establishment of integrated antipoverty programs taking into consideration the particularities of rural areas, and linking the development of social sectors and the provision of minimum living allowances and job opportunities.

The implementation of an incorporated plan related to the protection of environment and natural resources, and the coordination and integration with concerned parties, as well as the adoption of the principle of partnership with local communities, are therefore required.

5.2 Recommendations:

Since the Lebanese government is practically inexistent in the agricultural equation, therefore the farmers should think on their own. One of the solutions to the problem is to find substitutes for their products. This means to replace their unwanted products with more attractive ones. As an example to this, the avocado market was very expensive two decades ago until Lebanese, farmers thought of cultivating avocado trees in Lebanon and now the result to this achievement is that the avocado prices in the country went dramatically down keeping the demand as high as possible.

- Subsidizing
- Strengthening the role of IDAL
- The use of value added technologies
- Modernizing the labor laws
- Setting a dynamic calendar of visits to foreign international exhibitions while also organizing similar ones in Lebanon
- Promoting made in Lebanon image
- Creating a Lebanese council for export development
- Simplifying credit procedures and reducing their cost
- Supporting the international accreditation, testing, and certifications (ISO, HACEP…)
- Improving awareness of private sectors toward quality issues
- Establishment of standards of quality, health and safety environments.

- Know how transfer
- Training courses for employees

Three types of market needs to be established:

- The local market for fresh produce,
- Market for products intended for processing,
- Market for fresh agricultural produce and processed products intended for export.

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Appendices

Appendices A

Farmers' Survey

I. What type of a farmer you are?
   1. Harvesting fruits
   2. Harvesting vegetables
   3. Irrigated producer
   4. A crop advisor
   5. a & b
   6. Others

II. Farming experience:
   1. 0-5 years
   2. 5-10 years
   3. 10-20 years
   4. 20-30 years
   5. 30-40 years
   6. More (please specify)

III. What are your major concerns regarding Lebanese agriculture sector:
   1. Lack of government interference
   2. Not included in the NSSF
   3. Poor technical equipments
   4. Weather
   5. Nutrient management
   6. Cropping system

IV. Agriculture sector can be profitable if:
   1. if value added technologies are used
   2. if made in Lebanon image is promoted
   3. If know how is transferred
   4. If the credit procedures from banks are simplified
   5. If labor law is modernized
   6. a & d

V. Which statement do you most agree with:
   1. Quality of the products is poor
   2. Farmers are underestimated
   3. High Cost of production
   4. Lack of Supply Chain management
   5. Technical Barriers to Export

VI. How do you sell your crops:
1. To Warehouses
2. Damman
3. Directly to the market (Supermarkets, mini markets…)
4. Export

VII. How many days prior to harvest were the chemicals applied?
1. 7
2. 10
3. 30
4. 40

VIII. Do you trust the shops that sell pesticides?
1. Yes
2. No
3. It depends

IX. Is there any control from the government before and after harvesting period?
1. Yes
2. No

X. Do you trust the warehouses in Lebanon?
1. Yes
2. No

XI. Do you think that the current Syria's political situation affected the agriculture in the Bekaa Region?
1. Yes
2. No

	Frequency	Percent	Valid Percent	Cumulative Percent
Harvesting fruits	23	46.0	46.0	46.0
Harvesting fruits& Harvesting vegetables	16	32.0	32.0	78.0
Harvesting vegetables	7	14.0	14.0	92.0
Irrigated producer	4	8.0	8.0	100.0
Total	50	100.0	100.0	

Table 1: Type of a farmer

Harvesting fruits	46.00%
Harvesting fruits& Harvesting vegetables	32.00%
Harvesting vegetables	14.00%
Irrigated producer	8.00%

	Frequency	Percent	Valid Percent	Cumulative Percent
20-30 years	22	44.0	44.0	44.0
10-20 years	15	30.0	30.0	74.0
5-10 years	10	20.0	20.0	94.0
0-5 years	3	6.0	6.0	100.0
Total	50	100.0	100.0	

Table 2: Farming experience

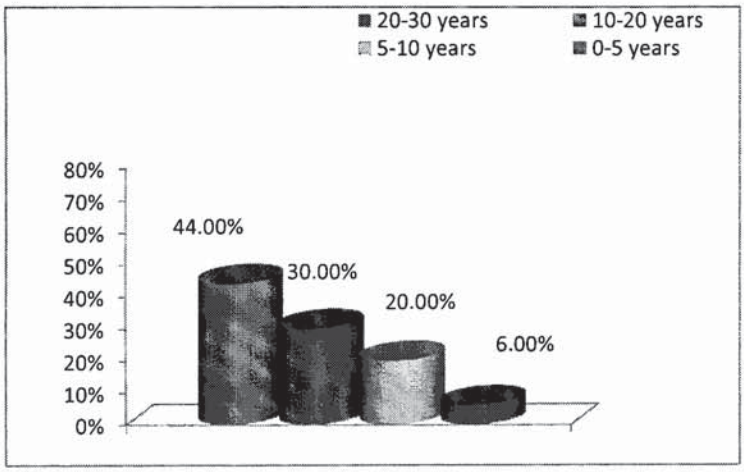

Figure 4: Farming Experience

	Responses		Percent of Cases
	N	Percent	N
Lack of government interfe-rence	20	28.6%	40.0%
Not included in the NSSF	24	34.3%	48.0%
Weather	26	37.1%	52.0%
Total	70	100.0%	140.0%

Table 3: Major concerns regarding Lebanese agriculture sector:

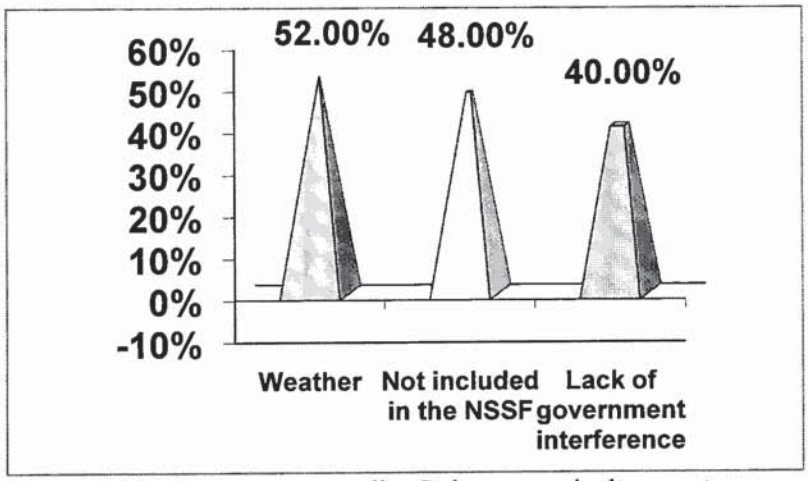

Figure 5: Major concerns regarding Lebanese agriculture sector:

	Frequency	Percent	Valid Percent	Cumulative Percent
if made in Lebanon image is promoted	23	46.0	46.0	46.0
if value added technologies are used	12	24.0	24.0	70.0
if value added technologies are used& If the credit procedures from banks are simplified	10	20.0	20.0	90.0
If know how is transferred	5	10.0	10.0	100.0
Total	50	100.0	100.0	

Table 4: Agriculture sector can be profitable if:

if made in Lebanon image is promoted	46.00%
if value added technologies are used	24.00%
if value added technologies are used& If the credit procedures from banks are simplified	20.00%
If know how is transferred	10.00%

	Frequency	Percent	Valid Percent	Cumulative Percent
Farmers are underestimated	24	48.0	48.0	48.0
High Cost of production	22	44.0	44.0	92.0
Lack of Supply Chain management	4	8.0	8.0	100.0
Total	50	100.0	100.0	

Table 5: Statement most agreed with:

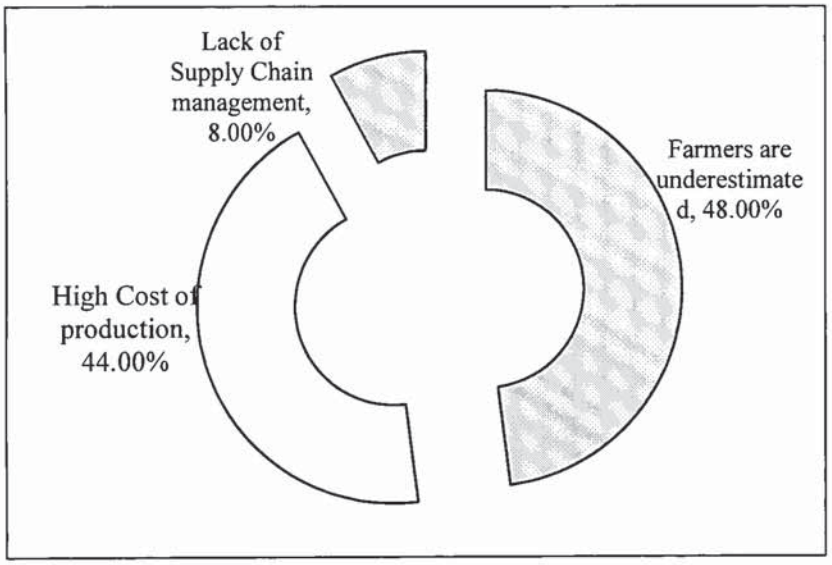

Figure 6: Statement most agreed with

	Frequency	Percent	Valid Percent	Cumulative Percent
Damman	27	54.0	54.0	54.0
To Warehouses	23	46.0	46.0	100.0
Total	50	100.0	100.0	

Table 6: Selling the crops

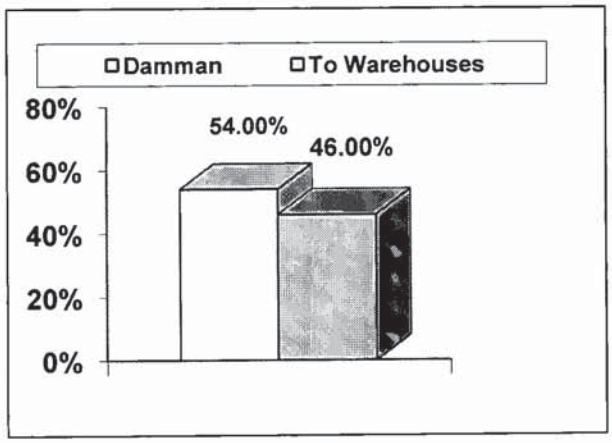

Figure 7: Selling the crops

	Frequency	Percent	Valid Percent	Cumulative Percent
7	31	62.0	62.0	62.0
10	19	38.0	38.0	100.0
Total	50	100.0	100.0	

Table 7: Days of chemicals applied

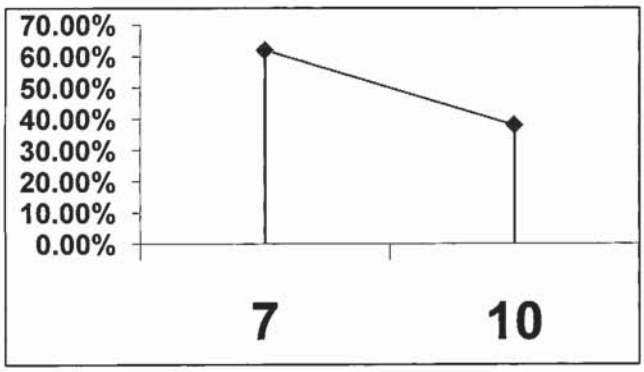

Figure 8: Days of chemicals applied

	Frequency	Percent	Valid Percent	Cumulative Percent
It depends	26	52.0	52.0	52.0
No	24	48.0	48.0	100.0
Total	50	100.0	100.0	

Table 8: Trust to the shops that sell pesticides

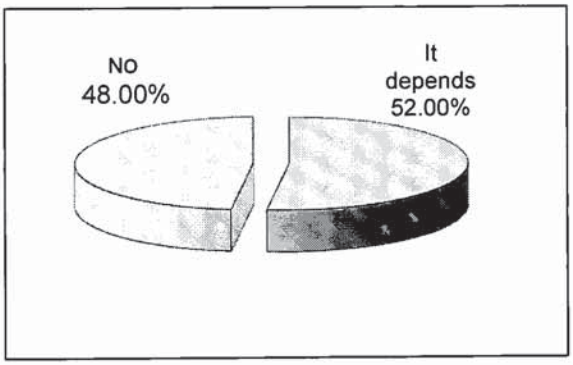

Figure 9: Trust to the shops that sell pesticides

	Frequency	Percent	Valid Percent	Cumulative Percent
No	50	100.0	100.0	100.0

Table 9: Control from the government before and after harvesting period

	Frequency	Percent	Valid Percent	Cumulative Percent
No	46	92.0	92.0	92.0
Yes	4	8.0	8.0	100.0
Total	50	100.0	100.0	

Table 10: Trust in the warehouses

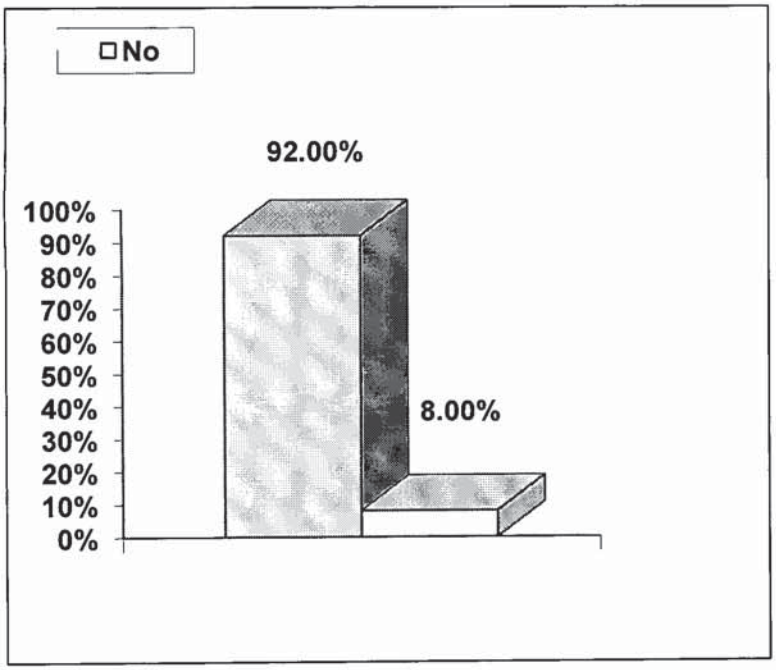

Figure 10: Trust in the warehouses

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	50	100.0	100.0	100.0

Table 11: Do you think that the current Syria's political situation affected the agriculture in the Bekaa Region?

Appendices B

Supermarket Survey Questionnaire

I. What type of fruits and vegetables do you sell in your supermarket?
   1. Local
   2. Imported

II. From where do you buy the needed fruits and vegetables?
   1. Farmers
   2. Wholesale markets
   3. Semi-Wholesalers
   4. Distributors

III. The customer prefers to buy local fruits and vegetables or imported?
   1. Local
   2. Imported
   3. It depends

IV. Do you think that if more support is provided to the agriculture sector it can be a good investment?
   1. Yes
   2. No

V. What are the reasons of not concentrating on the local agriculture production?
   1. Poor Quality
   2. Intense use of chemicals
   3. Taste
   4. Difficulty of reaching to the warehouses'
   5. Poor labeling and packaging
   6. Others

VI. In your opinion who you will blame for the malfunctioning of this sector?
   1. Government
   2. Farmers
   3. Wholesalers

VII. How often do you buy fruits and vegetables?
   1. Daily
   2. Twice per week
   3. Once per week
   4. Four times per week

VIII. What is the added value of the imported fruits and vegetables?

1. Quality
2. Good and attracting Packaging
3. Taste
4. Demand of the Lebanese population is higher on the imported fruits and vegetables
5. Others

IX. Do you think that the farmers in Lebanon are lacking the necessary knowledge regarding the sector?

1. Yes
2. No
3. Others

X. The fruits and vegetables that are not sold, do you store it in refrigerators?

1. Yes
2. No

XI. Does the supermarket comply with all relevant country regulations?

1. Yes, regularly
2. No, since it is not a must
3. There are no specific regulations
4. Not updated about any regulations more than a year

XII. Are the transport vehicles inspected prior to loading and unloading?

1. Yes
2. No
3. Others

XIII. Are transport vehicles allowed to carry any nonfood and non-produce products?

1. Yes
2. No

	Frequency	Percent	Valid Percent	Cumulative Percent
Local and Imported	10	100.0	100.0	100.0

Table 12: Type of fruits and vegetables

	Frequency	Percent	Valid Percent	Cumulative Percent
Distributors	8	80.0	80.0	80.0
Wholesale markets	2	20.0	20.0	100.0
Total	10	100.0	100.0	

Table 13: From where do you buy the needed fruits and vegetables?

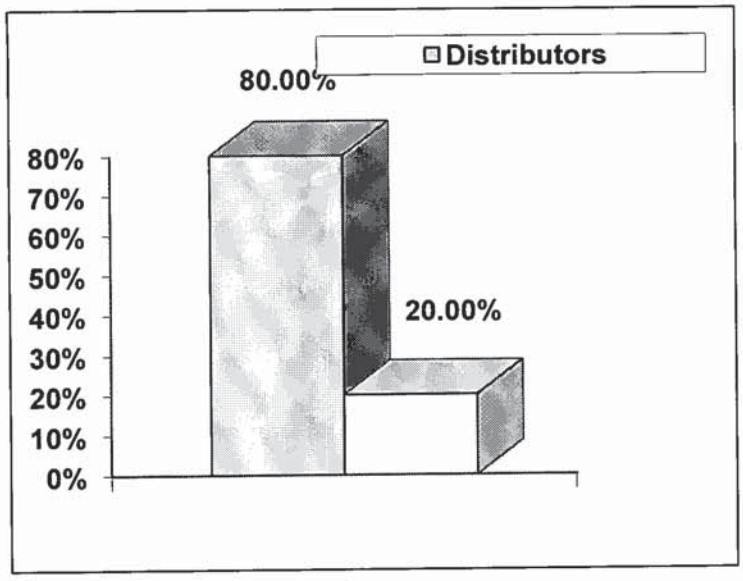

Figure 11: From where do you buy the needed fruits and vegetables?

	Frequency	Percent	Valid Percent	Cumulative Percent
Local	4	40.0	40.0	40.0
Imported	3	30.0	30.0	70.0
It depends	3	30.0	30.0	100.0
Total	10	100.0	100.0	

Table 14: The customer prefers to buy local fruits and vegetables or imported?

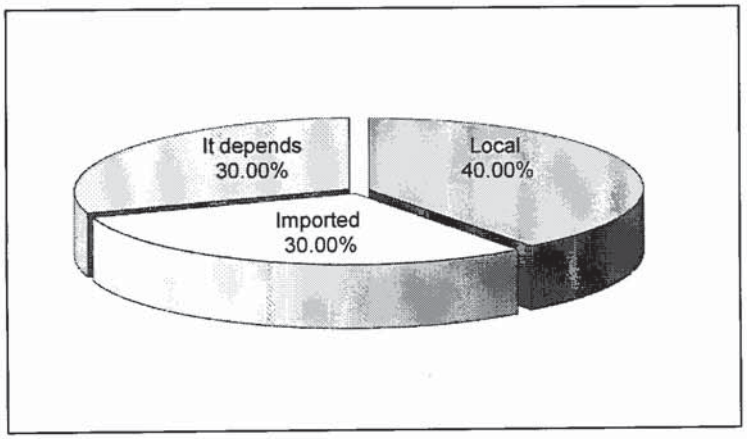

Figure 12: The customer prefers to buy local fruits and vegetables or imported?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	10	100.0	100.0	100.0

Table 15: Do you think that if more support is provided to the agriculture sector it can be a good investment?

	Frequency	Percent	Valid Percent	Cumulative Percent
Poor Quality	4	40.0	40.0	40.0
Intense use of chemicals	2	20.0	20.0	60.0
Taste	2	20.0	20.0	80.0
Poor labeling and packaging	2	20.0	20.0	100.0
Total	10	100.0	100.0	

Table 16: What are the reasons of not concentrating on the local agriculture production?

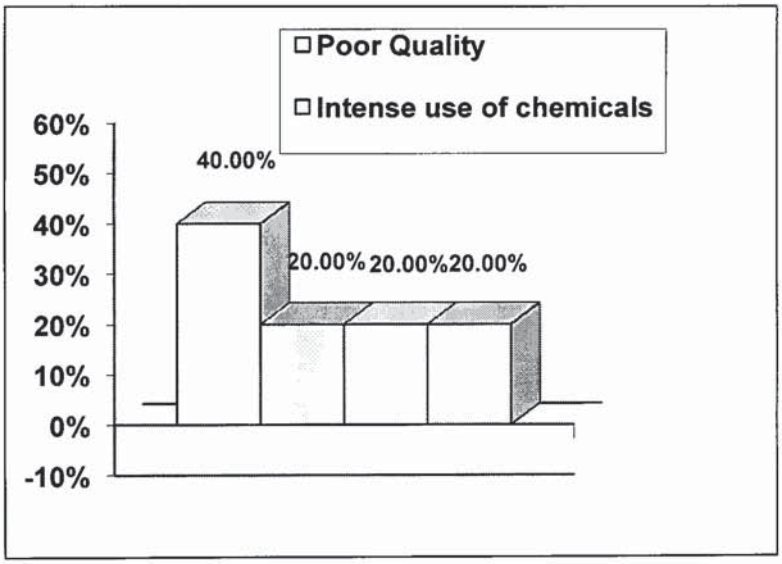

Figure 13: What are the reasons of not concentrating on the local agriculture production?

	Frequency	Percent	Valid Percent	Cumulative Percent
Government	10	100.0	100.0	100.0

Table 17: In your opinion who you will blame for the malfunctioning of this sector?

	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	5	50.0	50.0	50.0
Four times per week	5	50.0	50.0	100.0
Total	10	100.0	100.0	

Table 18: How often do you buy fruits and vegetables?

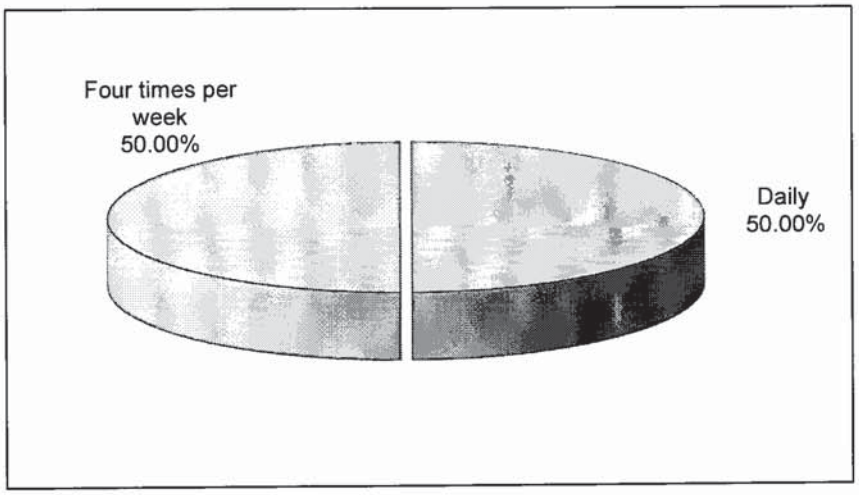

Figure 14: How often do you buy fruits and vegetables?

	Frequency	Percent	Valid Percent	Cumulative Percent
Quality	5	50.0	50.0	50.0
Good and attracting Packaging	3	30.0	30.0	80.0
Taste	2	20.0	20.0	100.0
Total	10	100.0	100.0	

Table 19: What is the added value of the imported fruits and vegetables?

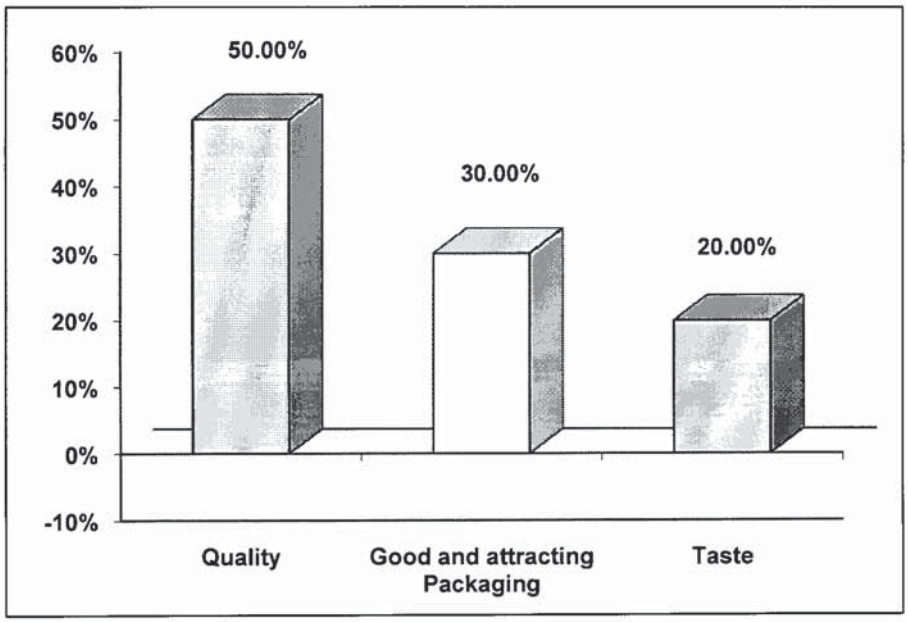

Figure 15: What is the added value of the imported fruits and vegetables?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	7	70.0	70.0	70.0
No	3	30.0	30.0	100.0
Total	10	100.0	100.0	

Table 20: Do you think that the farmers in Lebanon are lacking the necessary knowledge regarding the sector?

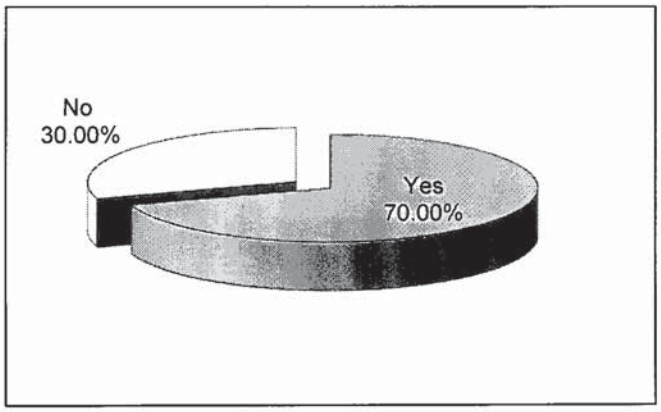

Figure 16: Do you think that the farmers in Lebanon are lacking the necessary knowledge regarding the sector?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	7	70.0	70.0	70.0
No	3	30.0	30.0	100.0
Total	10	100.0	100.0	

Table 21: The fruits and vegetables that are not sold, do you store it in refrigerators?

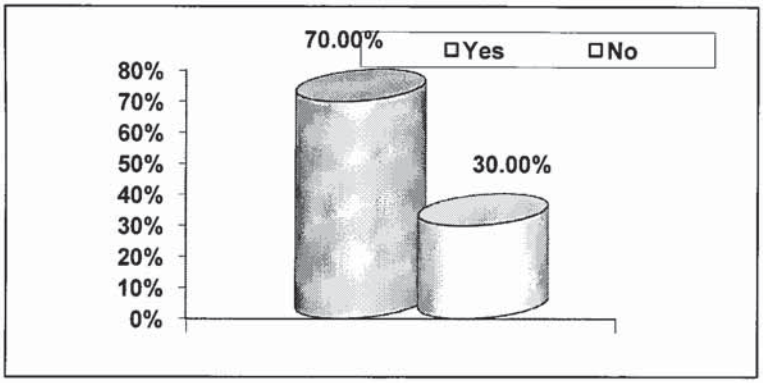

Figure 17: The fruits and vegetables that are not sold, do you store it in refrigerators?

	Frequency	Percent	Valid Percent	Cumulative Percent
There are no specific regulations	8	80.0	80.0	80.0
Yes, regularly	2	20.0	20.0	100.0
Total	10	100.0	100.0	

Table 22: Does the supermarket comply with all relevant country regulations?

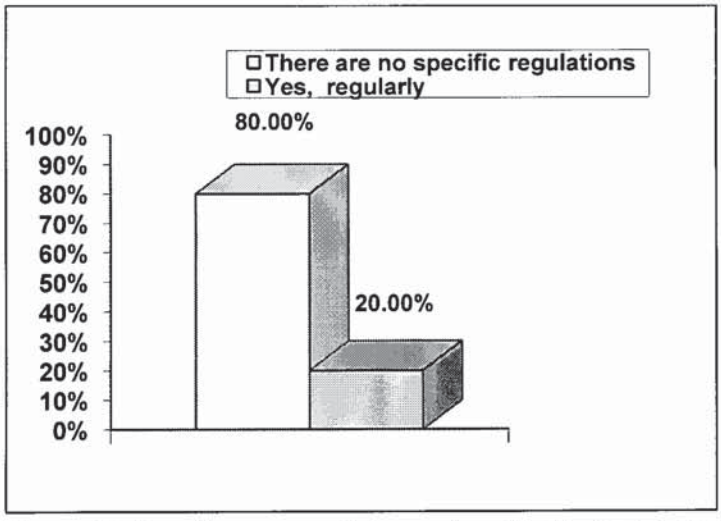

Figure 18: Does the supermarket comply with all relevant country regulations?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	10	100.0	100.0	100.0

Table 23: Are the transport vehicles inspected prior to loading and unloading?

	Frequency	Percent	Valid Percent	Cumulative Percent
No	10	100.0	100.0	100.0

Table 24: Are transport vehicles allowed to carry any nonfood and non-produce products?

Appendices C

Survey directed to the Lebanese population

I. Do you think the agriculture sector in Lebanon is profitable?
   1. Yes
   2. No
   3. It might be

II. What do you think about the farmers in Lebanon?
   1. Underestimated
   2. Abused
   3. In good circumstances
   4. Lack of knowledge

III. If your answer to the previous question was negative, what is the reason behind it?
   1. Lack of Government Interference
   2. Lack of Trainings
   3. Old Technologies
   4. Land Distribution
   5. Others

IV. What type of fruits do you prefer to buy?
   1. Imported
   2. Local
   3. Both

V. Do you trust the agriculture sector in Lebanon?
   1. Yes
   2. No
   3. Other

VI. Where do you buy your fruits and vegetables?
   1. Supermarket
   2. Warehouse
   3. Semi wholesale

VII. What forces you to buy imported fruits and vegetables?

1. The excess use of chemicals in the local production
2. Taste
3. Lack of trust to the local production
4. Mal irrigation
5. No quality control

VIII. Investing in this sector is it profitable?

1. Yes
2. No
3. If it will have all the needed requirements

IX. Do you think that the farmer needs to subscribe in the National Social Security Fund?

1. Yes
2. No

X. Do you think setting and managing cooperatives must be implemented in Lebanon with a good control from the government?

1. Yes
2. No

	Frequency	Percent	Valid Percent	Cumulative Percent
No	32	54.2	54.2	54.2
It might be	27	45.8	45.8	100.0
Total	59	100.0	100.0	

Table 25: Do you think the agriculture sector in Lebanon is profitable

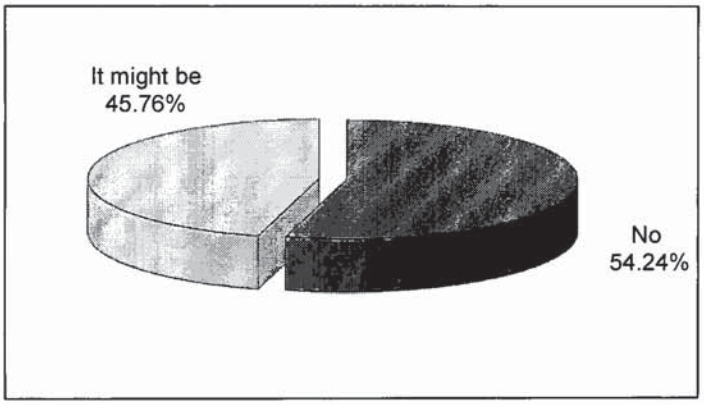

Figure 19: Do you think the agriculture sector in Lebanon is profitable?

	Frequency	Percent	Valid Percent	Cumulative Percent
Underestimated	30	50.8	50.8	50.8
Lack of knowledge	15	25.4	25.4	76.3
Abused	14	23.7	23.7	100.0
Total	59	100.0	100.0	

Table 26: What do you think about the farmers in Lebanon?

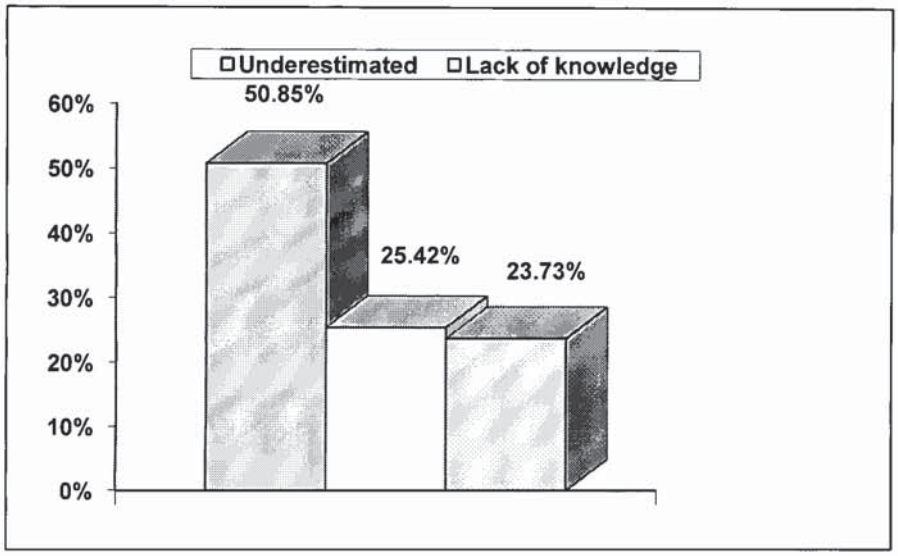

Figure 20: What do you think about the farmers in Lebanon?

	Frequency	Percent	Valid Percent	Cumulative Percent
Lack of Government Interference	28	47.5	47.5	47.5
Lack of trainings to the farmers	20	33.9	33.9	81.4
Old Technologies	11	18.6	18.6	100.0
Total	59	100.0	100.0	

Table 27: If your answer to the previous question was negative, what is the reason behind it?

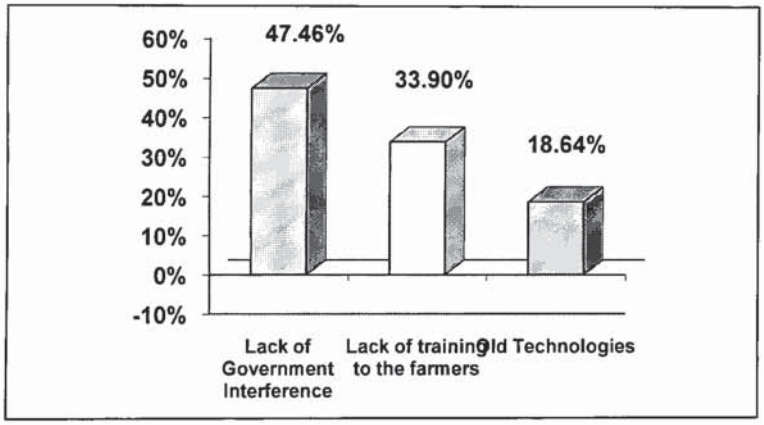

Figure 21: If your answer to the previous question was negative, what is the reason behind it?

	Frequency	Percent	Valid Percent	Cumulative Percent
Imported	32	54.2	54.2	54.2
Both	18	30.5	30.5	84.7
Local	9	15.3	15.3	100.0
Total	59	100.0	100.0	

Table 28: What type of fruits do you prefer to buy?

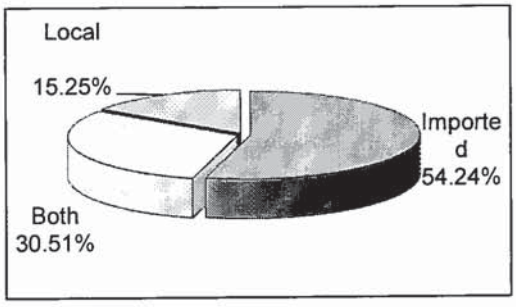

Figure 22: What type of fruits do you prefer to buy?

	Frequency	Percent	Valid Percent	Cumulative Percent
No	33	55.9	55.9	55.9
Yes	26	44.1	44.1	100.0
Total	59	100.0	100.0	

Table 29: Do you trust the agriculture sector in Lebanon?

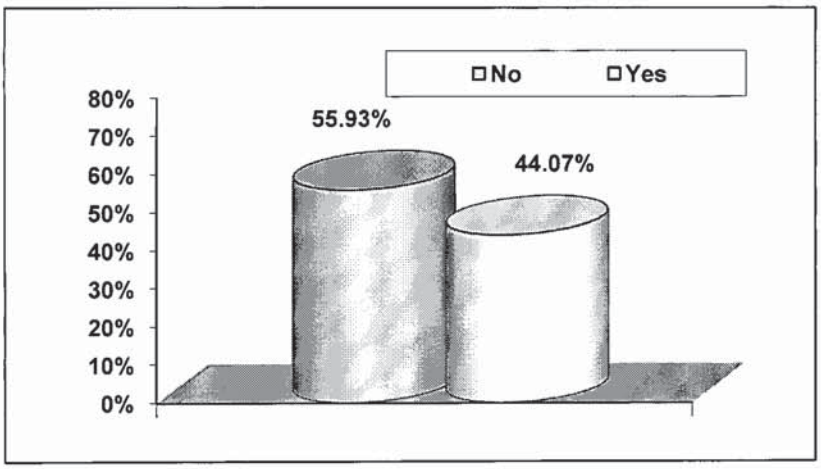

Figure 23: Do you trust the agriculture sector in Lebanon?

	Frequency	Percent	Valid Percent	Cumulative Percent
Supermarket	30	50.8	50.8	50.8
Semi wholesale	25	42.4	42.4	93.2
Warehouse	4	6.8	6.8	100.0
Total	59	100.0	100.0	

Table 30: Where do you buy your fruits and vegetables?

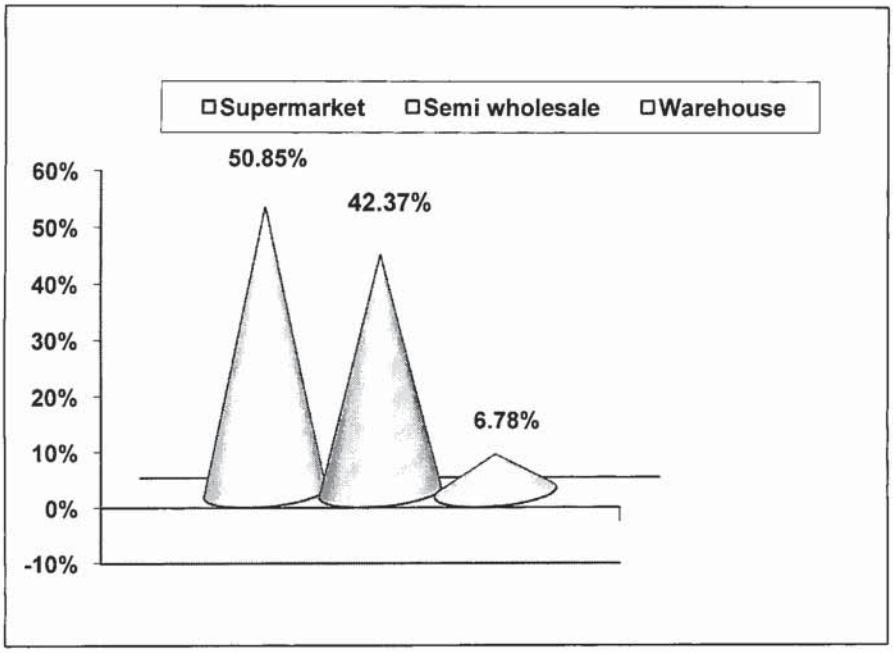

Figure 24: Where do you buy your fruits and vegetables?

	Frequency	Percent	Valid Percent	Cumulative Percent
Mal irrigation	18	30.5	30.5	30.5
No quality control	15	25.4	25.4	55.9
Taste	14	23.7	23.7	79.7
The excess use of chemicals in the local production	12	20.3	20.3	100.0
Total	59	100.0	100.0	

Table 31: What forces you to buy imported fruits and vegetables?

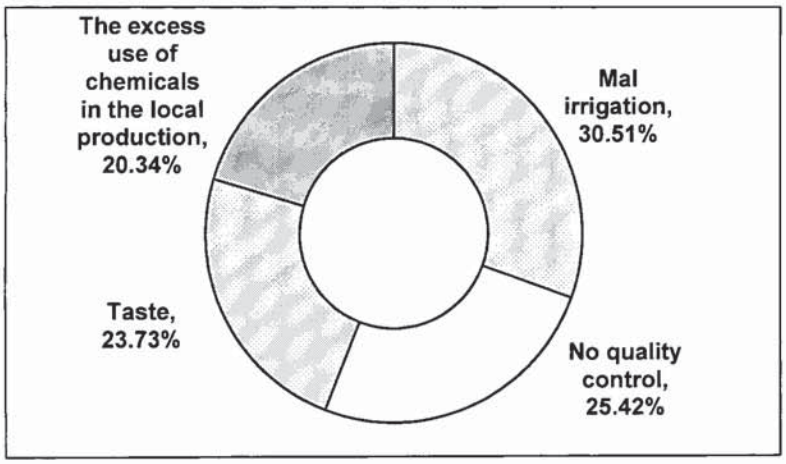

Figure 25: What forces you to buy imported fruits and vegetables?

	Frequency	Percent	Valid Percent	Cumulative Percent
If it will have all the needed requirements	36	61.0	61.0	61.0
No	17	28.8	28.8	89.8
Yes	6	10.2	10.2	100.0
Total	59	100.0	100.0	

Table 32: Investing in this sector is it profitable?

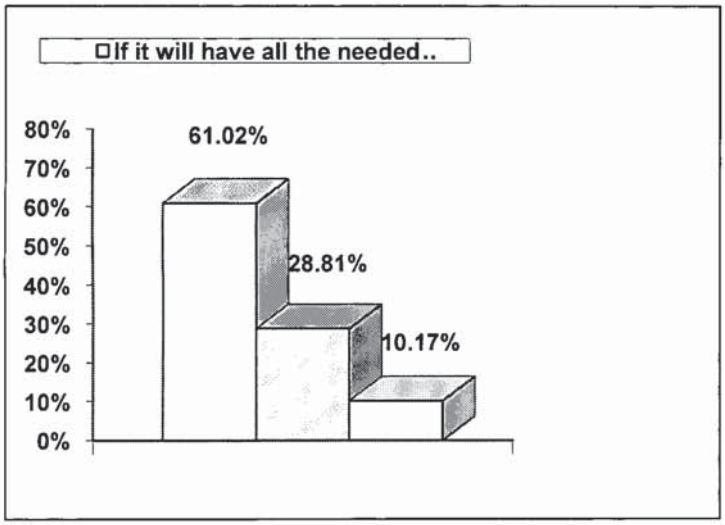

Figure 26: Investing in this sector is it profitable?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	59	100.0	100.0	100.0

Table 33: Do you think that the farmer needs to subscribe in the National Social Security Fund?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	59	100.0	100.0	100.0

Table 34: Do you think setting and managing cooperatives must be implemented in Lebanon with a good control from the government?