

Increasing competitiveness of vegetables value chains in Akkar:

The Case of Tomatoes, Peppers, Lettuce, Pumpkins and Jute Mallow

A Value Chain Analysis



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Executive Summary

Fair Trade Lebanon aims to increase the competitiveness of the value chain of five vegetables, including varieties of tomatoes, peppers, lettuce, pumpkins and jute mallow in order to enhance the socio-economic situation of the selected vegetables farmers in Lebanon as well as the selected vegetables value chain as a whole. The project's action aims at the following outcomes:

- Farmers and women cooperatives are linked and organized into stronger groups for a more efficient and cost-effective use of inputs and resources
- Small groups of producers have gained marketable skills
- Job opportunities are created as a result of increased production and sales through a larger access to markets

Within the scope of the project, the current study is meant to provide a mapping of the agriculture sector in Akkar, focusing on selected vegetable markets in and connected to Akkar region, to analyze the demand, supply and operational as well as legal issues related to the markets and to develop organizational holistic understanding of the current situation of selected vegetable value chains operated by the small farmers in Akkar.

Based on secondary data analysis, six categories of stakeholders are identified and the interactions between them are presented in a flowchart. They include input providers, producers, processors, traders, distributors and consumers.

Three tools were chosen in order to answer the questions raised by the study's specific objectives:

- **Survey covering representatives from all** stakeholders of the value chain 35 farmers, 5 processors, 4 nurseries, 5 phytosanitary stores, 30 grocery stores, 5 traders and 80 consumers (40 in urban areas and 40 in rural areas).
- **Key Informative Interviews (KII) covering supporting entities:** Ministry of Agriculture (MoA), Lebanese Agricultural Research Institute (LARI), Chamber of Commerce, Industry and Agriculture of Tripoli (CCIAT), Business Incubation Association in Tripoli (BIAT), Investment Development Authority in Lebanon (IDAL), North LEDA, Safadi foundation, Debbaneh bros., Ebbet Shomra Market and Spinney's.
- **Focus Group Discussions (FGD)** including project beneficiaries, consumers and agriculture students.

In the first part, the study provides the major characteristics of each stakeholder, its roles and interactions with other stakeholders. Six categories are identified and they include input suppliers, producers, processors, traders, distributors and consumers. The interaction between the different stakeholders is presented to offer a better understanding of the dynamics of the supply chain. The main highlighted subjects include major agricultural operations, pricing strategies and variations, offer and demand dynamics, purchasing decisions, environmental and health risks awareness, etc.

In the second part, the value chain analysis provides a SWOT analysis which shows the following:

- The strengths of the value chain included farmers' openness to new production techniques with a lot of room for evolution. Also, the processors possess an important know-how of the traditional processing system added to the presence of several grading and post-harvest operations units.

- The weaknesses include high production costs, price setting dynamics which are disproportional between the farmers and the traders, the very weak cooperative system.
- On the other hand, the opportunities remain in the fact that leafy greens demand in foreign countries remains high; trade agreements signed by Lebanon would facilitate the export activities and the existence of agricultural experts who would help in developing the value chain.
- The major threats are the unbalanced competition from neighboring countries, the continuous deterioration of environmental conditions (water and soil quality deterioration, global warming, etc.) as well as the increasing inflation and the deteriorating financial capacities of the farmers.

In the last part, the study proposes a new business model based on a service providing entity which decreases the length of the value chain and provides stakeholders with the guarantees they need. The status of the entity would be an operational cooperative which proved its seriousness, with a board of directors including representatives from different stakeholders in order to guarantee that strategic decisions respect their interests; moreover, the board may include experts from research institutes and universities to validate the efficiency of proposed decisions. It is important to note that the proposed business model's physical components such as nurseries, post-harvest, processing and packaging units already exist and all that is needed is the clustering and the coordination as well as the inclusion of supporting entities.

The final part also includes specific and general recommendations for the value chain including the process of setting new labeling schemes for global GAP, organic, fair trade and high end traditional products. Once these labels are functional, it would be possible to attract new investments for the development of the food processing sector into a larger and more mechanized status.

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Abbreviations

BIAT: Business Incubation Association in Tripoli

CCIAT: Chamber of Commerce, Industry and Agriculture of Tripoli

IDAL: Investment Development Authority of Lebanon

LARI: Lebanese Agricultural Research Institute

MoA: Ministry of Agriculture

NGO: Non-Governmental Organization

North LEDA: North Local Economic Development Agency

SME: Small and Medium Enterprise

Part 1

Introduction and background

1.1. Introduction

The agriculture value chain suffers from weaknesses on different levels, some of them are specific and others are common; hence the importance of adopting a holistic approach covering the value chain as a whole to understand the situation of its stakeholders and their interactions, which would lead to understand their dynamics.

1.2. Study objectives

The objective of this section is to provide a mapping of the value chain stakeholders and their integration. The methodology will be represented, followed by an agricultural background analysis for Lebanon and the Akkar region and finally the reasons behind choosing the five products (Tomato, pepper, lettuce, pumpkin and jute mallow).

1.3. Methodology and Technical approach

1.3.1. Value chain mapping plan

Based on secondary data analysis, six categories of stakeholders are identified and the interactions between them are presented in a flowchart.

- **Input suppliers**

This category includes the entities providing all sorts of inputs to allow the farmer carry the production process. It starts with the know-how about market needs, production processes and follow up provided by public and private institutions and NGOs. It also includes financial support programs and access to credits.

- **Producers**

This category includes different farmers, especially SMEs, but also different cooperatives in all their forms.

- **Processors**

Processors are defined as entities transforming raw food material to products bought by consumers or food and beverages or hospitality companies; this can involve one or more combination of the following: washing, chopping, dehydrating, pasteurizing, freezing, fermenting, packaging etc.

- **Traders**

It includes traders dealing with fresh produce and processed produce alike both for the local, national and international markets.

- **Distributors**

It includes entities providing fresh or processed products to consumers, be it on a small or a larger scale

- **Consumers**

This includes all entities providing food ready for consumption as fresh or cooked products. In this study, it includes only households.

1.3.2. Data gathering tools

Three tools were chosen in order to answer the questions raised by the study's specific objectives:

- **Survey**

The survey includes all stakeholders of the value chain in order to better understand the interaction between them and the forces generating market trends. The objective of the survey is to understand the forces behind the dynamics of the value chain. At least 30 representatives of larger groups of stakeholders such as producers, grocery stores and consumers are chosen in case any tests of hypothesis need to be performed; moreover, individuals are chosen to represent all geographical, demographical and socio-economic categories as shown by the introductory tables for every category. For categories such as phytosanitary stores, nurseries, processors and traders which include smaller numbers of individuals, four to five representatives are chosen.

It is important to note that the gathered data does not allow extrapolating the conclusions to cover all the value chain, but to simply understand the decision-making process and the interaction between different categories in order to proceed to a SWOT analysis and come up with relevant recommendations.

Based on the above, the survey covered 35 farmers distributed geographically to represent all regions, 5 processors mostly representing processing cooperatives, 4 nurseries which are currently active, 5 phytosanitary stores, 30 grocery stores, 5 traders and 80 consumers (40 in urban areas and 40 in rural areas).

- **Key Informative Interviews (KII)**

This tool was used to explain the functioning of the value chain through the supporting institutions:

Ministry of Agriculture (MoA) helps understanding the public role in the value chain along with the different regulations.

Lebanese Agricultural Research Institute (LARI) – Abdeh highlights the scientific and applied research activities and their role in supporting farmers' know-how.

Chamber of Commerce, Industry and Agriculture of Tripoli (CCIAT): to explain the role of the private sector and the potential for clustering activities as well as the role of the IDRAK center for incubation.

Business Incubation Association in Tripoli (BIAT) highlights the support agricultural startups could get to accelerate their growth.

Investment Development Authority in Lebanon (IDAL) explains the support which could be provided for SMEs willing to develop their agricultural and food business into the export market.

North LEDA and Safadi foundation have been working intensively during the last few years as NGOs and participated in many development, vocational training and agricultural projects in the North and specifically in Akkar. They help understand the important role played by NGOs, especially after the Syrian crisis.

KAFALAT financial credit program to support SMEs explains the financial support which could be offered to value chain stakeholders and how to access it.

Debbaneh bros. validate and explain the input trends and functioning on the farmers' level, since they are a major player in agricultural input in Akkar.

Ebbet Shomra Market, it was financed by EMKAN (local NGO) to allow farmers market their products closer to their lands and decrease the transportation cost and time.

Spinney's feedback sheds the light on the practices of hypermarkets and the requested conditions and standards to access their market.

- **Focus Group Discussions (FGD)**

This tool is used to validate the findings of the previous two and to help propose relevant recommendations; therefore, three categories are chosen to be covered by this tool:

Project beneficiaries including farmers, nurseries and cooperatives that are the backbone of the project, therefore, the discussion helps validate the questionnaire's findings and evaluate the possibility of adopting new environment friendly and organic food production, it included 8 representatives of the beneficiaries.

Consumers are the motor behind the market's demand; therefore, it is important to dig deeper into their expectations and their sense of responsibility towards the environment they live in. Understanding their purchase decisions based on the survey help preview their needs. One discussion with a group of 10 consumers was conducted.

Agriculture students are considered the future partners for any potential development in the regional agricultural sector. It is important to understand their point of view and analyze their willingness to accept new environment friendly and socially accepted agricultural practices. One group discussion with 8 students was conducted.

1.3.3. Basis for building the questionnaires, KIIs and FGDs frameworks

The study specific objectives are presented as follows:

Market and Stakeholders Mapping

MSMO (Market and Stakeholders Mapping Objective)

MSMO1: Map local potential markets of each selected vegetables, especially fair trade and organic markets

MSMO2: Map local cooperatives, NGOs, associations, and supporting organizations in the region

MSMO3: Review and assess the existing literature on the mentioned topics in collaboration with Fair Trade Lebanon

MSMO4: Analyze current market trends in terms of market demand and supply, price-scheduling mechanisms, market determinant factors, supply chains and government market regulatory and control mechanisms

MSMO5: Analyze possible potential risks the project beneficiaries may face in market and suggest possible mitigation measures

MSMO6: Come up with innovative and possibly market accepted packing and packaging and marketing models that the producer organizations can adopt

Value Chain Analysis of Selected Vegetables

VCAO (Value Chain Analysis Objective)

VCAO1 Assess the resources, skills and capacities of small farmers related to procurement of and access to inputs and production of vegetables

VCAO2 Assess the potential marketable by-products for each value chain

VCAO3 Identify and estimate the costs of production of each selected vegetable

VCAO4 Understand the existing market situation and nature of bargain taking place between different market players in the study area (relationships, attitudes and behaviors).

VCAO5 Understand the capacity of producers and their organizations (POs) to access services, credit, information and resources.

VCAO6 Map the vegetables value chains in Akkar (from producers to consumers)

VCA07 Suggest improvements in the value chain system for ensure direct linkages of the farmers with the major markets and increased incomes from their produces.

A contingency table including the objectives of the study and the used tools allows covering all the requested objectives through the tools.

			Objectives												
			Market and Stakeholders Mapping						Value Chain Analysis						
			MSMO1	MSMO2	MSMO3	MSMO4	MSMO5	MSMO6	VCAO1	VCAO2	VCAO3	VCAO4	VCAO5	VCAO6	VCAO7
Tools	KII	KII – MoA	x			x	x								x
		KII – LARI		x		x			x	x					x
		KII – CCIAT	x			x	x			x	x	x		x	
		KII – BIAT					x						x		
		KII – IDAL		x		x	x			x	x			x	
		KII – North Leda/Safadi	x	x		x	x	x	x	x	x		x	x	x
		KII - Kafalat						x	x		x				
		KII - Debbaneh	x	x		x	x				x		x		x
		KII - Ebbet Shomra Market	x			x	x						x		x
		KII - Spinneys	x			x		x		x		x			
		Secondary Data Analysis			x										
		FGD	FGD - Farmers	x	x		x			x		x	x	x	x
	FGD - Consumers		x	x		x				x					x
	FGD - Agr. Studens				x		x	x	x	x	x		x		x
		Survey	S - Consumers				x							x	x
	S - Farmers		x	x			x			x	x	x	x	x	x
	S - Agr. Pharmacies			x			x			x	x			x	
	S - Minimarkets		x			x		x			x	x		x	x
	S - Processors		x			x	x				x	x		x	x

Table 1: Contingency table between the study tools and objectives

1.4. Agricultural background

1.4.1. Lebanese agriculture

The agriculture sector in Lebanon contributes to an estimated 6% of total GDP. Agriculture lands are located mainly in the narrow coastal plains of Akkar and South Lebanon, the in-land Bekaa valley, and in the terraces along the mountains sides.

The total agriculture land area is estimated at 332,000 hectares, of which 231,000 hectares are cultivated and almost half are irrigated (MoA, 2010), with an average land holding size of 1.36 Ha.

Fruit and vegetables constitute the widest agribusiness sub-sector of Lebanon, in terms of production area and volume, socioeconomic inclusiveness, rural development and livelihood enhancement (European Commission 2016).

Benefiting from a Mediterranean climate, a wide assortment of fruit and vegetables are produced in the country. With a total production of 405 thousand tons, potato ranked first in the top ten commodities produced in Lebanon in 2013. Tomato production ranked second with a volume of 320 thousand tons in 2013 followed by cucumbers, apples, wheat, bananas, oranges, olives, onions, and grapes (CBI, 2016).

Agriculture in Lebanon counts on individual initiatives, under a liberal and open economic system. In some areas, it is considered as an additional source of income for a large portion of the Lebanese rural population and covers also 17% of the value of exports.

While most people in rural areas still rely on traditional foods for their basic diet, those in urban and cosmopolitan centers tend to purchase processed and packaged foods for convenience. The increasing number of women who now work away from home adds additional pressure to such changes and thus opens new opportunities for food industry business.

Whether freshly prepared, frozen, canned, dried or even juiced, there is a high potential for improvement and scaling up and for increasing production volumes and diversifying the products offered, as there remains unsatisfied demand in the market.

Lack of an efficient marketing chain on the domestic market, which is dominated by middlemen and characterized by farmers' sales on consignment basis, has a very negative impact on the economic surplus of both the farmer and the consumer, whereby the first has to sell his product at low prices to the middle man, who resells the product to the latter at high market prices. Modern wholesale markets and facilities, farmer's market and even farm gate sale are all lacking and would help farmers maximize their profit, expand their businesses, and at the same time offer the consumer an attractive price.

With increased difficulty and cost to export produce to the Gulf, due to the Syrian crisis, vegetable producers face a shrinking market share.

1.4.2. Inputs supply

Agricultural supplies include mainly seeds, agrochemicals (pesticides and fertilizers) and irrigation equipment. Access to all inputs is easy and constantly updated regulations keep the pesticides black list updated, for it controls the import of pesticides; however, it does not control the occasional smuggling introduction through the illegal passages along the borders.

Farmers tend to use Chinese pesticides because they are cheap and provide good results. Their unregulated and uncontrolled use is causing serious accumulations in agricultural products, soils and water as showed by LARI periodic reports.

The uncontrolled use of fertilizers to increase land productivity is also negatively affecting soil and underground water quality through the accumulation of nitrate.

The Syrian crisis has affected the cost of some inputs but, in general, everything is available in the local market, seeds are mainly imported from Europe. As reported by LARI, in Lebanon there are no variety and seed trade regulations restricting imports. However, the seed companies are responsible for adaptation trials, promotion and marketing of imported varieties and seeds. Seed import requires the certificate of the chamber of commerce and notarization from the Lebanese Consulate from country of import.

At present, there is no national seed policy for guiding the development of the seed industry in Lebanon. Moreover, there are no officially sanctioned variety regulations, seed regulations or seed trade (import or export) regulations. Seed production and supply are organized on *ad hoc* basis by various research, development institutions and the private sector.

In general, there is a lack of interest and a low level of knowledge and expertise in the seed sector. There is a great need for trained manpower in seed technology particularly in laboratory analysis. The most important areas are field inspection, seed processing and seed quality tests (germination and seed health), but local specialists tend to look for jobs abroad.

1.4.3. Agricultural trade

Lebanon's commercial balance for food and agriculture is very deficient, as shown in the below table from Lebanese customs.

Table 2: Import/Export balance (Million USD) for fruits and vegetables

	Import (Million USD)	Export (Million USD)	Balance Million USD
Edible vegetables and certain roots and tubers	159	57	-102
Edible fruit and nuts; peel of citrus fruit or melons	191	66	-125
Coffee, tea, maté and spices	124	36	-88
Cereals	325	6	-319
Products of the milling industry; malt; starches	34	11	-23
Oil seeds and oleaginous fruits; miscellaneous grains; seeds and fruit; industrial or medicinal plants; straw and fodder	123	2	-121
			-778

(Source: Lebanese Customs 2017)

- **Import**

Fruits and vegetables imports amounted to 216 Million USD; fruit imports have been increasing over the past years (4% between 2011 and 2015), while Lebanese vegetable imports decreased slightly (-2.7% for the same period). The bulk of Lebanese imports of fruits and vegetables are nuts from Iran and the USA, dates from Saudi Arabia. Fresh fruit imports are actually quite small with only mango/guavas, kiwifruit and apples reaching the top-10 imported products. Potatoes from Egypt and Saudi Arabia, chickpeas, from Mexico and the USA and garlic from China (Trademap, 2016).

- **Export**

According to Trademap figures, total Lebanese exports of fruit and vegetables reached 125 Million USD in 2014. Since 2011, exports have increased about 9% on average per year. Fruit exports account for about 58%, while vegetables represent the remaining 42%. The share of fruit has been increasing gradually.

For external markets, Lebanon has signed bilateral and multiple trade agreements with many Arab and European countries; this includes 54 bilateral agreements for the promotion and protection of investments. Adoption of trade liberalization policies is part of the Lebanese comprehensive economic strategy to integrate further into global economy:

- Euro-Mediterranean Partnership Initiative, 2002
- Association Agreement with the EU in 2002, entered into force in 2006
- Free Trade Agreement with the European Free Trade Association (EFTA) in 2004
- It is also a member of the Greater Arab Free Trade Area (GAFTA) since 2005
- Lebanon is in the process of negotiations to join the WTO.

In general, Gulf Cooperation Council markets have significant demand for Lebanese fresh produce because of relative ease of access (over land), lower quality requirements, historical presence of a large Lebanese community living and working in the GCC, greater name recognition, lack of domestic substitutes and lower cost of shipping (CBI, 2016).

1.4.4. Market trends

Agricultural market trends are similar to global trends, especially with the increasing awareness on health and environmental problems caused by inadequate production techniques.

- **Food security and food safety**

Health has always been a selling point for fresh fruit and vegetables. Food safety is increasingly becoming an issue, especially when products are being exported to the European Union and other developed countries. This tendency is also observed in the Gulf States, the main export destination for Lebanon. At the same time, the importance of tracking and tracing is constantly increasing.

- **Sustainable production and products**

In Lebanon awareness is also growing that products and production processes should become more sustainable and make less use of chemicals and natural resources. For example, the availability of good

quality water for vegetable production is under pressure, because of the increased need from other industrial sectors and the community (consumable water). To reach a higher level of sustainability, improved seed, new methods and/or innovative technologies should be implemented depending on the local conditions (e.g. climate) in order to increase the input efficiencies.

- **The market of quality products**

Organic products demand is increasing in Lebanon and offers possibilities for export to developed countries. In 2014, organic agricultural land in Lebanon was estimated at 1079 Ha by the Research Institute of Organic Agriculture (FiBL), which is an independent, non-profit, research institute specialized in organic agriculture, with a share of 0.2 % of total arable land. Olives represented 185 Ha, vegetables 81 Ha, citrus fruit 6 Ha, cereals 2 Ha, and dried pulses 0.1 Ha.

- **Production techniques and management**

Lebanon presents an elevated agricultural production capacity given its unique geography; however, the sector's real productive capacity is trapped within "underdeveloped techniques and poor management", such that 45% of productive land remains unexploited to-date, while a large chunk of farmers' produce is also inadequately stored and thus perishes (Business Monitor International, 2017)

- **Health consciousness**

The popular slogans to govern the industry in the next 5 years are "health conscious" and "convenience" foods. Interestingly, BMI identifies two major trends that promise to shape the food consumption patterns in Lebanon, namely "health-conscious" foods and now-popular "convenience" foods for modern, on-the-go consumers. Sales of "fresh vegetables and fruits" are expected to occupy a larger chunk of Lebanon's daily diet by 2022, owing it to the "healthy food" campaigns advocated worldwide by the FAO and the World Health Organization (WHO).

- **Convenience**

Smaller portion-packs are becoming more popular. Convenience food includes seedless fruit, easy peelers, and products with a longer shelf life, individually sized products and pre-cut mixes. Specific trends with growth potential include ready-to-eat and ripened fruit.

- **Corporate Social Responsibility (CSR) and sustainability**

Lebanese consumers are more concerned about where products come from and how they are produced. They encourage ethical trade initiative and Fair Trade.

1.4.5. Agriculture in Akkar

Akkar is an important area for vegetables at a national scale (MoA, 2010); it also represents 17% of total cultivated area in Lebanon. Tomato is produced in all regions, mostly in greenhouses on the coastal plain.

Cucumber, squash, bell pepper, eggplant and beans are planted mostly in greenhouses, while leafy green vegetables are produced under open field conditions, in greenhouses and in plastic tunnels.

Most vegetables produced in Akkar are sold in the wholesale market of Ebbet Shomra and Tripoli. Farmers complain about Syrian produce being dumped in the Lebanese market at much cheaper prices than Lebanese produce, due to the inability of Syrian farmers to sell their goods inside Syria.

According to the 2010 census of the Ministry of Agriculture, Akkar possessed 28,120 agricultural holdings with 35,352 Ha of Utilized Agricultural Area and 15,649 Ha of irrigated land with an average area of holding of 1.3 Ha, which means a large number of small farms.

The region possesses 38,863 Ha of crop land distributed as 20,602 Ha temporary crops and 16,688 Ha of permanent crops and 1,574 Ha of greenhouses, the latter presenting a continuously expanding surface. (MoA, 2010).

In Akkar, there are 28,092 registered agricultural operators. Some 90% of agricultural operations are between 1 and 40 dunums (1 Ha = 10 dunums), and the overwhelming majority of lands in the North are rented (EMMA, 2013).

Major temporary crops include cereals (9,141 Ha), pulses (1,794 Ha), vegetables (7,657 Ha), fodder crops (305 Ha) and industrial crops (1,705 Ha). As for permanent crops, they include 1,378 Ha of citrus, 1,786 Ha of pome fruits (i.e. apple, pear, etc.), 1,629 Ha of stone fruits (i.e. peaches, nectarines, and plums), 892 Ha of grapes and 9,945 Ha of olives.

The most important problem faced by Lebanese agriculture in general and more specifically in Akkar is that hardly any production is under Global GAP certification and the cold chain is broken, resulting in high postharvest losses. Market intelligence with respect to trends and buyer requirements in the European market is weak, all over the sector. Furthermore, the domestic market structures are immature / not transparent and the private public environment is not supportive. Unfortunately, these factors do not leave much space for sustainable exports to Europe; however, European buyers have an open mind for new suppliers with special products (CBI, 2016). In fact, Lebanon has intrinsic opportunities for certain (small) windows in the fruit and vegetables market. And there is a group of larger producers / exporters with the motivation and capacity to realize these exports.

Specific opportunities in the European markets according to CBI are:

- Table grapes: a potential window is late in the European season: after October and before the peak of South African supply in December. Europe prefers seedless grapes.
- Avocados: European demand is expected to show continuous growth in the coming years. There is a preference for Hass. Competitiveness is the highest in the first months of the year.
- Citrus: there is an interesting window for (Valencia) oranges in the summer (June – September), after Spain leaves the market and in the start of the South Africa supply season.
- Potatoes: the European potato market is too competitive and too difficult for big expectations; only specialties, with high quality and marketed under premium branding, have a chance.
- Other (smaller) products: Lebanese traders who export table grapes, avocados, citrus fruit and/or potatoes, usually also export other products. Cherries, stone fruit, nuts as well as some other small vegetables and fruits may find (narrow) windows in the European market channels

1.4.6. Selected products in Lebanese agriculture

The leafy greens market is determined by supply and demand forces. Production volumes are subject to numerous external factors, including extreme weather conditions, overlapping seasons between the coast and the Bekaa, unorganized crop distribution among farmers, and smuggling of produce through Syrian borders. These factors have important implications on the quantity and quality of leafy greens items in the market, and lead to strong price variations. This unpredictability in market pricing may lead the farmers to go from high earnings to substantial losses from one season to another (ECE, 2016).

This has been particularly the case of 2016, which has been a dismal year for Akkar. A relatively calm winter season, an early sprouting of the Bekaa, and smuggled quantities through Syrian borders led to high supply volumes in the period extending from January to May. In addition, the inability to ship overseas due to worsening infrastructure in Syria shattered most export opportunities. All of these factors led to a decline in prices and a legitimate struggle to sell leafy green products by some farmers (ECE, 2016).

Lebanese production of niche leafy green items has significantly improved over the past 5 to 10 years both in quality and in quantity. As opposed to recent past, many niche items including are found at grocery stores and supermarkets today. Imports may still find their way in the market due to differences in quality and shelf life.

In addition, processed leafy greens (cleaned, cut, and mixed) have newly been introduced through local companies to answer the increasing number of working women. Nutrico for example is a company based in Dick el Mehdi and provides ready to eat fresh vegetables, cleaned, cut and ready to use. Its products include ready to stuff eggplants, and zucchini, coleslaw salads, mint, purslane, thyme, etc. Its clients include supermarkets such as Carrefour, Monoprix, TSC, Spinneys and restaurants chains such as Malak el taouk, Roadster, etc. Nutrico is one of the growing companies which products can be found in most supermarkets for household use, it also provides ready to use raw produce for the hospitality sector.

The EU represents an interesting market for the chosen products and export routes are already open; therefore, further investments could increase the exported quantities. It was difficult to find specific data about the chosen products' export to other parts of the world.

- **Tomatoes**

Lebanon exported to the EU 628,000 USD worth of tomatoes in 2011 and 1,730,000 USD worth in 2015. According to MoA's last census in 2010, Akkar cultivated 789 Ha of tomatoes.

- **Peppers**

Akkar cultivated 161 Ha of peppers (MoA, 2010) and the national exports to the EU decreased from 340,000 USD in 2011 to 297,000 USD in 2015.

- **Lettuces**

Akkar cultivated 259 Ha of Lettuce (MoA, 2010) and the national exports to the EU dramatically increased from 5,620,000 USD in 2011 to 14,255,000 USD in 2015.

- **Pumpkins**

National exports to the EU of pumpkins, squash and gourds decreased from 332,000 USD in 2011 to 155,000 USD in 2015.

- **Jute mallow**

Jute mallow cultivated surface in Akkar reached 115 Ha according to MoA's 2010 census and there are no clear data about their exports numbers.

1.4.7. Choice of selected products

As shown through the previous literature review, every product is chosen either for its important position in the local agricultural sector or for the potential it holds for the future. It is also important that the chosen product presents a potential for food processing, which would increase its impact along the value chain.

Tomatoes are chosen for their importance in local production, they come second after potatoes. They also have an important adaptability, since they are cultivated mainly in greenhouses. Tomatoes are cultivated on a large scale in Akkar and farmers have become experienced in their production; moreover, the potential in food processing is important with production of tomato paste, ketchup, dried tomato, tomato pieces, etc.

Peppers are widely produced, they present an interesting export potential for the regional and European markets. It is produced in open air fields or in greenhouses and present many colorful varieties, very appreciated in the hospitality sector. Peppers can also be processed into marinated pieces, pepper paste, etc.

Lettuces are a delicate product with a short shelf life, mostly consumed fresh. The need for fresh lettuce in neighboring countries and the EU, where the shipping period is not long is important. This product may not be transformed into processed products; however, it could be transformed into ready to use refrigerated bags which are very convenient for modern lifestyle.

Pumpkin cultivation is currently secondary; it is planted on the sides of greenhouses. It is important to note that some of the currently used varieties don't require important amount of water. Pumpkin processed into pieces, jams or frozen home-made "kebbeh" which is very common and presents an interesting development opportunity.

Jute mallow is cultivated as part of the crop rotation process, it is easy to produce and has a short cycle season. It also presents a potential for drying and keeping for long periods and could be an interesting item for export.

Part 2:
Market and Stakeholders Mapping

2.1. Introduction

The objective of market and stakeholders mapping is to present the stakeholders of the value chain, according to their categories and their interactions. Moreover, supporting institutions are represented according to their level position of their activities. This would allow a holistic understanding of the value chain and its functioning in order to preview the effect of localized interventions on the overall system.

2.2. Value chain mapping

As shown in the below chart, the presented map distributes stakeholders into six classes. Organizing the stakeholders into separated categories is only done to facilitate the understanding of the value chain functioning, but in reality, entities or individuals could be present in several categories playing different roles at the same time.

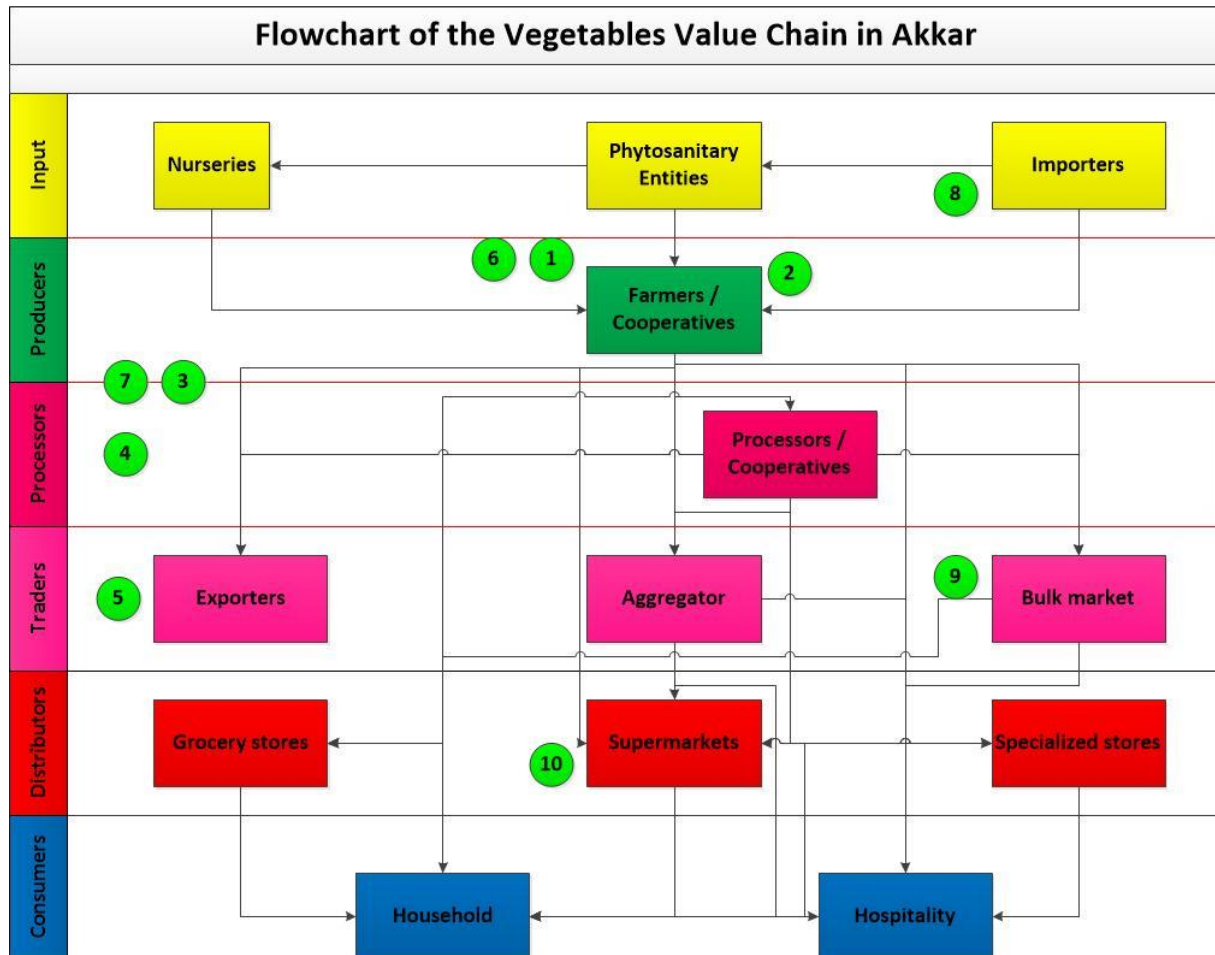


Figure 1: Flowchart of the targeted vegetables (Tomatoes, Peppers, Lettuce, Pumpkins and Jute Mallow) value chain

1. **Ministry of Agriculture (MoA):** provides technical assistance, vocational training and the public framework to farmers activities
2. **Lebanese Agricultural Research Institute (LARI) – Abdeh:** provides technical assistance, vocational training as well as major laboratory tests (soil, water, Phyto pathological)
3. **Chamber of Commerce, Industry and Agriculture of Tripoli (CCIAT):** provides support for farmers, processors and distributors as well laboratories tests and start up incubator under the IDRAK project
4. **Business Incubation Association in Tripoli (BIAT):** provides incubation, acceleration and networking for agricultural start-ups
5. **Investment Development Authority in Lebanon (IDAL):** provides marketing support for agricultural traders
6. **NGOs:** provides vocational training, sub-granting and technical support for farmers and processors
7. **KAFALAT:** provides financial support for SMEs involved in the agricultural value chain
8. **Input importers:** Input provider for farmers (seeds, pesticides, agrochemicals and agro-equipment)
9. **Ebbet Shomra Market:** is a space for exchange and trade for local agricultural traders
10. **Hypermarket:** Provides insights on the requirement to access such large markets

- **Input**

Input suppliers are represented by importers, phytosanitary stores and nurseries. Importers are local companies importing seeds, pesticides, fertilizers and light agricultural equipment. They sell their products to phytosanitary stores or directly to farmers and cooperatives through regional representatives who perform their weekly visits to customers and provide occasional advising. Phytosanitary stores are usually held by agricultural engineers; they may also possess farm lands and thus exercise farming activities. They are usually in close relationship with the farmers and the agricultural cooperatives, but they can also provide seeds and agrochemicals to nurseries that produce seedlings according to farmers' needs. In some cases, farmers may also provide the seeds, the sole responsibility of the nursery being to provide the highest success rate in transforming seeds into 2-3 weeks old seedlings.

- **Producers**

Producers are represented by farmers or agricultural cooperatives; they usually purchase their agricultural needs from phytosanitary stores or directly from importers through their representatives' weekly visits. Producers are usually supported by the Ministry of Agriculture (MoA), the Lebanese Agricultural Research Institute (LARI) and other NGOs and INGOs, to different levels of efficiencies. They can also benefit from the services of the Tripoli Chamber of Commerce, Industry of Agriculture (CCIAT) in case they are registered. They can also profit from the KAFALAT program of credits.

- **Processors**

Processors are mainly individuals but recently, much work has been done through NGOs to upgrade their activities, especially for cooperatives. Processors receive their raw material from producers or may be producers themselves. Producing cooperatives or farmers can also be active in the processing category to avoid product loss by transforming their fresh products into processed food. They sell their products to traders, distributors or directly to consumers. They are supported by the CCIAT and its growing incubator, Business Incubation Association in Tripoli (BIAT) and many NGOs.

- **Traders**

Traders buy fresh produce from producers and redirect it to distributors in the local and export markets. They may be present at the bulk market, or be aggregators or exporters. Their only responsibility is to pay producers for the sold products; they don't cover any wastes or losses. Exporters are supported by Investment Development Authority in Lebanon (IDAL) to reach the required international standards and get access to international markets. Aggregators and bulk market traders can also benefit from the Ebbet Shomra Market infrastructure. Aggregators may have an important influence on the producers, for they can provide the seeds and eventually buy all the production.

- **Distributors**

They are represented by three major components: grocery stores characterized by a close relationship with consumers purchase their needs from distributors or directly from producers and processors; grocery stores sometimes sell their own fresh or processed products, they could also be traders, using their stores to keep cash flow. Hypermarkets are the second component and they rely less on the personal contact, but possess a different understanding of the consumers' needs based on data analysis and statistics. The third components are specialized stores such as fair trade, organic and traditional products that provide their products to a niche market with specific needs.

- **Consumers**

Consumers are households with direct access to all other producing categories; they do perform their purchases according to their convenience. They may also consume their own production of fresh produce or traditional processed food. Hospitality entities usually purchase their products from distributors, but may also do it directly from producers or processors.

- **Stakeholders' integration**

Producers are vertically connected to the input suppliers and to the traders; they both depend on their productivity for different reasons: input suppliers provide producers with their needs are paid according to the season's profitability, on the other hand traders, depend on farmers to provide them with fresh produce with specific quality standards to cater for the needs of their customers. Producers and processors are also connected for the latter purchase their raw material needs preferably from producers to create a direct link and decrease the cost. The link with the consumers is weak for the different stakeholders, except for distributors – although in rural areas, the link is stronger due to geographical

proximity. Traders in general are the best linked since they have relations with producers, processors, distributors and even input suppliers for they may also provide seeds to the farmers for cases like potato production.

On the horizontal level, stakeholders belonging to the same category are very well connected. For input suppliers, nurseries may purchase seeds and agrochemicals from the stores, while importers provide input for both. Producers are usually integrated into farming cooperatives, so they are well connected according to the region they work in. Processors are also linked through cooperatives, they are also linked through projects implemented by NGOs and gathering farmers from different regions of Akkar. Traders, be it exporters or aggregators are well connected, especially through the bulk markets of Tripoli and Akkar and they may purchase products from each other to cater for their customers' needs; however, specialized stores are usually directly connected to producers through development projects implemented by NGOs. Distributors have a competitive relationship with each other, since hypermarkets present a great competition to grocery stores, they don't usually collaborate. As for consumers, they are also well connected to hospitality services.

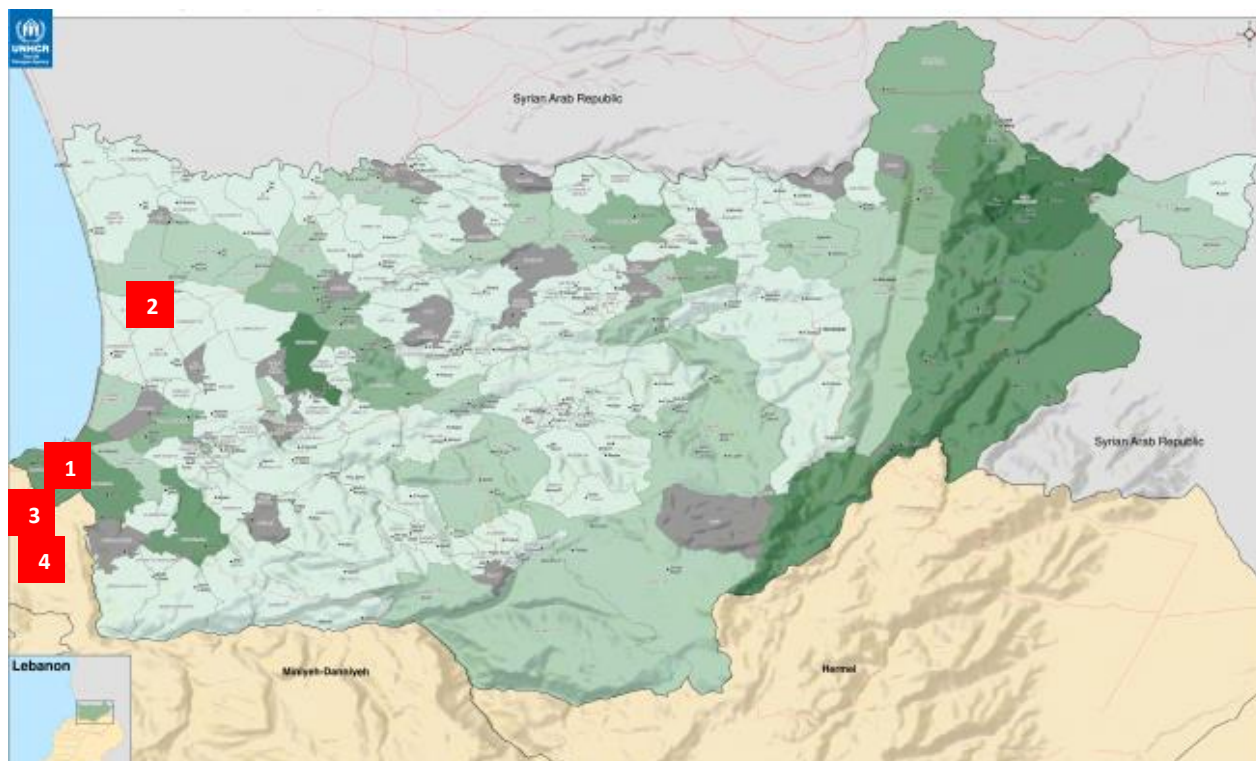
2.2.1. Input

2.2.1.1. Nurseries

Four nurseries covering the Akkar region were identified, some of them based in the Minieh region as presented in the table below:

Table 3: Characteristics of interviewed nursery owners

Nbr	Name	Region	Age of owner	Age of business	Number of customers	Covered region
1	Youssef Malas	Abdeh	45	20	700	All Akkar
2	William Ibrahim	Tal Abbass	54	7	300	Akkar plain
3	Boukai Nursery	Minyeh	55	40	400	Minyeh and outskirts of the plain
4	Al Hawly Nursery	Minyeh	50	30	300	Minyeh and outskirts of the plain



Source (UNHCR, 2014)

Figure 2: Geographical distribution of interviewed nurseries

- Tomato varieties include mostly Salad tomato, Alicante and beefsteak to a lesser extent, there's also an increasing production of cluster, cherry and plum tomato. They are known by the nurseries by the name given by the seed producing company (Dafnes, Lydia, Larissa, Xlarge, 4/29, Zodiac, Lenova, Gloria, Bona, Floria, etc.).
- The peppers species include Singer (Hot), yellow, and red pepper.
- The lettuce varieties are mainly romaine, curly and iceberg, known by their company name (Farida, Noura, Verimos, Lolo Rosso, gardenia, etc.)
- As for pumpkin and Jute Mallow, the interviewed nurseries didn't produce any of their seedlings because both are usually planted as seeds not as seedlings.

The chosen seeds species are based on consumers demand and preferences, but also on the new introductions as offered by producing companies. Seeds also have to be submitted to field tests at the local agents' own testing stations to optimize their production needs and understand their adaptation to the local environment and to local diseases.

The sources of the seeds are local agents including Al Mawad, Robinson, Antagro and Debbaneh bros. Seedlings production is continuous throughout the year except for the months of June and July. All seedlings are sold at 25-30 days of age.

The major obstacles for the seedlings production are diseases such as Blight, Anthracnose, Rhizoctonia, bacterial spot and bacterial canker/spot/speck, sale price and cost; however, production success is very

high thanks to the application of proper firewalls. Seeds suppliers could be either the input suppliers' agent or the farmer and they are provided directly to the nurseries.

Interviewees rely on their own know-how to produce the seedlings and may refer to the suppliers for needed information, especially during workshops and visits provided by suppliers. Most of the time, farmers buy their own seeds and provide them to the nurseries for seedling production to make sure they are provided with the required quality.

Usually, nurseries are not registered in any official institution, unless they are part of a cooperative, in which case they are registered at the ministry of agriculture, since it is a pre-requirement.

The selling price of tomato seedling is between 100 and 250 LBP, for peppers 100-200 LBP and for lettuce 80 to 100 LBP. The only variation in costs is the Euro exchange rate. Payments are made both as cash on delivery but could also be delayed until the harvest season and if the production is not sufficient, farmers may not pay at all, so nurseries would have to wait for next season to get their payments and until they do, they either rely on the payments of other farmers or rely on the income of their other activities which may also include farming. Most of the time, the payment would take place at the end of the harvest, which means that the whole input components depend on the harvest quality for their payments. If the harvest is not very successful, part of the payments is made and the rest is postponed to the next season or to the harvest of a different product, usually, with no interest fees, which makes this financial system much preferred compared to the classical banking system.

Although no complicated technologies are used for production, however, some of them are open for new technologies.

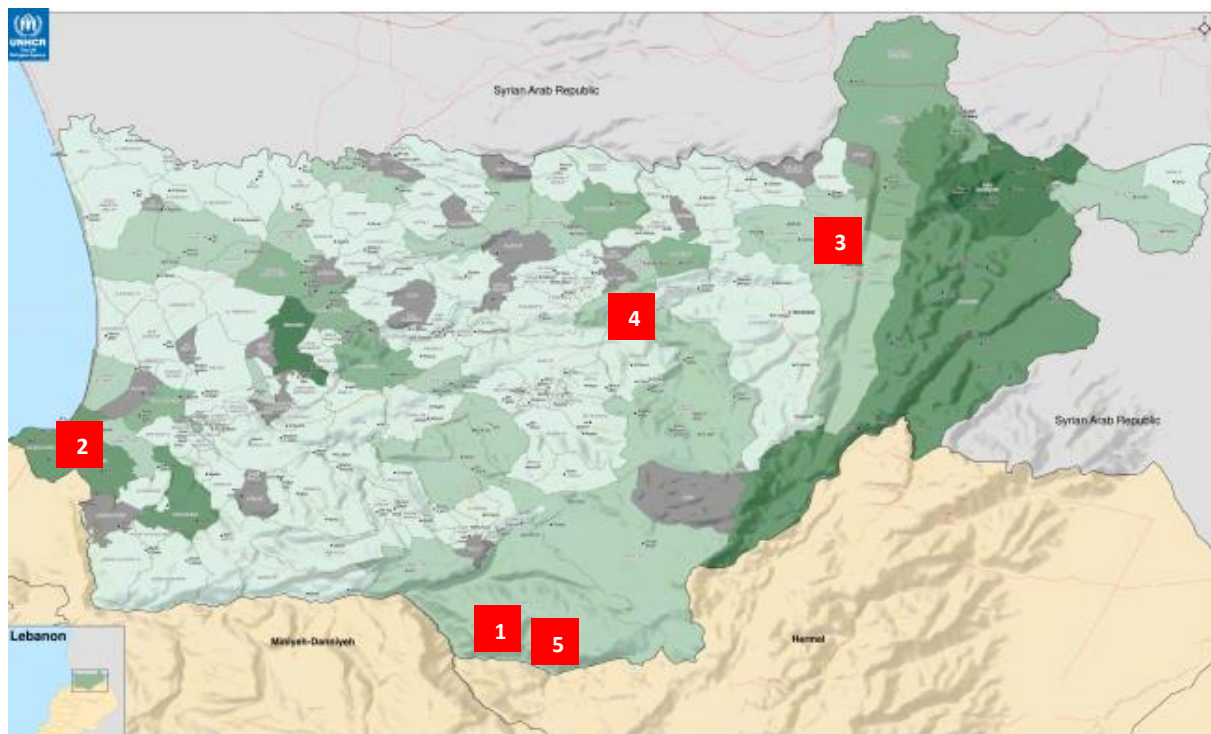
Acceptable hygiene standards are used in order to avoid contamination; therefore, firewalls are considered efficient.

2.2.1.2. Phytosanitary stores

Phytosanitary stores, also referred to in local language as “agricultural pharmacies” are stores that provide seeds, pesticides, fertilizers, irrigation equipment and basic agricultural equipment – excluding heavy machinery – to farmers. Usually, a certificate of agricultural engineer is needed to run such a business. Five phytosanitary stores are considered for the study, respecting the geographical distribution. The services they provide include selling agricultural equipment and light machinery, irrigation equipment, seeds, fertilizers, pesticides; they also provide technical advice when approached.

Table 4: Characteristics of interviewed phytosanitary stores owners

Nbre	Name	Region	Age of owner	Age of business	Number of customers	Covered region
1	Mouhamad Omar	Beit Ayoub	26	20	600	Highlands
2	Khaled Omar	Abdeh	63	35	400	Abdeh - Plain
3	Wissam Moussa	Kobayat	45	20	350	Kobayat - Halba
4	Ramze Saneh	Bazbina	60	35	150	Bazbina outskirts
5	Mouhamad Ahmad	Fnaydek	43	10	100	Fnaydek outskirts



Source (UNHCR, 2014)

Figure 3: Geographical distribution of interviewed phytosanitary stores

Seeds, fertilizers and pesticides represent most of their sales with percentages ranging between 50% and 100%. For the chosen products, seeds most sought after varieties are as follows:

Tomatoes

Same varieties exist, but they are known by phytosanitary stores by their market name Asia 616, Riogrande, Eurogarden collection of seeds, pomodoro, Daisy, Champion (long cycle), Yara (short cycle), as well as local species (Baldieh or Zahrieh).

For production, two cycles are used: from September to January and from April to July.

Peppers

For peppers, species include California, Friariello, as well as red, green and yellow pepper. Also, two cycles are adopted from September to January and from April to July.

Lettuce

Major seeds are Maravila, great lakes, Lolo Rosso, Larga Verde and Gardenia (local breed). Lettuce production is permanent, but decreases during the summer season.

Pumpkin

Local seeds are used; production cycle starts with the seeding on February and harvesting ends on September. Although very scarcely used, local breeds are sometimes cultivated.

Jute mellow

Local seeds are used; production cycle starts on April and ends in June, Syrian black and blue seeds are also used.

There were no specific data on how much seeds represent from the stores turn over, however, they were usually evaluated by interviewees between 25% and 50%.

Seeds are sold to nurseries and to farmers; some of them may be different from the seeds used by the nurseries because they are replaced by new species and because sometimes they are known by different names. Moreover, different suppliers are chosen by nurseries and phytosanitary stores, which increase the number of used varieties.

According to the interviewees, the major problem faced by the selected products is pathologies, which increases the use of pesticides and enters the farmers in a vicious circle, since the causing agents acquire immunity to the used chemicals.

Interviewees acquire their items directly from mother companies or local agents and no major problem is faced to acquire the requested items. Usually, they follow training sessions of different levels frequently through NGOs, MoA and other supporting entities.

Major problems faced by interviewees are the increasing competition in the market with the increasing number of stores and the direct purchase from neighboring countries, the access to credits and financial support and the difficult financial situation of the farmers who are not always able to pay their dues, which leaves the phytosanitary stores with a lack of cash flow.

Usually, they are registered at the ministry of agriculture, the ministry of finance and in the chamber of commerce, which allows them some access to financial credits in banks. Usually, prices don't change dramatically during the season and are only subject to changes of Euro exchange rate.

2.2.2. Producers

A total of 35 farmers were interviewed covering the different geographical distribution and the major concentration of production for the selected vegetables as shown in figure 4. The segmentation of the farmers includes their age, level of education, as well as farm's age and surface as shown in the below tables in order to be representative of the existing producers.

Table 5: Producers distribution according to producer's age

Age	Percentage
20-30	12%
30-40	3%
40-50	33%
50-60	42%
60-70	9%

Table 6: Producers distribution according to educational level

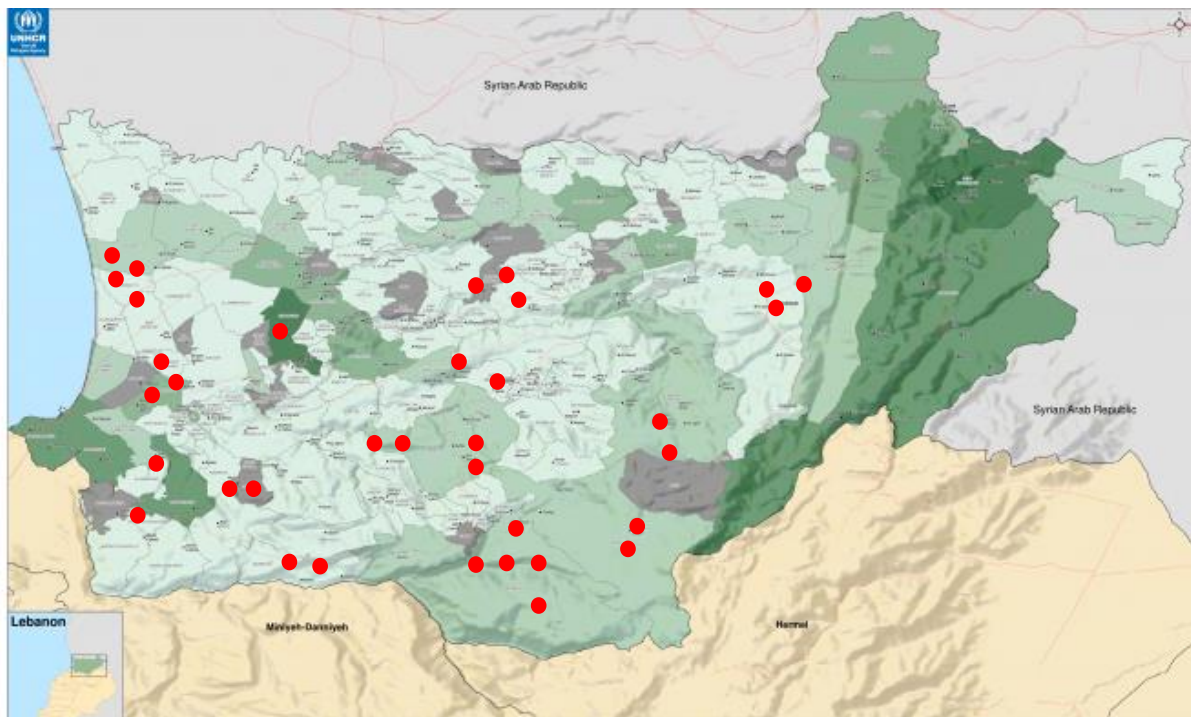
Level of education	Percentage
None	24%
Primary	48%
Complementary	9%
Secondary	12%
University	6%

Table 7: Producers distribution according to farm's age

Age of farm (years)	Percentage
0 to 10	27%
10 to 20	12%
20 to 30	21%
30 to 40	27%
40 to 50	12%

Table 8: Producers distribution according to farm's surface

Farm surface	Percentage
5000 to 10000	6%
10000 to 20000	39%
20000 to 50000	33%
>100000	21%



Source (UNHCR, 2014)

Figure 4: Geographical distribution of interviewed producers (Farmers)

There are no real quality control tests done by producers concerning pesticides deposit or sugar percentage, etc. the only separation is made based on the grading system as a post-harvest activity before sending the production to the buyers to allow proper pricing according to quality grades. Tests for pesticide residues are not compulsory for the local market; however, they are performed by exporters to abide by the importers' health and quality standards. Official entities such as the Ministry of Agriculture, the Ministry of Economy, the Ministry of Health, etc. can perform sampling and testing whenever they deem necessary, and they usually do it periodically.

The farmers have easy access to agricultural input, including seeds, seedlings, agrochemicals, equipment, etc. with available trainings. Farmers don't interfere in choosing the types of selected products species, they rely mostly on the supplier's advice, which increases production rates, but also the environmental and economic cost due to the intensive use of agrochemicals.

Interviewees have excellent relations with LARI, they however suffer from the limited participation of the Ministry of Agriculture, due to its lack of funding. They expect from the ministry of agriculture to provide support for production costs (although a few basic pesticides are provided for trees mostly), more marketing and protection for local products.

Following the Syrian crisis, the participation of Syrian refugees has increased from simple working force into land rentals and eventual agricultural production, which is increasing the land rental rates.

There is no kind of certification program followed by the interviewed entities for high end or value added or fair trade product, etc.

The upper region of Akkar present lower impact of plant pathologies carried by insect vectors, therefore, the use of open air fields is more adapted than greenhouses, although the altitude of insects' impact line is increasing due to global warming.

2.1.1.1. Technical advice

As shown in figure 5, most interviewees base their technical decisions mainly on their own know-how and secondly on the advice provided by the original distributor, although technical support from NGOs, supporting institutes and providers is available for beneficiaries of their projects. NGOs provide support to all beneficiaries taking part in their projects, however, they cannot provide technical advice to producers not participating in these projects, especially when the advice involves products not covered by their projects.

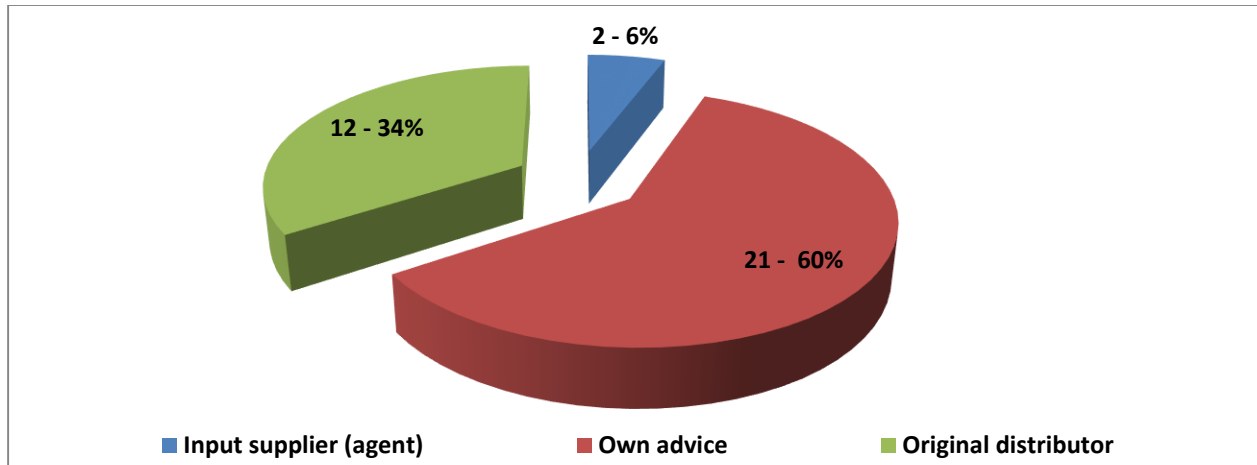


Figure 5: Source of technical advice for interviewed producers (Value, percentage)

2.2.2.1. Training frequency

Producers enjoy easy access to vocational trainings organized by NGOs; however, around 43% of the interviewees go to less than one training every two years despite the great number of projects being implemented in the region. Moreover, NGOs suffer from low enrolment numbers in their training actions, especially that the same few farmers participate in all trainings and they usually face difficulties in steady participation. According to the interviewees, the low participation in surveys and trainings are due to a decreasing credibility of the work of some NGOs since the results of many projects end with the end of the funding. This may be due to the concentration of some donors on the number of direct and indirect beneficiaries as success parameters, instead of concentrating on the sustainability and the relevance of a certain project.

Therefore, it would be interesting to change the success parameter of projects from number of participants or beneficiaries into sustainability parameters, which would give NGOs more credibility at the farmers' end since their work would be considered as efficient and long lasting, not limited to a specific part of a project. In a nutshell, decreasing the number of beneficiaries and targeting only serious partners would increase the projects' sustainability, since, as the diagram shows, farmers are attending trainings, without having a significant impact on their activities.

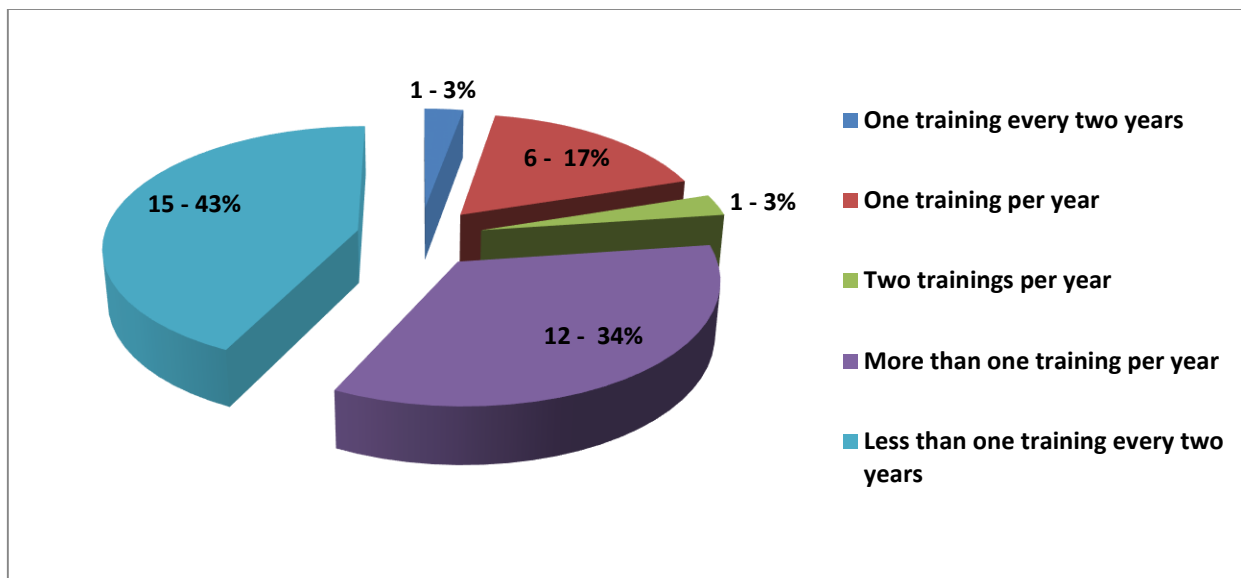


Figure 6: Training frequency of producers (Value, percentage)

2.2.2.2. Product destination

As shown in figure 7, most production for all selected products is destined to the wholesale markets: the first being Akkar market at Ebbet Shomra and in second place the Tripoli market, knowing that several traders are present in both markets. There were no reliable data on the values of each market's share.

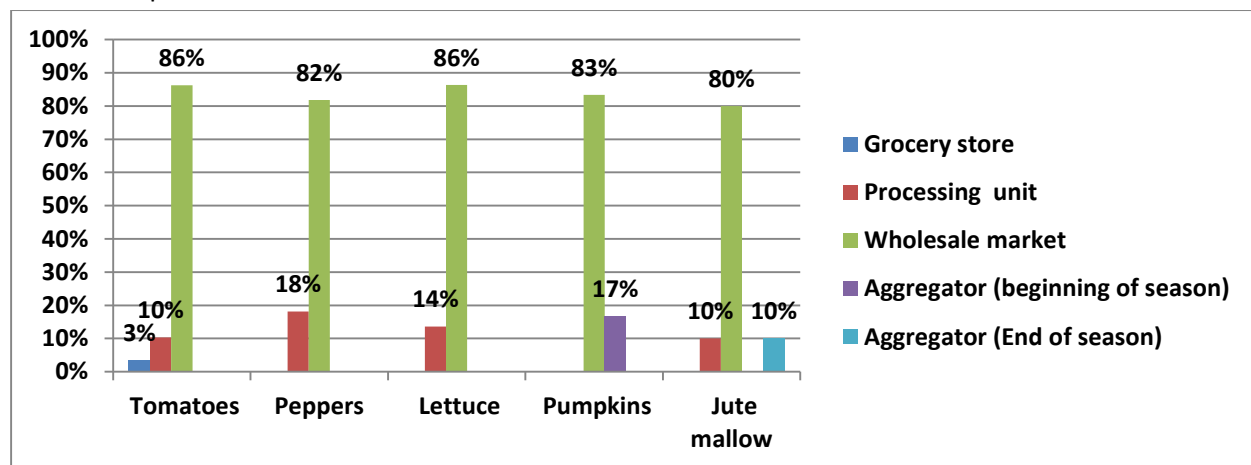


Figure 7: Destination markets for selected products

2.2.2.3. Obstacles rating

When asked to rate the categories of obstacles faced by them, producers rated highest the unfair competition from neighboring countries, where agriculture is supported by public authorities, followed by cost of production as presented in the financial part of the report.

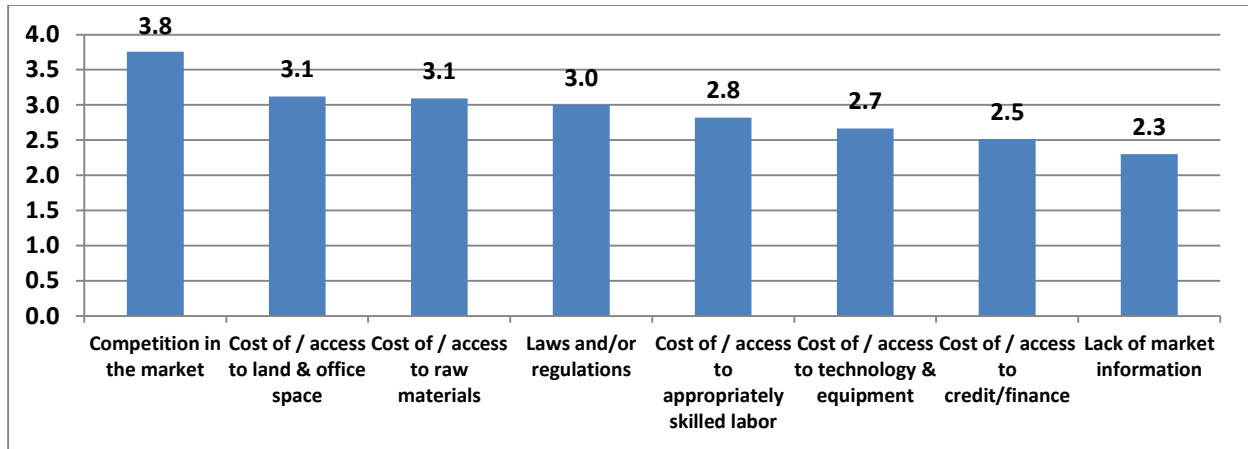


Figure 8: Obstacles rating by producers

On the other hand, the interviews showed that the majority of the farmers were not able to provide a quantitative evaluation of the use of pesticides and fertilizers and don't keep any logs for the yearly production. Most of them declare that they are in debt for phytosanitary stores and input suppliers, as confirmed by both.

The payment system usually includes a lot of debts: between the farmers and the phytosanitary stores, between the farmers and the traders, and so on. The payments usually depend on the production success, because usually, payments are made by farmers at the end of the production season.

2.2.2.4. Needed support

The two major forms of support for farmers are financial support and a protection from the foreign competition. In the first case, it was noted that all farmers avoid dealing with financial institutions like banks and credit facilities and they noted that it was hard to get loans because of needed guarantees. Banks have to adopt an aggressive marketing for mini credits and Kafalat program with payment facilities and extension possibilities. They also rely on the payments postponement to suppliers to avoid paying benefits and to avoid strict application of payment deadlines by banks; therefore, they turn to deal directly with aggregators or traders who would extend their grace period. As for the protection from foreign competition, it is very difficult to apply it, since the Lebanese government is bound by the Arab free trade treaties, which means that the only solution would be by increasing the efficiency of local production.

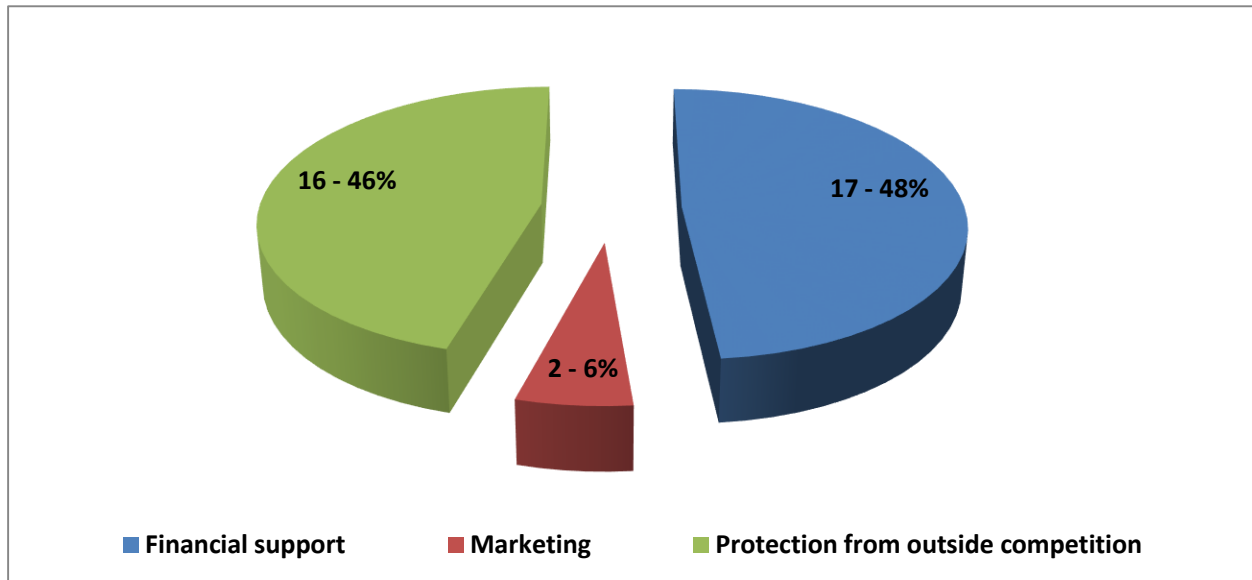


Figure 9: Support needed by producers (Value, percentage)

2.2.2.5. Sales price variation

Interviewed farmers stated that all selected crops experience a decreasing price during the production season as shown in figure 10, and this has an interesting influence on two levels: the first one for the producers, inciting them to produce as soon as possible in order to get the best prices, which pushes them toward using more agrochemicals and new varieties. The second level is that of processors who would buy the crops at the end of the season in order to decrease the cost of their raw material, especially that first grade products are sold as fresh produce.

There were no result concerning the pumpkins, since they are mainly produced for personal consumption and therefore, not widely distributed; Hence the importance of increasing the investment in this production which currently covered by the Bekaa and the south, since all necessary growing conditions exist in Akkar.

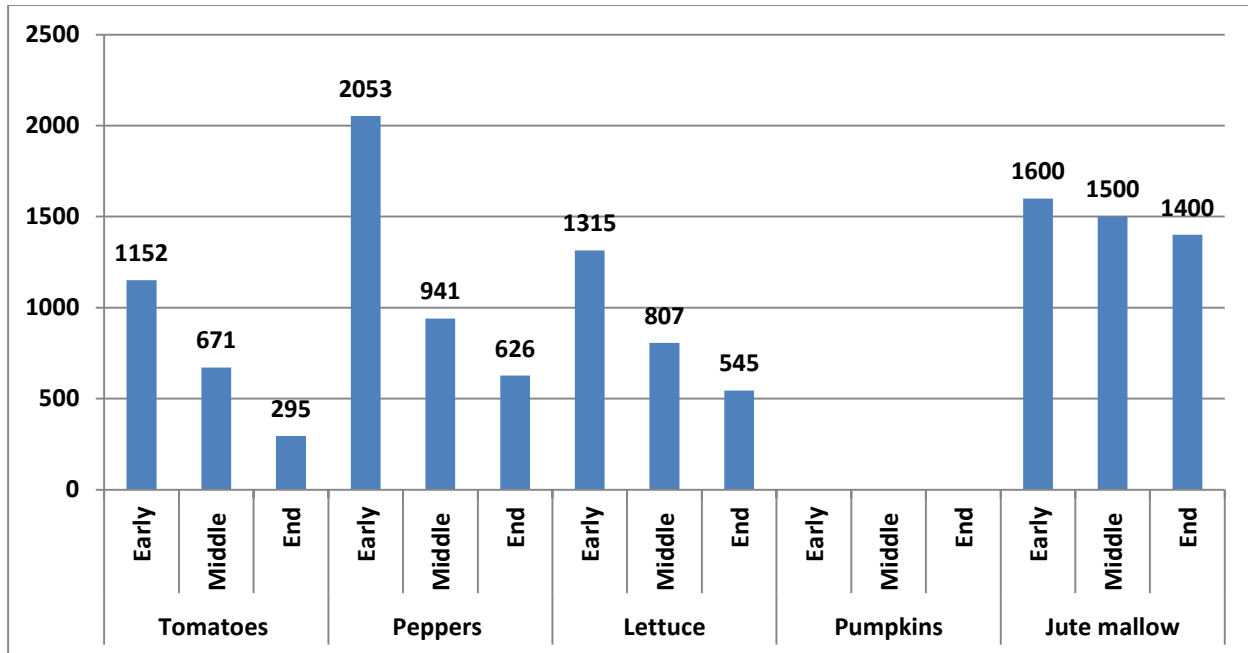


Figure 10: Sale price variations of the selected products (LBP/Kg, except for lettuce and Jute mallow, it's LBP/piece)

2.2.2.6. Primary channel for access to credit and financing

As stated in figure 11, most of the farmers rely on their own financial resources for financing their activities at the beginning of the season, however scarce they are; they rarely turn to banks for two important reasons: the first being of a religious kind and the second is that they prefer to rely on the input suppliers' credit extension for they fear losing their lands in case of delayed payments for the banks. Suppliers, on the other hand can extend the grace period in a sort of agricultural community support system. They also rely on suppliers' credits extension at the end of the season if the harvest is not successful.

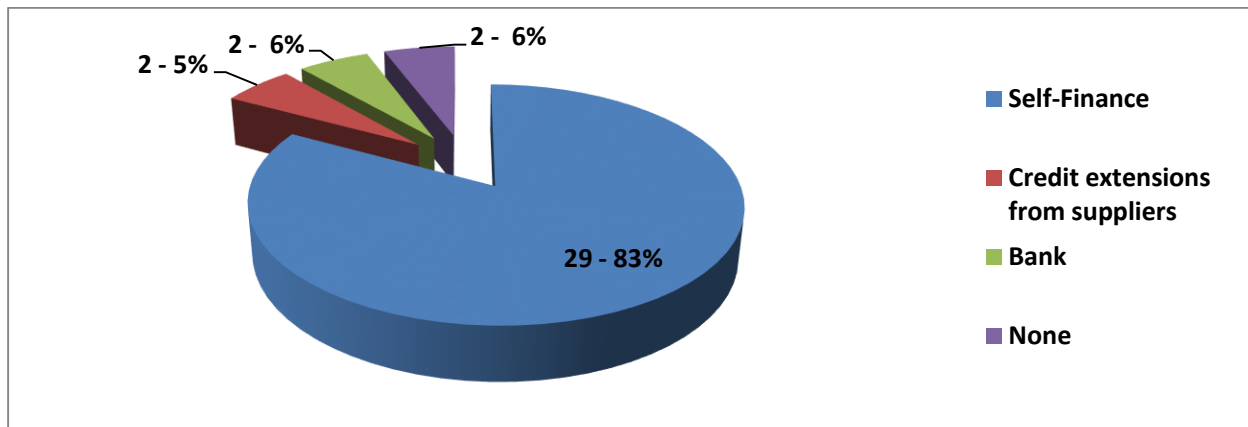


Figure 11: Primary channel for credit or finance (Value, percentage)

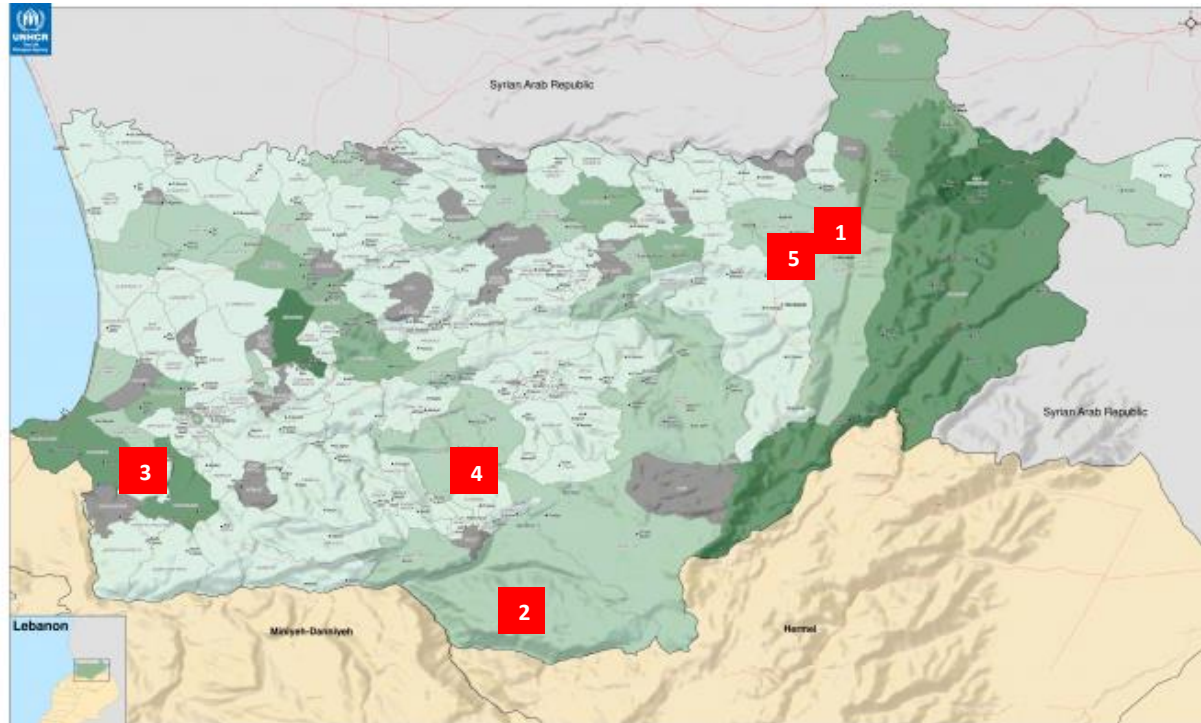
2.2.3. Processors

Five processors were interviewed, distributed all over the Akkar region; they are all part of cooperatives, especially women with high motivation but smaller production. There were no advanced technical equipment or highly since traditional items are mostly produced.

- **Tomatoes**, processed products are tomato paste, juice, pieces and ketchup.
- **Peppers**, major processed products are also paste, small cuts and marinated.
- **Jute mallow**, dehydrated leaves are the major production.
- **Pumpkin** diced pumpkin in syrup, and Jazarieh, which is a sort of pumpkin jam with very low water content mixed with a variety of nuts.

Table 9: Characteristics of interviewed processors

Nbre	Name of cooperative	Region	Name of representative	Age of cooperative	Members
1	Pro-Andaket	Andaket	Caroline Daher Jina Khoury	10	17
2	Fnaydek Coop For Processing	Fnaydek	Fadwa Zahraman	19	15
3	Al Bayarek-Beit El Mouneh	Bebnin	Fatima Darwich	3	14
4	Agricultural Cooperative Society for Women In Ain Yacoub	Ain Yacoub	Sakina Rajab	12	12
5	Kouni Anti	Kobayat	Jamileh Daher	7	11



Source (UNHCR, 2014)

Figure 12: Geographical distribution of interviewed processors

It is important to note that overall, processors cooperatives are mainly composed of women and they are usually more efficient than farmers cooperatives, probably due to the fact they have to work together at the same kitchen or processing unit, therefore, they meet more and thus are able to collaborate more.

For processors, the first choice of buying raw materials is the local farmers and the wholesale market, they benefit from the low prices during the season, to buy the raw materials. Usually, the middle of the season is the best time to buy the raw material because of the high quality v/s price ratio. It may be true that price decreases with the season, but so does the quality of the vegetables; therefore, the best time to buy is the middle of the season to get the best quality with the best price.

Due to lack of advanced processing technologies, processors rely on traditional products, with low added value products. At the same time, many of them have benefited from previous development programs and are now capable of producing large quantities, but still need improving their market access and marketing strategies. The major drawback remains a weak market demand and defective marketing plan.

The main competitors are low quality commercial products using low quality raw material. The majority of the processors attended trainings with Fair Trade Lebanon and other NGOs and usually participate in local exhibitions and some in Beirut.

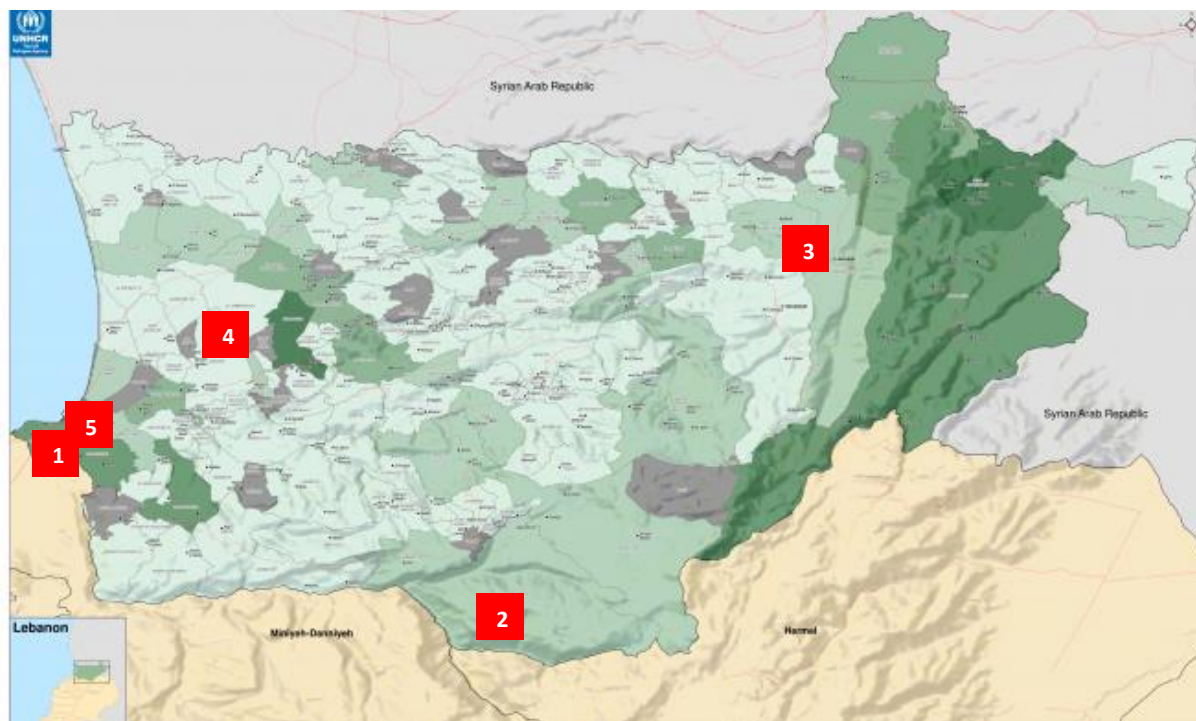
Some of the processors sell their products in specialized shops in Beirut like Namlyeh or via FTL and some of them are working on developing new products.

2.2.4. Traders

The analysis of the traders' role in the agricultural value chain is based on specific interviews with 5 traders and an interview with the operation manager of the Ebbet Shomra wholesale market, Mr. Khaled El Asmar. The market works under EMKAN (local NGO) supervision, it includes 6 refrigerated storage rooms, a packing unit, a sorting and grading unit for apple and citrus.

Table 10: Segmentation of interviewed traders

Nbre	Name	Region	Age of owner	Age of business	Number of customers	Covered region
1	Nizar Adour	Abdeh	42	5	1000	All akkar
2	Mouhamad Nahman	Fnaydek	51	35	500	Fnaydek
3	Hiyam Sabakh	Andaket	39	30	400	Andaket – kobayat
4	Mouhamad al Sayed	Halba	54	35	500	Halba and outskirts
5	Abed al Hafiz al Jamal	Abdeh	55	5	400	Abdeh and plain



Source (UNHCR, 2014)

Figure 13: Geographical distribution of traders

There are four categories of stakeholders at the market:

- **Farmers:** from different region of Akkar mostly from the plain, they come on a daily basis to provide their fresh goods
- **Traders:** their main activity is to buy from farmers for a 10% commission and to sell in their outlets for the local market or other wholesale markets and groceries. Some of them are considered also as middlemen since they import quantities from outside Lebanon
- **Middlemen:** some traders are middlemen at the same time, they buy goods from traders and farmers using the 10% commission
- **Aggregators:** buys the whole harvest from farmers either at the beginning of the season or at the end and makes a deal with the farmers for their harvest. Sometimes they even harvest and sell their own products.

Tomato alone represents more than 50% of the total transactions. Potatoes, onions, cucumbers and lettuces are highly selling products as well. Peppers have a good price most of the times while tomato prices fluctuate. Pumpkin and jute mellow sales are lower than other products.

Agricultural production in Akkar is a total of 9 months: 6 normal months and 3 more on early or late season. These extra months are very important since the Bekaa production decreases; therefore, local production needs to cover most of Lebanon.

The competition from neighboring countries especially for tomato and potato is affecting farmers since the varieties present a better color and taste.

No outlets or traders in the local market selling any organic or fair trade products. The only control for the products is by the trader himself based on the shape or color of the products, although any ministry holds the right to perform random sampling and analysis at their own convenience.

2.2.5. Distributors (grocery stores)

Distribution in rural areas is mainly based on grocery stores; they also represent an important source for purchasing fresh selected products as it will be shown in the consumers' section. They are also an important source of purchasing processed selected products.

The objective of this section is to understand the role played by grocery stores as a link between different food providers and the consumer. A sample of 30 grocery stores is included in this study, geographically distributed along the different regions of Akkar as shown in figure 13. The segmentation includes age of owner, level of education, age of store and number of customers.

Table 11: Grocery stores distribution according to age of owner

Age of owner	Percentage
20 to 30	23%
30 to 40	7%
40 to 50	23%
50 to 60	33%
>70	13%

Table 12: Grocery stores distribution according to age of owner's level of education

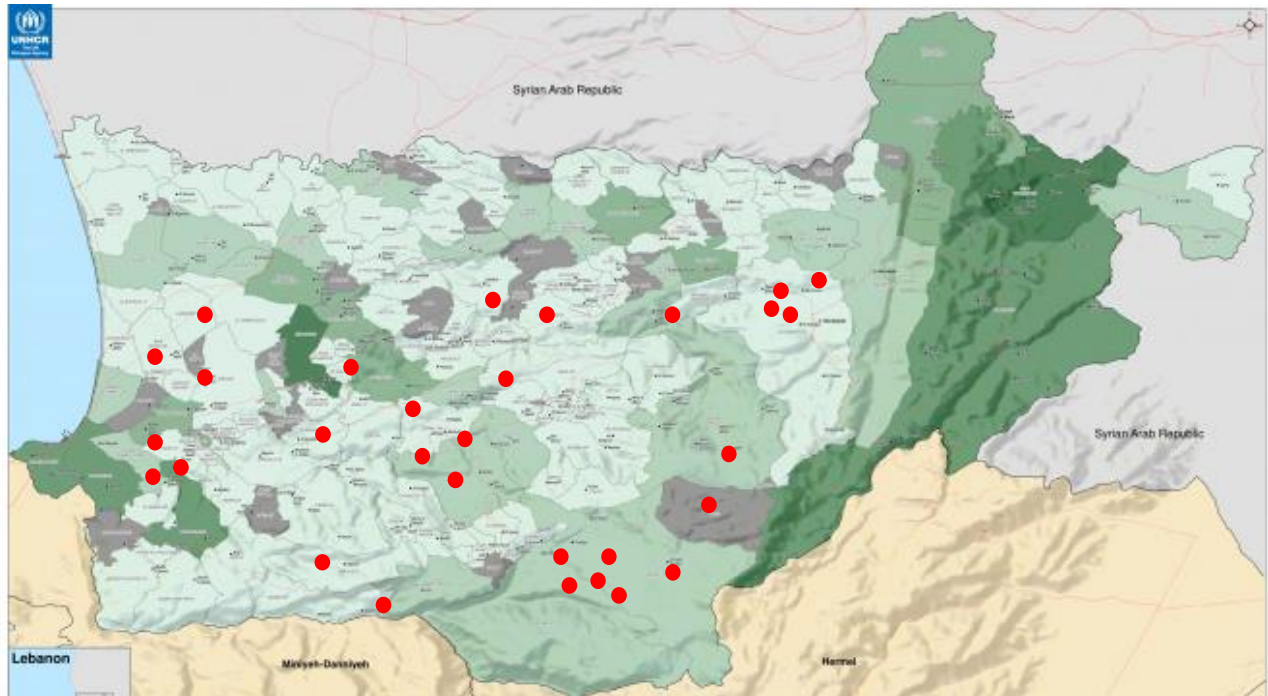
Owner level of education	Percentage
None	3%
Primary	30%
Complementary	37%
Secondary	27%
University	3%

Table 13: Grocery stores distribution according to age of store

Age of store	Percentage
0 to 5	33%
5 to 10	10%
10 to 20	23%
20 to 30	20%
>20	13%

Table 14: Grocery stores distribution according to number of customers

Number of customers	Percentage
0 to 100	40%
100 to 250	13%
250 to 500	20%
>500	27%



Source (UNHCR, 2014)

Figure 14: Geographical distribution of interviewed grocery stores

2.2.5.1. Source of selected products

As shown in figure 14, the wholesale market of Ebbet Chomra remains the primary source for purchasing the targeted products and it varies between 40% and 60%. Grocers usually go to the markets early in the morning to choose their products and sell them in their institutions, but they rarely rely on persons who would do this for them for a commission.

The second preferred source is directly from the farmer, because it will allow the farmer to sell with higher prices and the grocer to buy with lower prices and thus, both would increase their gain. It was very difficult to get access to specific data on the pricing methods since there is no available official data and no kept records; therefore prices are based on the personal evaluation of the interviewees. This level could be developed through providing direct contacts and eventually contracts between farmers and grocers for a limited period of time, which could be increased whenever it is successful.

The other sources would be imported items from neighboring Syria directly through individual traders.

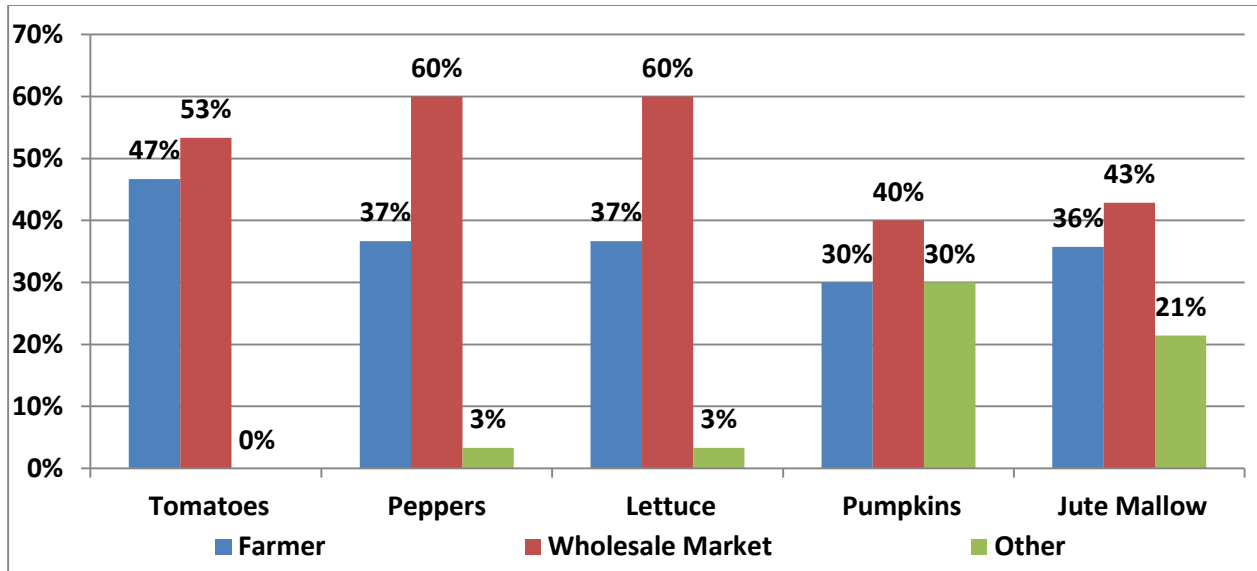


Figure 15 : Primary channel for purchasing fresh produce

2.2.5.2. Sale price of selected products

As expected for every agricultural product, variations in prices are observed along the season, primarily according to the products’ availability, but might also vary momentarily due to unforeseen climatological conditions.

The variations are quite large with around 71% for tomatoes, 73% for pepper, 57% for lettuce, 41% for pumpkins and 45% for Jute mallow.

The profits of grocers and other stakeholders will be evaluated later in the financial analysis section, while noting that grocers have to calculate the risks of loss of fresh vegetable with short shelf lives.

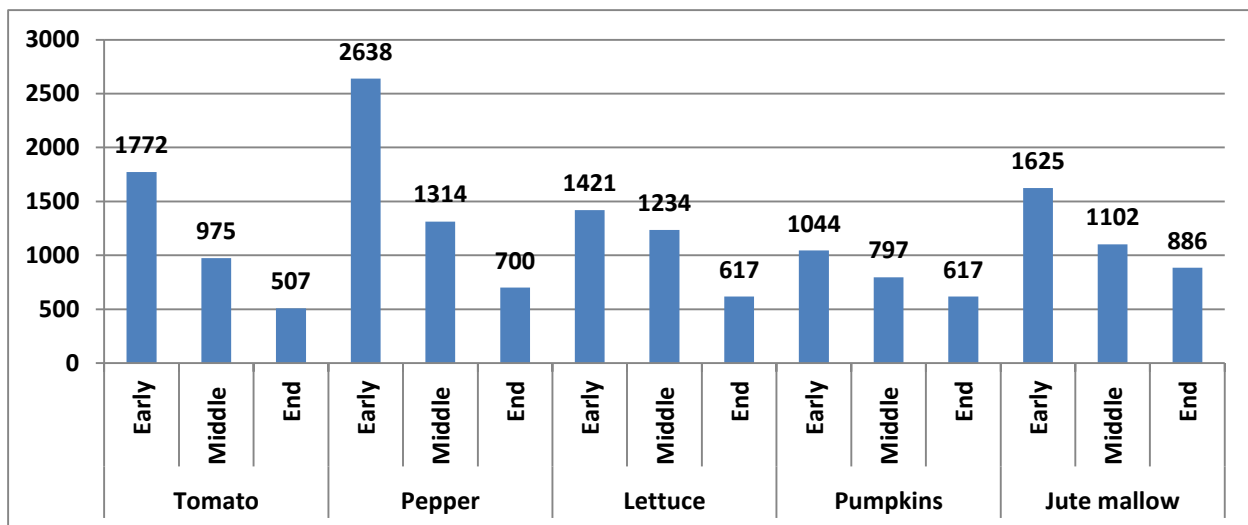


Figure 16: Purchasing price variations of the selected products (LBP/Kg, except for lettuce and Jute mallow, it’s LBP/piece)

2.2.5.3. Causes of variation

According to grocers, the main cause behind the variation of prices is the competition from neighboring countries such as Syria and Jordan, which would increase the offer compared to the market's demand and hence causes the decrease in products prices.

Neighboring countries agricultural production is characterized by a cheap labor and a higher involvement of the public sector with the production and the strategic direction, which makes it more competitive with the local market.

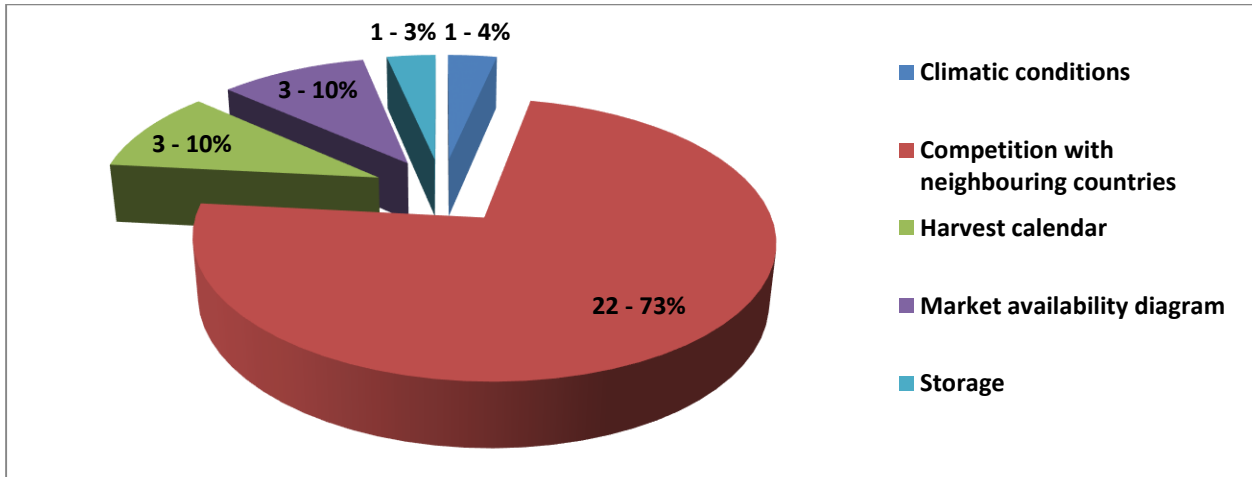


Figure 17 : Causes of purchasing price variations according to grocers (Value, percentage)

2.2.5.4. Access to finances and credits

For grocery stores, the self-dependence for financial support is still the highest, although banks are starting to take a larger part in the financial system with around 30% of the cases. The explanation, next to the religious constraints is the fact that trading products holds less risks than growing them, since the unpredictable facet caused by the climatic conditions is not strong in this case, which would encourage stakeholders at this level to take credits from banks to increase their businesses.

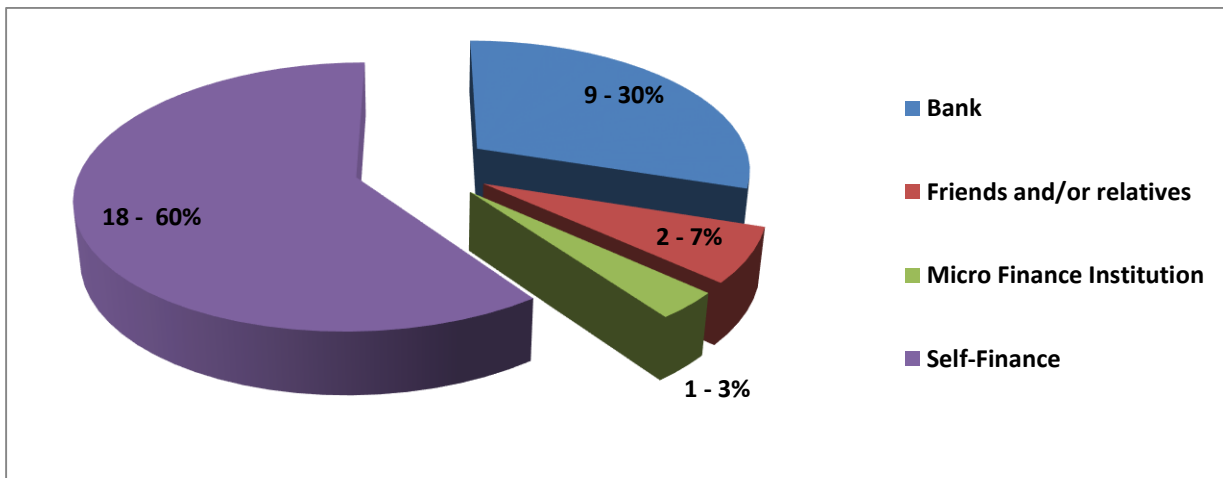


Figure 18: Distribution of sources of credits and financial support (Value, percentage)

2.2.6. Consumers

The objective of the consumers' analysis is to understand the reasons behind their purchasing decisions, their expectations and their understanding of certification and their openness to such concepts. In this section, it is also important to understand the influence of the residence region on the purchasing decisions, with their proximity to the farming community. This would explain the appreciation of farmers' problems and the direct access to their productions. Rural and urban regions are represented each by 40 consumers distributed both geographically and socio-economically. In rural Akkar, the sample was distributed between the plain, the midlands and the highlands. In Tripoli, the closest large agglomeration, the sample was distributed according to the socio-economic levels. The samples respect gender equality, it also include age, level of education, monthly income and family size to be representative.

Table 15: Consumers distribution according to age

Age	Percentage
20 to 30	21%
30 to 40	23%
40 to 50	23%
50 to 60	30%
>60	3%

Table 16: Consumers distribution according to level of education

Education level	Percentage
Primary	33%
Complementary	21%
Secondary	31%
University	14%

Table 17: Consumers distribution according to monthly income

Monthly income	Percentage
<500	17%
500-1000	45%
1000-1500	26%
1500-2000	12%

Table 18: Consumers distribution according to family size

Family size	Percentage
2	7%
3	13%
4	26%
5	29%
6	13%
7	4%
>7	9%

2.2.6.1. Quality guarantees

As expected and showed in figure 19, rural consumers have the privilege of having direct access to the producer, with a clear understanding of their production process. As for urban consumers, the major guarantee is the products price; the higher it is, the better the quality. Other parameters also play an important role such as the product's appearance; trust in the source, however, the labeling parameter remains one of the weakest points. This situation shows that there's an immense need to clarify the labeling concept to the consumer and the sort of guarantees it provides to protect a clean production.

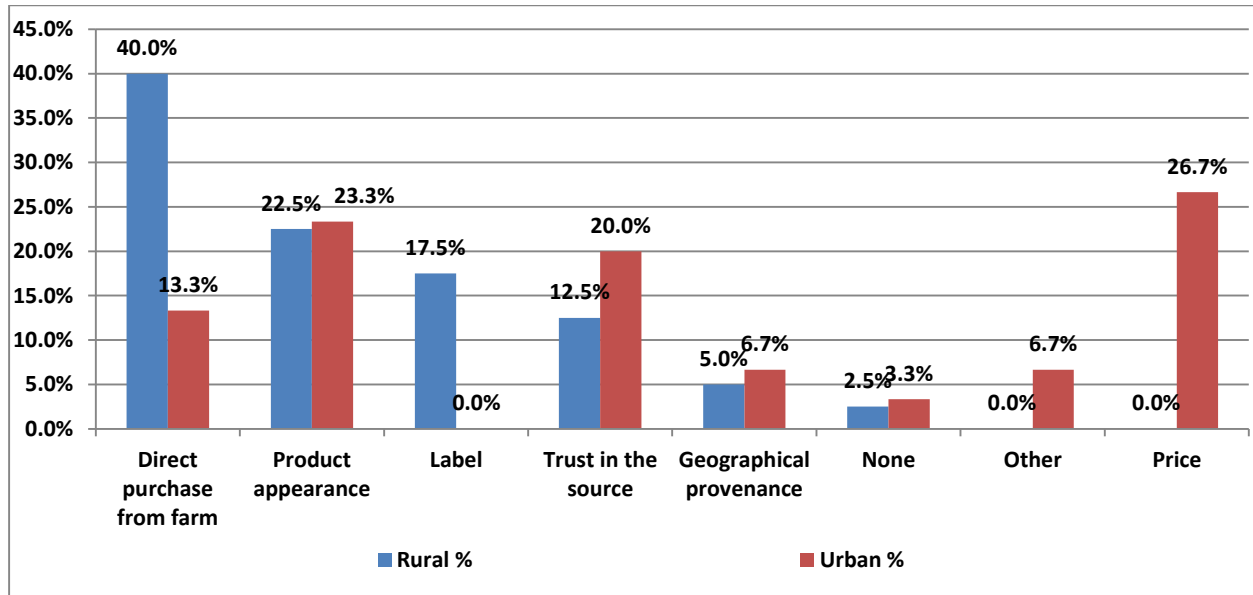


Figure 19: Quality guarantee

2.2.6.2. Required information

Consumers in rural areas are interested in getting clear information about the production and expiry date, followed by weight or quantity, origin and ingredients and additives, especially for processed products. The average need of urban consumers is lower but for them, the origin of a product, its ingredients and additives and name are also of great importance. This means that consumers even in rural areas are starting to be conscious about the quality of the products they are purchasing.

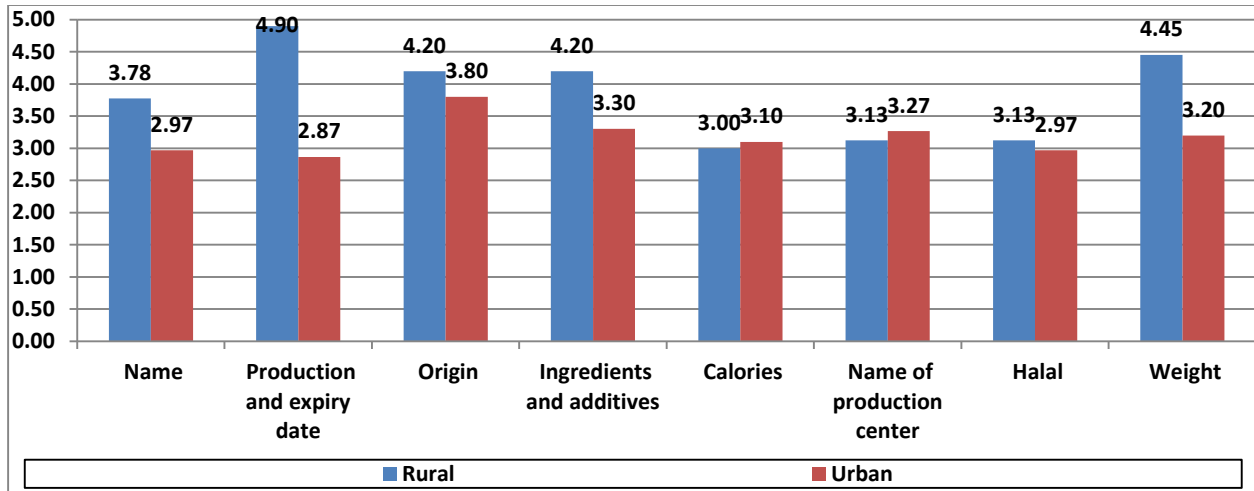


Figure 20: Required information

2.2.6.3. Readiness to pay extra

Both urban and rural consumers are ready to pay extra for products that would present less use of agrochemicals and respect the farmers' rights and bring balance to the agricultural value chain. The purchasing system would be through a Business to Consumer or Business to Business model. This answer shows that most of the population is aware of the sanitary and social problems of the agricultural value chain and that they are ready to increase their payments in exchange of value added products. The major obstacle is to provide consumers with reliable guarantees which could be provided by MoA or any other certified institution.

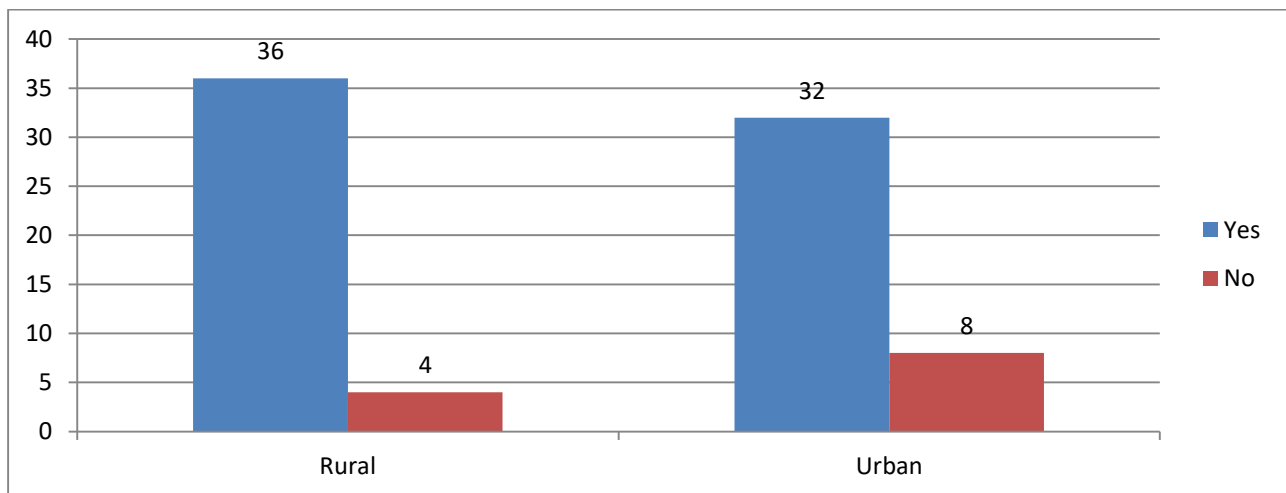


Figure 21: Readiness to pay extra

2.2.6.4. Accepted increase in prices in exchange of value added products

The responses were mitigated concerning how much are consumers ready to pay extra, but most of urban and rural populations are ready to pay between 5 and 15% more for products considered with higher sanitary values. These basic numbers could be used eventually when setting a feasibility study for such products.

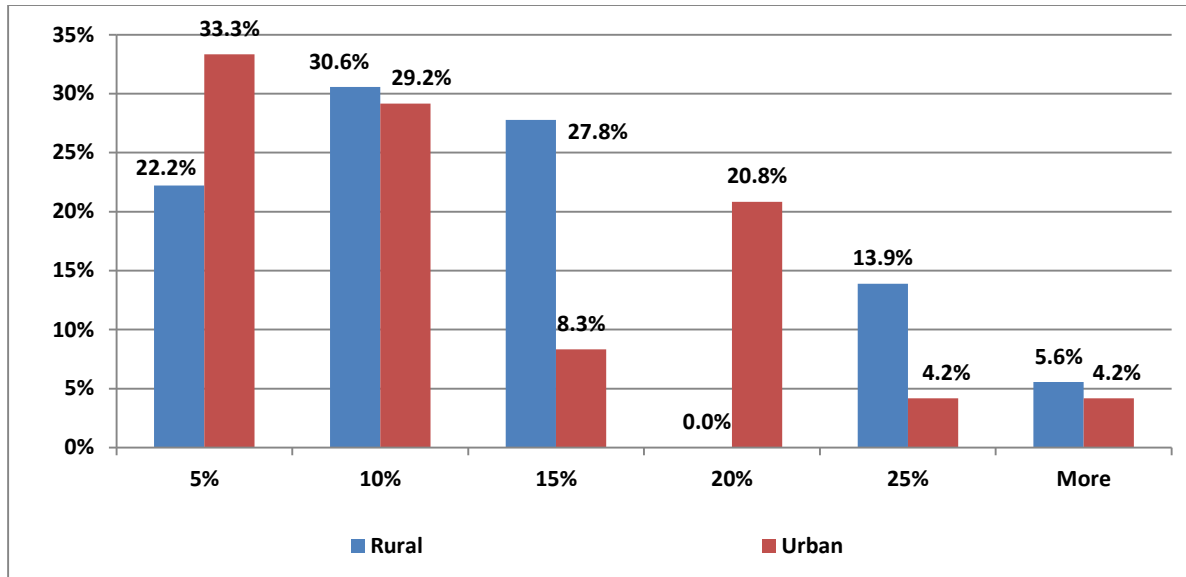


Figure 22: Accepted increases in selected products prices

2.2.6.5. Fresh product consumption

As expected, since Lebanon still holds a great deal of the mediterranean diet, salads play a major role in the populations diet, therefore, consumption of both tomatoes and lettuces are frequent, once or more per week. Pumpkins and Jute mallow consumptions are quite present in urban areas, it is however almost inexistant in the rural areas. Pumpkin is seldomly used as Kebbeh or jams, whereas jute mallow is purchased in urban regions both as a fresh and a dehydrated product.

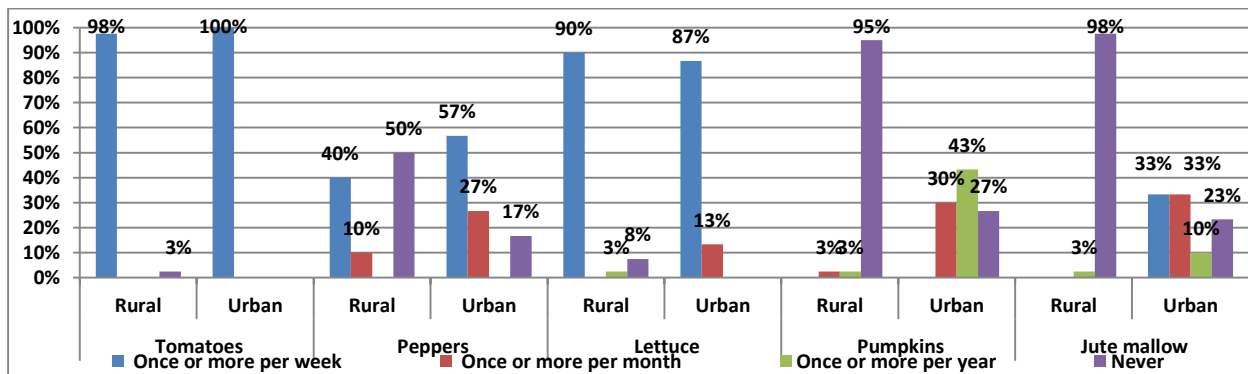


Figure 23: Consumption of fresh selected products

2.2.6.6. Unit price

The prices presented in figure 24 show the average purchasing price of the selected products which, as shown earlier may change along the season for different reasons.

A comparative analysis will be provided later to present the prices evolution along the value chain and discuss the possibility of decreasing this difference through privileging direct purchasing systems.

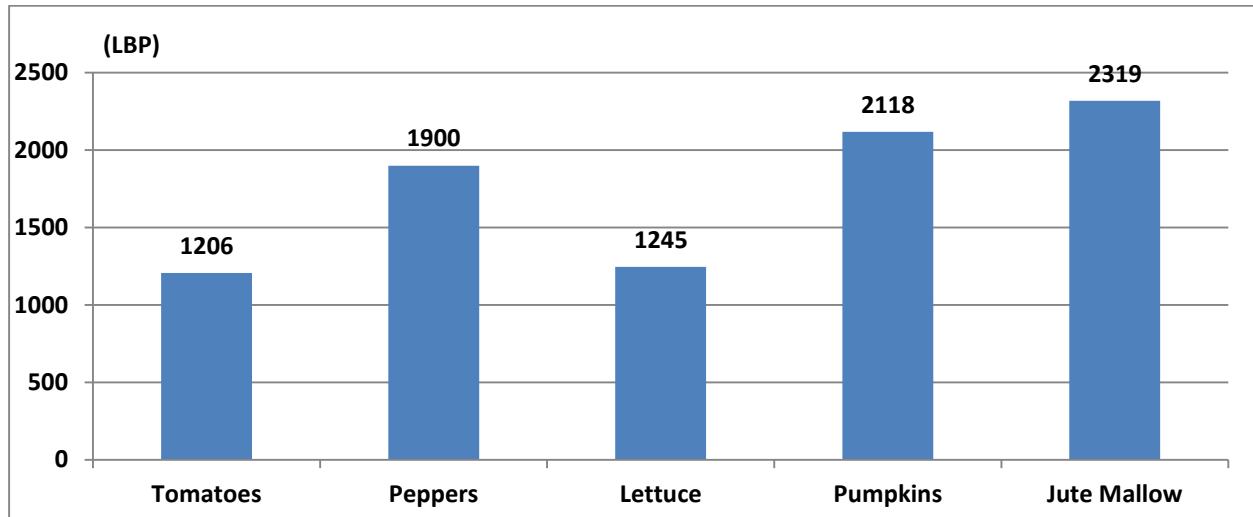


Figure 24: Unit purchasing price (LBP/Kg for Tomatoes, peppers and pumpkins and LBP/Unit for Lettuce and Jute mallow)

2.2.6.7. Improvements requested by consumers

When asked about the improvements they would expect in the currently available products, the first and most claimed one was packaging, especially for fresh lettuce and jute mallow with plastic covers both vacuumed or with CO₂ changed atmosphere. The quality of the products, most of the time, are not up to the consumers' expectations, especially when it comes to the taste because of the use of agrochemicals and the rapid growth of vegetables. Price decrease is a constant demand of the consumer, regardless of the price.

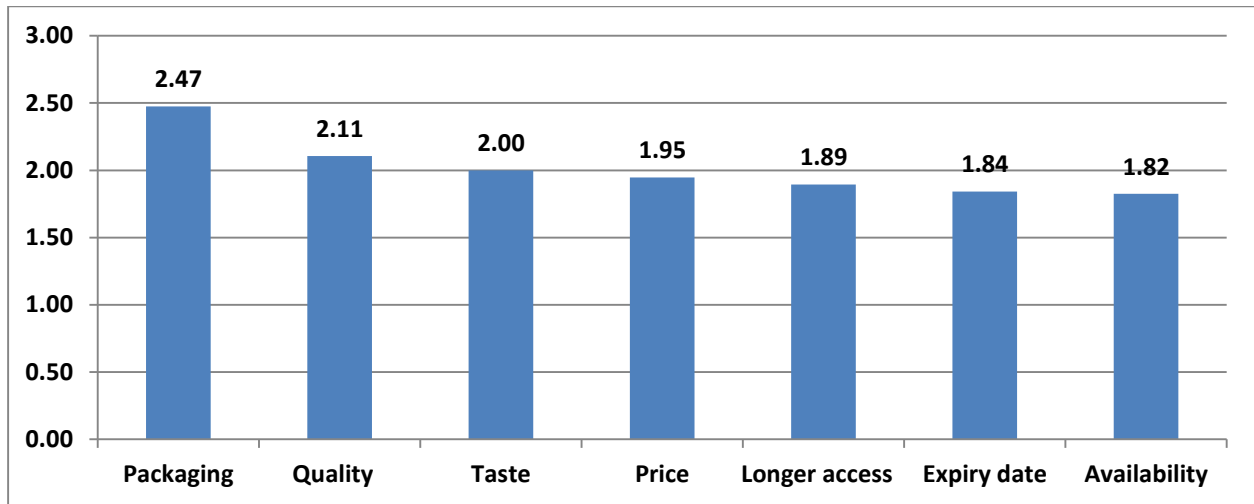


Figure 25: Improvements requested by consumers

Part 3

Value chain analysis of selected products

Part 3: Value chain analysis of selected products

3.1. Introduction

The value chain analysis will be based on three major components, first, a financial analysis of crops production, second, a SWOT analysis of the value chain and finally, a proposed business model based on the previous sections' analysis.

3.2. Financial analysis

3.2.1. Production cost

Production costs for tomatoes, pepper and lettuce are identified and presented in the below tables; however, it was very difficult to get reliable calculations for the production cost of pumpkin and jute mallow since they are rarely grown in Akkar.

The calculation unit is a standard greenhouse of 320 m² planted with 830 seedlings of tomato or pepper and the double of lettuce.

Major diseases faced by producers in intensive greenhouses are the Silverleaf Whitefly (*Bemisia tabaci*), the Tomato Leafminer (*Tuta absoluta*) and the water molds (*Phytophthora*). As shown in the tables below, huge amounts of pesticides are used to protect the plants from diseases, especially the ones identified; at the same time, causing agents and vectors keep developing immunity to used pesticides, hence the constant change in used products. Pesticides are used on a regular basis regardless of the existence or not of diseases symptoms.

On the other hand, higher altitudes mean fewer incidences of diseases and less need for greenhouses, however, the altitude limit of diseases attacks keeps increasing, probably due to global warming. The use of greenhouses to fight diseases decreases on these altitudes, however, their need for thermal isolation remains the same. Moreover, the use of greenhouses in general on high altitudes is weak, because they don't protect vegetation against frost bites in their current use techniques.

Local seeds are used in an experimental manner; however, the imported seeds show more resilience and power against the major diseases. The problem is that local seeds are failing to adapt to the rapid change in diseases incidence and temperature variation because the natural adaptation process is slow; on the other hand, imported seeds are the result of intensive experimentation, cross breeding and genetic selection in response to the intensive production system currently employed.

Local seeds are adapted to a different less intensive production system, whereas imported seeds are a component of a complete production system including specific pesticides and other agro chemicals, providing higher yields to farmers.

Water sources are usually either private wells in the plain or directly from river or from artificial lakes; farmers seldom pay for the water consumption, they only pay for the pumping cost.

Part 3: Value chain analysis of selected products

Table 19: Production cost/income for tomatoes (LBP/320 m2)

Production cost				
Category	Description	Cost per unit	Number of units per season	Total cost
Pesticides	3 compiled	LBP 20,000	24	LBP 480,000
	Other	LBP 125,000	1	LBP 125,000
Fertilizers	Soil preparation (15's and organic)	LBP 100,000	1	LBP 100,000
	Phosphate	LBP 8,000	1	LBP 8,000
	20's	LBP 80,000	1	LBP 80,000
	Foliage nutrition	LBP 100,000	1	LBP 100,000
Electricity	water pump	LBP 100,000	1	LBP 100,000
Cost of greenhouse	4 year depreciation	LBP 750,000	1	LBP 750,000
Land rental	Per year	LBP 350,000	1	LBP 350,000
Seedlings	One time only	LBP 150,000	1	LBP 150,000
Labor	Preparation	LBP 250,000	1	LBP 250,000
	Harvest (6 days per month)	LBP 150,000	3	LBP 450,000
Packages	One time only (15 Kg per unit)	LBP 30,000	1	LBP 30,000
Transportation	250 LBP per unit for plain	LBP 12,500	18	LBP 225,000
				LBP 3,198,000

Production income				
Nbre of Kg per single harvest	Nbre of harvests	Total	Sales price per Kg	Total
750	18	13500	750	LBP 10,125,000

Part 3: Value chain analysis of selected products

Table 20: Production cost/ income for peppers (LBP/320 m²)

Production cost				
Category	Description	Cost per unit	Number of units per season	Total cost
Pesticides	3 compiled	LBP 20,000	24	LBP 480,000
	Other	LBP 125,000	1	LBP 125,000
Fertilizers	Soil preparation (15's and organic)	LBP 100,000	1	LBP 100,000
	Phosphate	LBP 8,000	1	LBP 8,000
	20's	LBP 80,000	1	LBP 80,000
	Foliage nutrition	LBP 100,000	1	LBP 100,000
Electricity	water pump	LBP 100,000	1	LBP 100,000
Cost of greenhouse	4 year depreciation	LBP 750,000	1	LBP 750,000
Land rental	Per year	LBP 350,000	1	LBP 350,000
Seedlings	One time only	LBP 150,000	1	LBP 150,000
Labor	Preparation	LBP 250,000	1	LBP 250,000
	Harvest (6 days per month)	LBP 150,000	3	LBP 450,000
Packages	One time only (5 Kg per unit)	LBP 30,000	1	LBP 30,000
Transportation	250 LBP per unit for plain	LBP 12,500	18	LBP 225,000
				LBP 3,198,000
Production income				
Nbre of Kg per single harvest	Nbre of harvests	Total	Sales price per Kg	Total
250	18	4500	1000	LBP 4,500,000

Part 3: Value chain analysis of selected products

Table 21: Production cost/ income for Lettuce (LBP/320 m²)

Production cost				
Category	Description	Cost per unit	Number of units per season	Total cost
Pesticides	3 compiled	LBP 20,000	4	LBP 80,000
	Other	LBP 25,000	1	LBP 25,000
Fertilizers	Soil preparation (15's and organic)	LBP 50,000	1	LBP 50,000
	Phosphate	LBP 8,000	1	LBP 8,000
	20's	LBP 25,000	1	LBP 25,000
	Foliage nutrition	LBP 50,000	1	LBP 50,000
Electricity	water pump	LBP 50,000	1	LBP 50,000
Cost of greenhouse	4 year depreciation	LBP 250,000	1	LBP 250,000
Land rental	Per year	LBP 350,000	1	LBP 350,000
Seedlings	One time only	LBP 50,000	1	LBP 50,000
Labor	Preparation	LBP 100,000	1	LBP 100,000
	Harvest (2 days)	LBP 25,000	2	LBP 50,000
Packages	Reusable	N/A	N/A	N/A
Transportation	250 LBP per unit (12 lettuces) for plain	LBP 35,000	1	LBP 35,000
				LBP 1,123,000

Production income				
Nbre of Units	Nbre of harvests	Total	Sales price per Kg	Total
1600	1	1600	1000	LBP 1,600,000

Part 3: Value chain analysis of selected products

The above tables represent the cost of currently used production techniques. Alternative methods like organic production or agroforestry would certainly change the numbers both on the cost and price levels; the cost would certainly decrease as less agrochemicals are used, however, the production would decrease for the same reason, which would lead to sales price increase; However, if we consider medium and long-term effect, the excessive use of agrochemicals causes the deterioration of soil and water quality, which could lead to a decrease in production as well.

On the other hand, the mere use of Good Agricultural Practices (GAP) would lead into a more balanced cost vs. price ratio, while maintaining lower sales prices.

On this note, it would be interesting within the current project to propose different production techniques within specific demo plots and provide beneficiaries with hands on alternatives to their production techniques.

3.2.2. Sales prices

As shown before, products prices vary during the production season according to vegetables availability. On the other hand, average sales prices vary from one stakeholder to another, which might provide us with an idea of the profits distribution between different stakeholders.

As seen in below figure, price variation from producer to consumer varies between 22% for lettuce and 55% for peppers, lettuce noted a 22% difference and jute mallow reaches a staggering 132%. These numbers show inevitably the need for direct sales in order to decrease the value chain length in order to be fair for consumers and farmers alike.

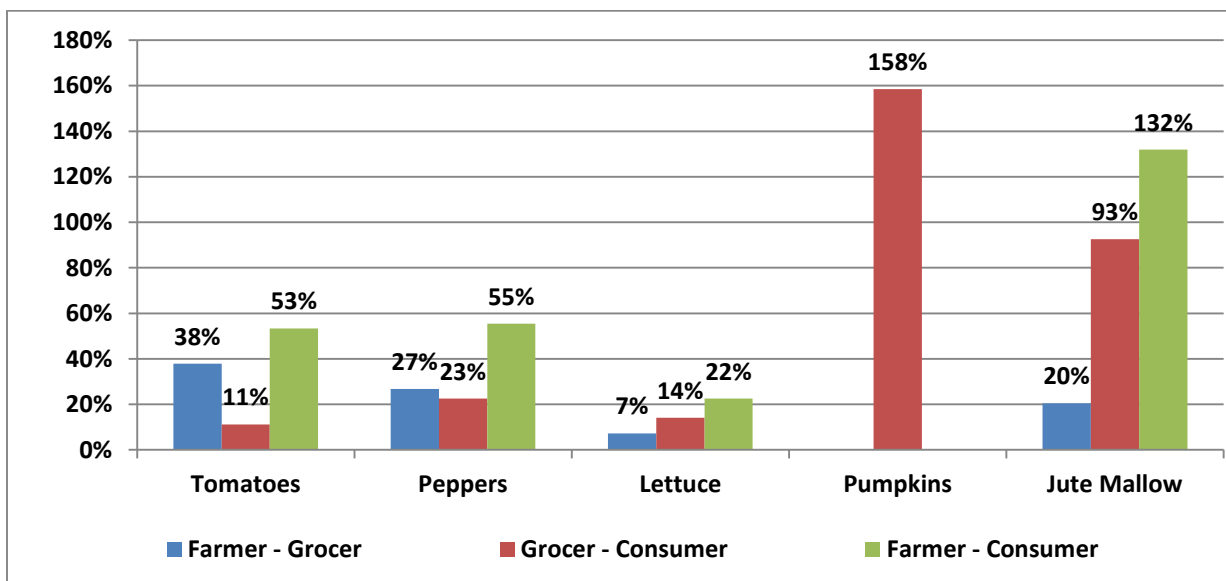


Figure 26 : Price variations along the value chain levels (%)

3.3. SWOT Analysis of the value chain

3.3.1. Strengths

Input suppliers	<ul style="list-style-type: none">• Easy access to classical phytosanitary products and agricultural equipment
Producers	<ul style="list-style-type: none">• Diversified ecosystems in Akkar; therefore, all five designated products could be grown successfully• Farmers still believe in the success of agricultural production despite its difficult situation, many success stories exist• Farmers possess a long experience, most of them are aware of their problems and are ready to collaborate to get a sustainable solution for these problems• The availability of local agricultural experts in Lebanon is a substantial asset
Processors	<ul style="list-style-type: none">• Processors still possess the needed know-how for traditional production, but are also open to new production techniques respecting food security standards• The existence of post-harvest grading and dehydrating units (EMKAN, Safadi, etc.) is also a plus, although efforts are needed to maximize its efficiency
Traders	<ul style="list-style-type: none">• Traders are well connected. The existence of a local market in Akkar is a major advantage for local farmers for it decreases their transportation cost
Distributors	<ul style="list-style-type: none">• Good contact with consumers and trusty relationship
Consumers	<ul style="list-style-type: none">• Aware of the health and environmental problems caused by the excessive use of agrochemicals

3.3.2. Weaknesses

Input suppliers	<ul style="list-style-type: none">• Limited access to organic production pest control tools
Producers	<ul style="list-style-type: none">• High production cost and limited competitiveness due to the lack of protection policies• Traders, not farmers, set selling prices• Unsold or damaged products are returned to the farmer and not paid for• Farmers do not use simple low-cost production or quality boosting or cost-saving methods in their current production practices.• Although having received much vocational training, farmers and processors suffer from a lack of accounting know-how, except for cooperatives• Cooperatives are very weak and usually, they are not functional since time and effort investments are done only by a limited number of members
Processors	<ul style="list-style-type: none">• Absence of advanced and large processing units• Absence of financial investments
Traders	<ul style="list-style-type: none">• Need for steady quantitative and qualitative production to cater for the need of markets• Shipping cost and time has increased with the current Syrian crisis
Distributors	<ul style="list-style-type: none">• Weak demand for organic and fair trade products
Consumers	<ul style="list-style-type: none">• Weak access to local specialized products

3.3.3. Opportunities

Input suppliers	<ul style="list-style-type: none">• Organic phytosanitary products can be provided if the farmers need increases
Producers	<ul style="list-style-type: none">• Since obsolete production techniques are still being used which leaves a lot of room for alternative production techniques such as permaculture, agroforestry and organic production as well as global GAP certifications• Existing technical and capacity building training by NGOs is helping farmers become more and more open minded regarding new technology and production techniques• Chosen products have good opportunities in high-end markets in Lebanon and export markets (cherry tomato, colored pepper, iceberg and organic products, etc.)
Processors	<ul style="list-style-type: none">• Tomatoes, peppers, jute mellow and pumpkin possess an interesting potential for processing, which presents an interesting possibility of linkages between producers and the agro-food industry.• Processors and producers showed interest in becoming part of a comprehensive collaboration system, including marketing and sales services
Traders	<ul style="list-style-type: none">• High demand for leafy green vegetables, especially in Europe during the winter season• Shipping cost and time could decrease with the ending of the Syrian crisis and the opening of new passages to neighboring Iraq and Jordan
Distributors	<ul style="list-style-type: none">• Many cases of successful organic production and efficient collaboration between stakeholders and NGOs that could be repeated and developed
Consumers	<ul style="list-style-type: none">• Consumers expressed their readiness in paying extra for agricultural and food products with health benefits

3.3.4. Threats

Input suppliers	<ul style="list-style-type: none">• Risk of farmers not paying their dues because of bad production, which means an extension of the debts
Producers	<ul style="list-style-type: none">• The possibility of aggravating the impact of the political and security situations in Syria and other neighboring countries on the agricultural sector in Lebanon;• Scarcity of water resources and salinity of ground water;• Excess use of phyto-sanitary products leading to their accumulation in the environment• The excess use of agrochemicals is slowly decreasing the quality of water and soil and leading to the accumulation of chemicals
Processors	<ul style="list-style-type: none">• Lack of investments prevent the development of the food processing sector to an advanced status
Traders	<ul style="list-style-type: none">• Low competitive prices are preventing local production from penetrating the industrial segment and regional markets

Part 3: Value chain analysis of selected products

Distributors	<ul style="list-style-type: none">• The local distribution market suffers from weak government quality control, a lack of marketing regulations, and competition from lower-priced products from the border and neighboring countries.
Consumers	<ul style="list-style-type: none">• Decreasing purchasing capacity due to increasing inflation

3.4. Barriers facing the vegetables in Akkar area to keep up with local and international trends

The barriers facing the vegetables in Akkar area to cater for the needs of the local and the European and international trends are presented below:

For the local market, two major factors play an important role to access the market. The first factor is the need for healthy products; hence the importance of decreasing the use of pesticides and respecting their use recommendations in order to avoid high pesticides accumulation. The second factor is economic, with the increasing inflation and decreasing purchasing capacity, consumers are in need for cheaper agricultural and food products, which are currently provided by the neighboring countries. As for the produced species, they are well adapted with the consumers' needs and expectations.

There are several challenges specific for the export market. The first is the mentality of some farmers who are attached to varieties which are not required by the European consumers instead of producing other species such as small potatoes, long cucumbers, romaine lettuce, etc. The second challenge is the high cost of export especially with the closing of the land export lines due to the Syrian crisis.

Moreover, non-compliance with the required standards in terms of farmland site inspections, analysis and tests on vegetables, use of fertilizers and packaging process. The lack of farmers' and exporters' knowledge about export procedures and means and packing standards is hindering their access to international markets.

3.5. Business model proposition

Based on the feedbacks from the different value chain stakeholders, and after assessing their needs and ways to cater for them in order to increase the value chain efficiency, the following was noted.

- Consumers are ready to pay extra for high quality products, on the other hand, farmers and processors are ready to produce the requested products according to requested specifications, and the only problem is to get access to markets.
- On the other hand, entities like CCIAT possess the equipment and laboratories needed to perform any qualitative test of vegetables and processed food; however, not many processors perform these tests. Moreover, regional research institutes and universities have the capabilities of developing processed products and to document the production process to guarantee standard repeatable characteristics.

Part 3: Value chain analysis of selected products

- Based on the above, the proposed business model relies on a service providing entity who would be the link between the different value chain stakeholders and would provide services required by each stakeholder and thus improve the value chain efficiency.
 - For the producers and the processors, they would perform quality control measures based on the services provided by the CCIAT, hence, ensuring the production of high quality, pesticides, additives and colorings free products. It would also collaborate with available research institutes to develop new products.
 - On the other hand, the service provider would buy all the producers and processors production in a previously fixed price and would perform needed marketing and sales activities to eventually reach the consumers and cater to their needs.
 - In order for the service provider to remain sustainable after the end of the project, a certain commission would be paid by collaborating stakeholders in exchange for all its services.
 - In order to transcend the inefficiency of some cooperatives, SMEs clustering would rely on interested and serious beneficiaries regardless of their belonging or not to cooperatives.
 - The legal status of the proposed entity would be similar to that of a holding with representatives of the different stakeholders at the board of directors, as well as experts from academic and research institutions, however, current efficient cooperative or union of cooperatives which proved their seriousness could replace that status.
 - It is important to note that most of the components of the proposed business model already exist in the current value chain (i.e.: the union of Joumeh) and they need a linkage process and an improvement of managerial efficiency to coordinate their activities. This situation is good both on the immediate term for it will increase the chance of its success and on the long term for it will increase the chance of its viability after the end of the project.

The major components would be a group of motivated farmers and processors, regardless of their belonging to specific cooperatives, such as a nursery with previous experience with NGOs. The final goods would be improved agricultural products with higher hygiene and health qualities as well as labeled traditional products for it is an important advantage which could be provided by Akkar as a rural region. Developing the proposed system into more advanced productions with improved quality management would be the medium and long term objectives after optimizing the production and sales process; this would attract local and foreign investments. The next step would be to initiate the development of main stream products such as jams, canned food, etc.

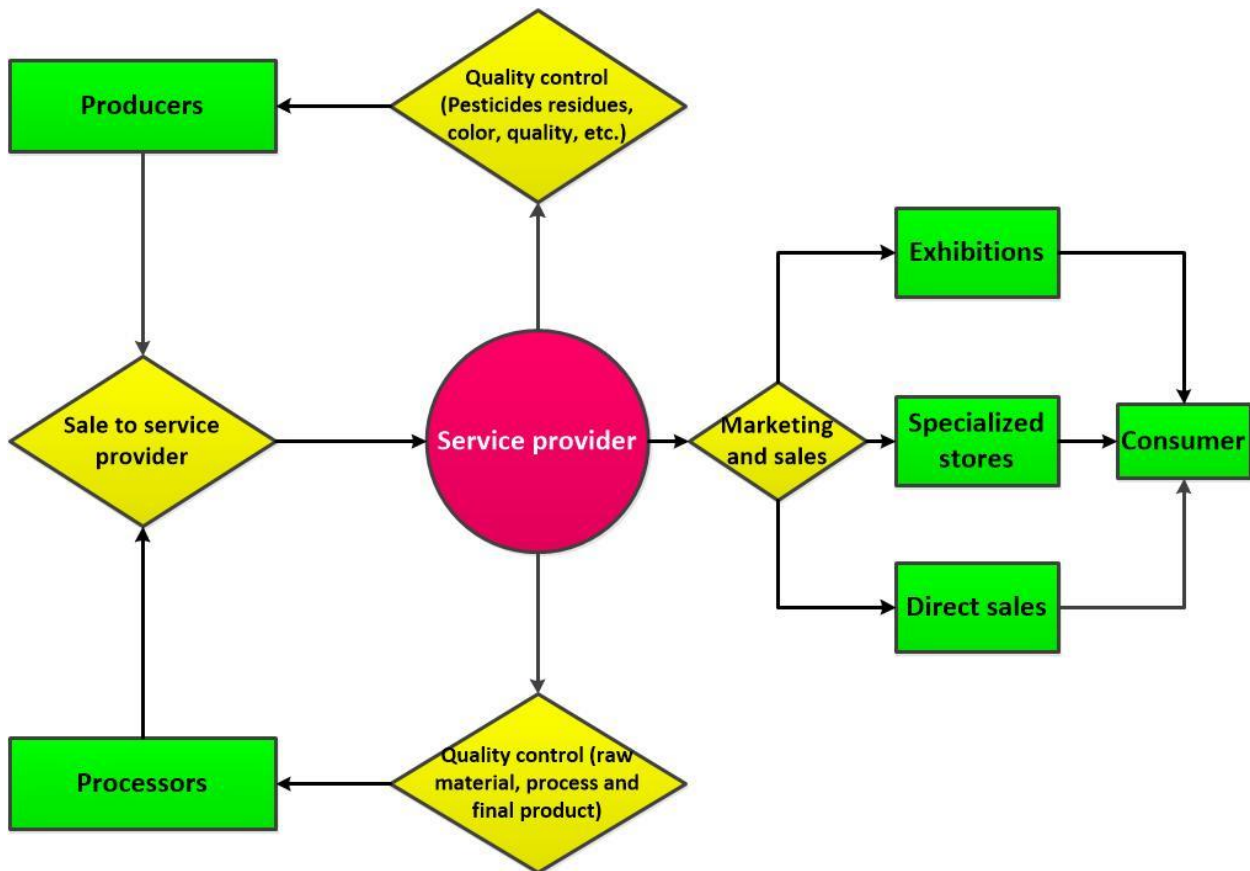


Figure 27 : Proposed business model

One of the current successful experiences is that of the union of cooperatives in Joumeh. The main 3 cooperatives in Joumeh area incorporate to form the united cooperative in Joumeh which includes the cooperatives of Rahbeh, Bazbina, and Akkar El Atika and the surrounding villages.

The united cooperative established since 1999 a refrigeration storage center in Bazbina and begun providing services to fruit farmers with a capacity of 60,000 fruit boxes divided on 3 main storage rooms.

In addition, the united cooperative provides agricultural guidance to its members and area farmers to improve the quality and quantity of fruits and work on the reduction of chemicals applied by the farmers.

In the past years many NGO's and international organization and the ministry of agriculture emphasized on the importance of this union of cooperatives and work closely with the management board to improve this cooperative throughout many projects.

The cooperative also possesses:

Part 3: Value chain analysis of selected products

- 3 refrigerator storage room for apple
- Sorting and grading line
- Agricultural pharmacies supplying the farmers of Joumeh with pesticides, seeds, fertilizers, irrigation system
- Pick-up for transportation
- A building of around 3,000 sqm with many facilities inside (hall, conference room, depot...)

It would be interesting to analyze the capacity of such an entity to be able to attain the status of a comprehensive service provider and to distribute the needed progress needed over the course of consecutive projects, allowing the Union to grow in a steady and sustainable manner.

It is important to note that Fair Trade Lebanon possesses all the needed advantages to carry such a business model, since it is one of the NGOs who are able to cover all the value chain and link the producer and processor to the consumer through its partners, therefore, it would be interesting to develop its currently functional system to include the studied products and their processed forms.

3.6. Recommendations

3.6.1. Input suppliers

There is a need to invest in new less harmful agrochemicals and in providing pest control products for organic production.

Provide support to small farmers in accessing agricultural inputs in order to lower the cost of production; this could be provided for a starter through the service provider entity proposed earlier and transformed eventually to an institution directed by farmers and processors.

There's a need to reduce import duties on agricultural equipment and farm-related inputs like seeds, fertilizers, etc.

3.6.2. Producers

Most interviewees base their technical decisions mainly on their own know-how and secondly on the advice provided by the input supplier, which raises the need for easy access platform to provide specialized technical advice. LARI is currently providing specific services concerning water quality, soil quality and the needed amendments as well as specific agricultural products they are working on such as potatoes, but the need is larger and includes other activities.

One of the main problems faced by producers and nurseries are pathologies, which increases the use of pesticides and enters the farmers in a vicious circle, since the causing agents acquire immunity to the used chemicals; therefore, it is important to invest in local breeds and explore how well they are still adapted to local conditions and their potential to decrease the environmental footprint.

Part 3: Value chain analysis of selected products

Farmers should be aware of the importance of working in small groups or cooperatives in order to reduce costs of production, distribution and marketing, as well as to share expertise and strengthen the bargaining power within the chain; This could be done through the creation of a group of motivated members who have proven through their previous collaborations with other NGOs and projects their transparency and efficiency. This cluster would also include representatives from supporting entities such as MoA, LARI, Universities, etc. to provide the latest updates on production techniques and help in strategic decisions a policy making.

There is a clear need to disseminate sector information to the largest number of farmers, cooperatives and investors. Sector-relevant information includes weather, crop and livestock conditions, prices and markets, technology. Information on access to agricultural finance and markets, and related opportunities for support, including temporary export subsidies, could also be covered. This can make the market structure more transparent and reduces the role of the middlemen.

Farmers should develop awareness on new types of crops and new technology, such as hydroponics for tomatoes and lettuces for leafy greens, for these technologies may provide a solution to the increasing negative environmental impact while maintaining high production efficiency.

3.6.3. Processors

Food processing used to be a home-based income-earning activity for women that contributed to closing the income gap; however, in recent years, processing cooperatives with the help of NGOs have proved to be a successful production model which is able to provide steady incomes. They also present interesting opportunities for further investments towards more advanced processing systems.

3.6.4. Traders

Good packaging and branding add value to products, they help selling locally to large retailers and succeeding in opening new export markets. Label data would include name, logo, and region of production to be printed directly on the packaging.

3.6.5. Value chain level

Develop awareness on Fair Trade and Ethical Trading principles among producers, processors, traders, but also consumers to help them in their purchasing decisions.

3.6.6. Value chain level action

The government should give support and training on advanced techniques, international export standards, quality of inputs and produce, product testing facilities and services, irrigation supply, pesticides and fertilizers use, and frequent water and soil analysis

Support agricultural business incubators to create opportunities for youth to engage in the sector and contribute to the infrastructure necessary to innovate and facilitate the take-off of agricultural start-ups;

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Annexes

Annex 1 : Survey questionnaire - Nurseries

Survey Questionnaire – SMEs – Nurseries

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

1. Personal information

Name	
Age	
Gender	
Date of birth	
Marital status	
Education	
Region of birth	
Location/address	
Phone number	

2. Entity information

Age of institution	
Region	
Workers / Seasonal	
Workers / Full time	

Part 2 - Agricultural operations of targeted products

1. What are the available seeds species for the below products

	Species 1	Species 2	Species 3	Species 4	Species 5
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

Annexes

2. What is the percentage of sales of the indicated species?

	Species 1	Species 2	Species 3	Species 4	Species 5
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

3. Where do you get your seeds from

	Mother company	Local Agent	Regional Agent	Farmer	Other
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

4. What is the production cycle of the targeted products?

	Soil preparation	Seeding	Seedling sale
Tomatoes			
Peppers			
Lettuce			
Pumpkins			
Jute mallow			

5. At what age seedlings are sold?

	0-5 days	5-10 days	10-15 days
Tomatoes			
Peppers			
Lettuce			
Pumpkins			
Jute mallow			

Annexes

6. What are the main obstacles facing these seedlings production? (rate)

	Diseases	Irrigation	Production level	Soil quality	Sale price	Total cost	Sale market
Tomatoes							
Peppers							
Lettuce							
Pumpkins							
Jute mallow							

Part 3 – Access to services

1. Who is the supplier of your seeds

- Local trader Mother company National Agent Regional agent Farmer

2. From where do you seek professional advice to determine the nature of the production process?

- Me
 Distributor
 Input supplier (agent)
 MoA
 NGO
 Private expert

3. How do you evaluate your access to the below inputs?

	Very difficult	Difficult	Acceptable	Easy	Very Easy
Seeds					
Fertilizers					
Pesticides					
Agricultural equipment					
Agricultural machinery					
Technical advice					

4. Do you follow trainings on your agricultural activities/products?

- Rate** More 2/year 1/year 1 / 2 years Less

Institutions names

Subjects

Annexes

Part 4 – Market access

1. Other than security or the political situation, how would you rate the following challenges/obstacles that the management faces in running this business?

	None	Minor	Moderate	Major	Severe
Lack of market information					
Competition in the market					
Laws and/or regulations					
Cost of (or access to) appropriately skilled labor					
Cost of (or access to) technology/ equipment					
Cost of (or access to) land/office space (i.e. rent)					
Cost of (or access to) credit/finance					
Cost of (or access to) raw materials					

2. What is, in your opinion, the needed support to improve your business?

- Financial support
- Protection from outside competition
- Training
- Follow up
- Marketing
- Other

3. Is your entity registered at the Ministry of Finance or other local institutions (i.e. Chamber of Commerce, municipality)?

- Yes No

4. If yes, With whom?

- Ministry of Finance
- Chamber of Commerce
- Municipality
- Other

5. What were the main reasons you registered?

- Access to bank accounts
- Access to loans / capital
- Access to markets (export licenses)

Annexes

- Lower harassment / corruption
- Other

6. **Yes** **No** **Why not?**

- Not required
- Bureaucratic procedures (too complicated)
- Taxes on registered
- Time cost of registration
- Compliance cost of registration
- Other

7. Is your entity part of larger cluster (i.e. coop)? specify

Part 5 – Financial dynamics

1. Evaluating production cost for targeted products (1000 m2)

(LBP)	Seeds	Pesticides	Fertilizers	Labor	Agr. Equipment (over 5 years)	Agr. Machinery (over 10 years)	Soil
Tomatoes							
Peppers							
Lettuce							
Pumpkins							
Jute mallow							

2. What is the selling price of the below seedlings?

(LBP)	Selling price
Tomatoes	
Peppers	
Lettuce	
Pumpkins	
Jute mallow	

3. What is the survival rate of the below seedlings?

(LBP)	Selling price
Tomatoes	
Peppers	

Annexes

Lettuce	
Pumpkins	
Jute mallow	

4. Do the costs vary during the year?

- Seeds Yes No
Pesticides Yes No
Fertilizers Yes No
Labor Yes No
Agr. Equipment Yes No
Agr. Machinery Yes No
Soil Yes No

5. Cause of variation

- Harvest calendar
- Imports from neighboring countries (competition)
- Market availability diagram
- demand peaks

6. Pricing terms

Do you get paid by cash on delivery? YES NO

Do you get paid by delayed payments? YES NO

If yes, please specify the payment delay in days : _____(Days)

Do you get paid by checks? YES NO

if yes, are they postdated checks? YES NO

7. How do you evaluate your position in the negotiation process? Why?

Very weak Weak Average Strong Very strong

8. What is your primary channel for access to credit and financing?

- Bank
- Micro Finance Institution
- Self-Finance
- Friends and/or relatives
- Local businessmen and private money lender(s)
- Credit extensions from suppliers
- Financial assistance from NGOs, other social organizations
- None

9. Compared to 24 months ago, how is your business performing?

Annexes

- A lot better
- Somewhat better
- Somewhat worse
- A lot worse
- Do not know (because the information is not recorded)
- Refuse to answer

10. Open questions

10.1. In your opinion, what are the 3 major problems that face your activity?

1- _____

2- _____

3- _____

10.2. Cite three solutions that you find serve the most your activity?

1- _____

2- _____

3- _____

Survey Questionnaire – SMEs – Phytosanitary stores

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

3. Personal information

Name	
Age	
Gender	
Date of birth	
Marital status	
Education	
Region of birth	
Location/address	
Phone number	

4. Entity information

Age of institution	
Region	
Workers / Seasonal	
Workers / Full time	

5. Sales

- Agricultural equipment
- Agricultural machinery
- Irrigation equipment
- Seeds
- Fertilizers
- Pesticides
- Advice
- Other

6. What is the share of each category from your sales?

- Agricultural equipment
- Agricultural machinery
- Irrigation equipment
- Seeds
- Fertilizers
- Pesticides
- Advice
- Other

Annexes

Part 2 - Agricultural operations of targeted products

7. What are the available seeds species for the below products

	Species 1	Species 2	Species 3	Species 4	Species 5
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

8. What is the percentage of sales of the indicated species?

	Species 1	Species 2	Species 3	Species 4	Species 5
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

9. What is the share of targeted products from your total sales (%)

	Agricultural equipment	Agricultural machinery	Irrigation equipment	Seeds	Fertilizers	Pesticides	Advice
Tomatoes							
Peppers							
Lettuce							
Pumpkins							
Jute mallow							

10. What is the production cycle of the targeted products?

	Soil preparation	Seeding	Harvesting	Intensive	Extensive
Tomatoes					
Peppers					
Lettuce					
Pumpkins					

Annexes

Jute mallow					
-------------	--	--	--	--	--

11. What is the fertilization program per m2?

	Fertilizer	Quantity	Date
Tomatoes	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Peppers	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Lettuce	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Pumpkins	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Jute mallow	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

12. What is your pesticide application program?

	Pesticide	Quantity	Date
Tomatoes	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Peppers	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Lettuce	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Pumpkins	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Jute mallow	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

13. What are the main obstacles facing these products production? (rate)

	Diseases	Irrigation	Production level	Soil quality	Sale price	Total cost	Sale market
Tomatoes							
Peppers							
Lettuce							

Annexes

Pumpkins							
Jute mallow							

Part 3 – Access to services

5. Who is the supplier of your products

	Local trader	Directly from the mother company	National agent	Regional agent
Seeds				
Fertilizers				
Pesticides				
Agricultural equipment				
Agricultural machinery				

6. From where do you seek professional advice to determine the nature of the fertilizers and pesticides?

- Me
- Distributor
- Input supplier (agent)
- MoA
- NGO
- Private expert

7. How do you evaluate your access to the below inputs?

	Very difficult	Difficult	Acceptable	Easy	Very Easy
Seeds					
Fertilizers					
Pesticides					
Agricultural equipment					
Agricultural machinery					
Technical advice					

8. Do you follow trainings on your agricultural activities/products?

Rate More 2/year 1/year 1 / 2 years Less

Institutions names

Subjects

Part 4 – Market access

8. Other than security or the political situation, how would you rate the following challenges/obstacles that the management faces in running this business?

	None	Minor	Moderate	Major	Severe
Lack of market information					
Competition in the market					
Laws and/or regulations					
Cost of (or access to) appropriately skilled labor					
Cost of (or access to) technology/ equipment					
Cost of (or access to) land/office space (i.e. rent)					
Cost of (or access to) credit/finance					
Cost of (or access to) raw materials					

9. What is, in your opinion, the needed support to improve your business?

- Financial support
- Protection from outside competition
- Training
- Follow up
- Marketing
- Other

10. Is your entity registered at the Ministry of Finance or other local institutions (i.e. Chamber of Commerce, municipality)?

- Yes No

11. If yes, With whom?

- Ministry of Finance
- Chamber of Commerce
- Municipality
- Other

12. What were the main reasons you registered?

- Access to bank accounts
- Access to loans / capital
- Access to markets (export licenses)
- Lower harassment / corruption
- Other

13. Yes No Why not?

Annexes

- Not required
- Bureaucratic procedures (too complicated)
- Taxes on registered
- Time cost of registration
- Compliance cost of registration
- Other

14. Is your entity part of larger cluster (i.e. coop)? specify

Part 5 – Financial dynamics

10.3. Evaluating input cost for targeted products (1000 m2)

(LBP)	Seeds	Pesticides	Fertilizers	Irrigation equipment (over 5 years)	Agr. Equipment (over 5 years)	Agr. Machinery (over 10 years)
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

11. Do the costs vary during the year?

- | | | |
|----------------------|------------------------------|-----------------------------|
| Seeds | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Pesticides | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Fertilizers | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Irrigation equipment | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Agr. Equipment | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Agr. Machinery | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

12. Cause of variation

- Harvest calendar
- Imports from neighboring countries (competition)
- Market availability diagram
- Consumption peaks

13. Pricing terms

Do you get paid by cash on delivery? YES NO

Do you get paid by delayed payments? YES NO

If yes, please specify the payment delay in days : _____(Days)

Do you get paid by checks? YES NO

if yes, are they postdated checks? YES NO

14. How do you evaluate your position in the negotiation process? Why?

- Very weak Weak Average Strong Very strong

Annexes

15. What is your primary channel for access to credit and financing?

- Bank
- Micro Finance Institution
- Self-Finance
- Friends and/or relatives
- Local businessmen and private money lender(s)
- Credit extensions from suppliers
- Financial assistance from NGOs, other social organizations
- None

16. Compared to 24 months ago, how is your business performing?

- A lot better
- Somewhat better
- Somewhat worse
- A lot worse
- Do not know (because the information is not recorded)
- Refuse to answer

17. Open questions

17.1. In your opinion, what are the 3 major problems that face the leafy green sector?

1- _____

2- _____

3- _____

17.2. Cite three solutions that you find serve the most the leafy green sector

1- _____

2- _____

3- _____

Survey Questionnaire – SMEs - Farmers

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

7. Personal information

Name	
Age	
Gender	
Date of birth	
Marital status	
Education	
Region of birth	
Location/address	
Phone number	

8. Entity information

Age of farm	
Surface	
Workers / Seasonal	
Workers / Full time	

9. Production

Greenhouse			Open air			Animal production		
Species	Surface	Production (Kg/year)	Species	Surface	Production (Kg/year)	Species	Number	Production (Kg/year)

Annexes

Part 2 - Agricultural operations of targeted products

14. What is the extent of the productions of the targeted products?

	Surface	Yearly production	Years of production
Tomatoes			
Peppers			
Lettuce			
Pumpkins			
Jute mallow			

15. Production cost (per 1000 m²)

	Category	Tomatoes	Peppers	Lettuce	Pumpkins	Jute mallow
Land rental	Land					
Seeds	Input					
Fertilizers						
Pesticides						
Irrigation						
Labor (Land preparation, harvesting, etc.)	Labor					
Equipment cost (over 5 years)	Equipment					
Packaging	Post-harvest					
Transportation						
Medium						

16. What is the production cycle of the targeted products?

	Soil preparation	Seeding	Harvesting	Intensive	Extensive
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

Annexes

17. What is your fertilization program?

	Fertilizer	Quantity	Date
Tomatoes (<i>Solanum lycopersicum</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Peppers (<i>Capsicum annuum</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Lettuce (<i>Lactuca sativa</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Pumpkins (<i>Cucurbita pepo</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Jute mallow (<i>Corchorus olitorius</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

18. What is your pesticide application program?

	Pesticide	Quantity	Date
Tomatoes (<i>Solanum lycopersicum</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Peppers (<i>Capsicum annuum</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Lettuce (<i>Lactuca sativa</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Pumpkins (<i>Cucurbita pepo</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Jute mallow (<i>Corchorus olitorius</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Annexes

19. What are the main obstacles facing these products production? (rate)

	Diseases	Irrigation	Production level	Soil quality	Sale price	Total cost	Sale market
Tomatoes							
Peppers							
Lettuce							
Pumpkins							
Jute mallow							

20. What sort of control does your production receive from outside source

- Grading (color, diameter, etc,)
- Pesticides residues
- Hygienic standards
- Other Specify

Part 3 – Access to services

9. Who is the supplier of your

	Agr. Pharmacy	Wholesaler	National agent	Regional agent
Seeds				
Fertilizers				
Pesticides				
Agricultural equipment				
Agricultural machinery				

10. From where do you seek professional advice to determine the nature of the fertilizers and pesticides?

- Me
- Distributor
- Input supplier (agent)
- MoA
- NGO
- Private expert

11. How do you evaluate your access to the below inputs?

	Very difficult	Difficult	Acceptable	Easy	Very Easy
Seeds					
Fertilizers					
Pesticides					
Agricultural equipment					
Agricultural machinery					
Technical advice					

12. Do you follow trainings on your agricultural activities?

- Rate** More 2/year 1/year 1 / 2 years Less

Annexes

Institutions names

Subjects

13. Provide name and when possible contact details of the entities you deal with or heard of in the following categories and how do you evaluate your access to these services?

Service	Entity name	Contact details	Ease of access		
			Easy	Medium	Hard
Scientific testing					
Service provider (machinery rental)					
Financial support					
Cooperatives					
Training					
Advising					
Marketing					
Medium					
Other					

Part 4 – Post-harvest activities

1. Do you pack under your own brand? YES NO
2. Do you classify your products (grade 1, grade 2,...)? YES NO
3. Where do you do your post-harvest operations? Packing House On field
4. Do you store your products? YES NO
5. Do you have any certificate? NO

- Global GAP
- Organic Agriculture
- Fair trade
- OtherSpecify

15. What is the destination market for your products?

	Aggregator (beginning of season)	Aggregator (End of season)	Exporter	Wholesale market	Supermarket	Grocery store	Processing unit	International Market (Importer)	Consumer
Tomatoes									
Peppers									
Lettuce									
Pumpkins									
Jute mallow									

16. If your destination market is the aggregator do you sell by?

- Estimated yield per area
- Weighed harvested products

17. Do you participate in national or international agricultural exhibitions? YES NO

18. If yes, please specify: _____

19. Do you like to participate in agriculture exhibitions? YES NO

Annexes

20. Local specialized markets

Identify, if applicable selling points for the below local potential markets (name or contact details)

	Hospitality	Healthy food	Fair trade	Organic food
Tomatoes (<i>Solanum lycopersicum</i>)				
Peppers (<i>Capsicum annuum</i>)				
Lettuce (<i>Lactuca sativa</i>)				
Pumpkins(<i>Cucurbita pepo</i>)				
Jute mallow (<i>Corchorus olitorius</i>)				

21. Other than security or the political situation, how would you rate the following challenges/obstacles that the management faces in running this business?

	None	Minor	Moderate	Major	Severe
Lack of market information					
Competition in the market					
Laws and/or regulations					
Cost of (or access to) appropriately skilled labor					
Cost of (or access to) technology/ equipment					
Cost of (or access to) land/office space (i.e. rent)					
Cost of (or access to) credit/finance					
Cost of (or access to) raw materials					

22. What is, in your opinion, the needed support to improve your production?

- Financial support
- Protection from outside competition
- Training
- Follow up
- Marketing
- Other

Annexes

23. Is your entity registered at the Ministry of Finance or other local institutions (i.e. Chamber of Commerce, municipality)?

- Yes No

24. If yes, With whom?

- Ministry of Finance
 Chamber of Commerce
 Municipality
 Other

25. ii. What were the main reasons you registered?

- Access to bank accounts
 Access to loans / capital
 Access to markets (export licenses)
 Lower harassment / corruption
 Other

26. b. No i. Why not?

- Not required
 Bureaucratic procedures (too complicated)
 Taxes on registered
 Time cost of registration
 Compliance cost of registration
 Other

27. Is your entity part of larger cluster (i.e. coop)? specify

Part 6 – Financial dynamics

1. Variation of price during the season and the factors affecting it, market dynamics

(LBP/Kg)	Early	Middle	End
Tomatoes			
Peppers			
Lettuce			
Pumpkins			
Jute mallow			

2. Cause of variation

- Harvest calendar
 Imports from neighboring countries (competition)
 Market availability diagram
 Storage
 Consumption peaks
 Production cost variation (climatic conditions)

3. Pricing terms

- Fixed price per Kg
 Fixed price per plot
 Commission Specify percentage: _____

Do you get extra reduction on the price? YES NO

If yes, specify percentage: _____

Annexes

Do you get paid by cash on delivery? YES NO

Do you get paid by delayed payments? YES NO

If yes, please specify the payment delay in days : _____(Days)

Do you get paid by checks? YES NO

if yes, are they postdated checks? YES NO

4. How do you evaluate your position in the negotiation process? Why?

Very weak Weak Average Strong Very strong

5. What is your primary channel for access to credit and financing?

- Bank
- Micro Finance Institution
- Self-Finance
- Friends and/or relatives
- Local businessmen and private money lender(s)
- Credit extensions from suppliers
- Financial assistance from NGOs, other social organizations
- None

6. Compared to 24 months ago, how is your business performing?

- A lot better
- Somewhat better
- Somewhat worse
- A lot worse
- Do not know (because the information is not recorded)
- Refuse to answer

7. Open questions

1.7.1. In your opinion, what are the 3 major problems that face the leafy green sector?

1- _____

2- _____

3- _____

1.7.2. Cite three solutions that you find serve the most the leafy green sector

1- _____

2- _____

3- _____

Survey Questionnaire – SMEs - Processors

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

10. Personal information

Name	
Age	
Gender	
Date of birth	
Marital status	
Education	
Region of birth	
Location/address	
Phone number	

11. Entity information

Age of entity	
production	
Workers / Seasonal	
Workers / Full time	

Part 2 - Targeted products

21. What is the share of vegetable based products sales from your total sales?

5-10% 10-25% 25-50% 50-75% >75%

22. Do you produce value added product? (Organic, fairtrade, etc.)

Yes No

23. What are the final products you sell?

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

24. Indicate the availability of the below final products (i.e. the season)

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						

Annexes

Pumpkins						
Jute mallow						

25. How do you evaluate your access to the fresh products?

	Very difficult	Difficult	Acceptable	Easy	Very Easy	Explain
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

26. What is the destination market for your products?

	Aggregator	Exporter	Wholesale market	Supermarket	Grocery store	Consumer	Other
Tomatoes							
Peppers							
Lettuce							
Pumpkins							
Jute mallow							

27. Variation of price of finished products during the season and the factors affecting its market dynamics

- Market demand
- Imports from neighboring countries (competition)
- Market availability diagram
- Storage
- Consumption peaks
- Production cost variation
- Other

28. What is, in your opinion, the improvements needed for these products?

- | | | | | | |
|--|---|---|---|---|---|
| <input type="checkbox"/> Price | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Availability | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Quality | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Taste | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Longer access | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Packaging | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Expiry date | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Other | | | | | |

29. Whom do you buy the targeted products from?

	Aggregator	Wholesale market	Supermarket	Farmer	Other
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

Annexes

30. Are your products or services sold primarily to:

- Locally, within an individual town or local area
- Regionally, across Akkar/North
- Nationally, beyond Akkar or Tripoli
- Outside Lebanon

31. If yes, where are the main export markets?

- Middle East
- Europe
- United States
- Asia
- Other (WRITE-IN)

Part 3 – Pricing dynamics

1. Variation of price during the season and the factors affecting it, market dynamics

(LBP/Kg)	Early	Middle	End
Tomatoes			
Peppers			
Lettuce			
Pumpkins			
Jute mallow			

2. Cause of variation

- Harvest calendar
- Imports from neighboring countries (competition)
- Market availability diagram
- Storage
- Consumption peaks
- Production cost variation (climatic conditions)

3. Pricing terms

- Fixed price per Kg

Do you get extra reduction on the price? YES NO

If yes, specify percentage: _____

Do you get paid by cash on delivery? YES NO

Do you get paid by delayed payments? YES NO

If yes, please specify the payment delay in days : _____(Days)

Do you get paid by checks? YES NO

if yes, are they postdated checks? YES NO

4. How do you evaluate your position in the negotiation process? Why?

- Very weak
- Weak
- Average
- Strong
- Very strong

Part 4 – financial situation

1. What is your primary channel for access to credit and financing?

- Bank

Annexes

- Micro Finance Institution
- Self-Finance
- Friends and/or relatives
- Local businessmen and private money lender(s)
- Credit extensions from suppliers
- Financial assistance from NGOs, other social organizations
- None

2. Compared to 24 months ago, how is your business performing?

- A lot better
- Somewhat better
- Somewhat worse
- A lot worse
- Do not know (because the information is not recorded)
- Refuse to answer

3. Is your entity registered at the Ministry of Finance or other local institutions (i.e. Chamber of Commerce, municipality)?

a. Yes.

i. With whom?

- Ministry of Finance
- Chamber of Commerce
- Municipality
- Other

4. What were the main reasons you registered?

- Access to bank accounts
- Access to loans / capital
- Access to markets (export licenses)
- Lower harassment / corruption
- Other

5. No i. Why not?

- 1. Not required
- 2. Bureaucratic procedures (too complicated)
- 3. Taxes on registered
- 4. Time cost of registration
- 5. Compliance cost of registration
- 6. Other

6. Is your entity part of larger cluster (i.e. coop)? specify

7. What is the current status (in terms of sales, staff, production) of the company?

- Expanding
- Stable
- Downsizing
- Do not know

Annexes

- Refuse to answer

8. Other than security or the political situation, how would you rate the following challenges/obstacles that the management faces in running this business?

Obstacles

None Minor Moderate Major Severe

- Lack of market information
- Competition in the market
- Laws and/or regulations
- Cost of (or access to) appropriately skilled labor
- Cost of (or access to) technology/ equipment
- Cost of (or access to) land/office space (i.e. rent)
- Cost of (or access to) credit/finance
- Cost of (or access to) raw materials

9. What is your primary channel for access to credit and financing?

- Bank
- Micro Finance Institution
- Self-Finance
- Friends and/or relatives
- Local businessmen and private money lender(s)
- Credit extensions from suppliers
- Financial assistance from NGOs, other social organizations
- Do not have one

10. Compared to 12 months ago, how is your business performing?

- A lot better
- Somewhat better
- Somewhat worse
- A lot worse
- Do not know (because the information is not recorded)
- Refuse to answer

11. What is, in your opinion, the needed support to improve your production?

- Financial support
- Protection from outside competition
- Training
- Follow up
- Marketing
- Other

32. Open questions

32.1. In your opinion, what are the 3 major problems that face the leafy green processors?

1- _____

2- _____

Annexes

3- _____

32.2. Cite three solutions that you find serve the most the leafy green processors

1- _____

2- _____

3- _____

Survey Questionnaire – SMEs – Traders

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

12. Personal information

Name	
Age	
Gender	
Date of birth	
Marital status	
Education	
Region of birth	
Location/address	
Phone number	

13. Entity information

Age of institution	
Estimated Turnover	
Workers / Seasonal	
Workers / Full time	

Part 2 - Targeted products

33. Do you sell value added product? (Organic, fairtrade, etc.)

Yes No

34. What are the final products you sell?

	Product 1	Product 2	Product 3	Product 4	Product 5
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

35. What is the share of the targeted products from your fresh vegetables sales?

	5-10%	10-25%	25-50%	50-75%	>75%
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

36. Indicate the availability of the below fresh products (i.e. the season)

	Product 1	Product 2	Product 3	Product 4	Product 5
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

37. How do you evaluate your access to the fresh products

	Very difficult	Difficult	Acceptable	Easy	Very Easy	Explain
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

38. Variation of price of fresh products during the season and the factors affecting its market dynamics

- Market demand
- Imports from neighboring countries (competition)
- Market availability diagram
- Storage
- Consumption peaks
- Production cost variation
- Other

39. What is, in your opinion, the improvements needed for these products?

- | | | | | | |
|--|---|---|---|---|---|
| <input type="checkbox"/> Price | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Availability | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Quality | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Taste | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Longer access | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Packaging | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Expiry date | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Other | | | | | |

40. Whom do you buy the targeted products from?

	Aggregator	Wholesale market	Medium	Processing unit	Farmer	Other
Tomatoes						
Peppers						
Lettuce						
Pumpkins						

Annexes

Jute mallow							
-------------	--	--	--	--	--	--	--

Part 3 – Financial dynamics

1. What are the sale prices of the targeted products (per Kg) ?

	Product 1	Product 2	Product 3	Product 4	Product 5
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

2. Variation of price during the season and the factors affecting it, market dynamics

(LBP/Kg)	Early	Middle	End
Tomatoes			
Peppers			
Lettuce			
Pumpkins			
Jute mallow			

3. Cause of variation

- Harvest calendar
- Imports from neighboring countries (competition)
- Market availability diagram
- Storage
- Consumption peaks
- Production cost variation (climatic conditions)

4. Pricing terms

Fixed price per Kg

Do you get extra reduction on the price? YES NO

If yes, specify percentage: _____

Do you get paid by cash on delivery? YES NO

Do you get paid by delayed payments? YES NO

If yes, please specify the payment delay in days : _____(Days)

Do you get paid by checks? YES NO

if yes, are they postdated checks? YES NO

5. How do you evaluate your position in the negotiation process? Why?

Very weak Weak Average Strong Very strong

Annexes

6. What is your primary channel for access to credit and financing?

- Bank
- Micro Finance Institution
- Self-Finance
- Friends and/or relatives
- Local businessmen and private money lender(s)
- Credit extensions from suppliers
- Financial assistance from NGOs, other social organizations
- None

7. Compared to 24 months ago, how is your business performing?

- A lot better
- Somewhat better
- Somewhat worse
- A lot worse
- Do not know (because the information is not recorded)
- Refuse to answer

8. Open questions

8.1. In your opinion, what are the 3 major problems that face the leafy green sector at your level?

1- _____

2- _____

3- _____

8.2. Cite three solutions that you find serve the most the leafy green sector at your level?

1- _____

2- _____

3- _____

Annex 6 : Survey questionnaire – Grocery stores

Survey Questionnaire – SMEs – Grocery stores

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

14. Personal information

Name	
Age	
Gender	
Date of birth	
Marital status	
Education	
Region of birth	
Location/address	
Phone number	

15. Entity information

Age of institution	
Estimated number of customers	
Workers / Seasonal	
Workers / Full time	

Part 2 - Targeted products

41. What is the share of vegetable sales from your total sales?

5-10% 10-25% 25-50% 50-75% >75%

42. Do you sell value added product? (Organic, fairtrade, etc.)

Yes No

43. What are the final products you sell?

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

44. What is the share of the targeted products from your fresh vegetables sales?

	5-10%	10-25%	25-50%	50-75%	>75%
Tomatoes					
Peppers					
Lettuce					

Annexes

Pumpkins					
Jute mallow					

45. Indicate the availability of the below final products (i.e. the season)

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

46. How do you evaluate your access to the final products

	Very difficult	Difficult	Acceptable	Easy	Very Easy	Explain
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

47. Variation of price of finished products during the season and the factors affecting its market dynamics

- Market demand
- Imports from neighboring countries (competition)
- Market availability diagram
- Storage
- Consumption peaks
- Production cost variation
- Other

48. What is, in your opinion, the improvements needed for these products?

- | | | | | | |
|--|---|---|---|---|---|
| <input type="checkbox"/> Price | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Availability | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Quality | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Taste | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Longer access | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Packaging | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Expiry date | 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> Other | | | | | |

49. Whom do you buy the targeted products from?

	Aggregator	Wholesale market	Supermarket	Processing unit	Farmer	Other
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

Part 3 – Financial dynamics

9. What are the sale prices of the targeted products (per Kg) ?

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

10. Variation of price during the season and the factors affecting it, market dynamics

(LBP/Kg)	Early	Middle	End
Tomatoes			
Peppers			
Lettuce			
Pumpkins			
Jute mallow			

11. Cause of variation

- Harvest calendar
- Imports from neighboring countries (competition)
- Market availability diagram
- Storage
- Consumption peaks
- Production cost variation (climatic conditions)

12. Pricing terms

Fixed price per Kg

Do you get extra reduction on the price? YES NO

If yes, specify percentage: _____

Do you get paid by cash on delivery? YES NO

Do you get paid by delayed payments? YES NO

If yes, please specify the payment delay in days : _____(Days)

Do you get paid by checks? YES NO

if yes, are they postdated checks? YES NO

13. How do you evaluate your position in the negotiation process? Why?

Very weak Weak Average Strong Very strong

Annexes

14. What is your primary channel for access to credit and financing?

- Bank
- Micro Finance Institution
- Self-Finance
- Friends and/or relatives
- Local businessmen and private money lender(s)
- Credit extensions from suppliers
- Financial assistance from NGOs, other social organizations
- None

15. Compared to 24 months ago, how is your business performing?

- A lot better
- Somewhat better
- Somewhat worse
- A lot worse
- Do not know (because the information is not recorded)
- Refuse to answer

16. Open questions

16.1. In your opinion, what are the 3 major problems that face the leafy green sector?

1- _____

2- _____

3- _____

16.2. Cite three solutions that you find serve the most the leafy green sector

1- _____

2- _____

3- _____

Survey Questionnaire - Consumers

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - Personal information

Name of respondent	
Age	
Gender	
Date of birth	
Region of birth	
Nationality	
Household region	
Original region	
Level of education (i.e. Technical Vocational Educational Training)	
Current occupation	
Monthly income	
Family members	
Current address	
Name of respondent	
Age	

16. How do you rate your contact with the rural region?

- 16.1.1. Once a week
- 16.1.2. Once a month
- 16.1.3. Twice a year
- 16.1.4. Once a year
- 16.1.5. Holidays

Part B - Purchasing decisions

1. What is your guarantee of quality for the leafy greens you buy?

- 16.1.6. Label
- 16.1.7. Trust in the source
- 16.1.8. Direct purchase from the farm
- 16.1.9. Price
- 16.1.10. Geographical provenance
- 16.1.11. Product appearance

Annexes

- 16.1.12. Other
- 16.1.13. None

2. What kind of information do you prefer to have on the final product you buy by order of importance (1-5)

Informations	Grade (1-5)
Name	
Production and expiry date	
Origin	
Ingredients and additives	
Calories	
Name of production center	
Halal	
Weight	
Others	

3. Are you ready to pay more for a value added product? (Organic, fairtrade, etc.)

- Yes No

4. If yes, how much?

- 5% 10% 15% 20% 25% More

5. How do you consume the below products or their processed by-products?

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

6. What is the frequency of consumption of the below final products?

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						

Annexes

Pumpkins						
Jute mallow						

1. Once or more per week
2. Once or more per month
3. Once or more per year

7. Where do you buy your below final products from?

Tomatoes								
Peppers								
Lettuce								
Pumpkins								
Jute mallow								

- Aggregator
- Farmer
- Specialized store
- Wholesale market
- Supermarket
- Grocery store
- Processing unit
- Other

8. Indicate the availability of the below final products (i.e. the season)

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

9. How do you evaluate your access to the final products

Annexes

	Very difficult	Difficult	Acceptable	Easy	Very Easy	Explain
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

10. What is the unit price of the below products (include changes)

	Fresh	Processed 1	Processed 2	Processed 3	Processed 4	Processed 5
Tomatoes						
Peppers						
Lettuce						
Pumpkins						
Jute mallow						

11. Variation of price of finished products during the season and the factors affecting its market dynamics

- Market demand
- Imports from neighboring countries (competition)
- Market availability diagram
- Storage
- Consumption peaks
- Production cost variation
- Other

12. What is, in your opinion, the improvements needed for these products?

- | | | | | | |
|-----------------|---|---|---|---|---|
| • Price | 1 | 2 | 3 | 4 | 5 |
| • Availability | 1 | 2 | 3 | 4 | 5 |
| • Quality | 1 | 2 | 3 | 4 | 5 |
| • Taste | 1 | 2 | 3 | 4 | 5 |
| • Longer access | 1 | 2 | 3 | 4 | 5 |
| • Packaging | 1 | 2 | 3 | 4 | 5 |
| • Expiry date | 1 | 2 | 3 | 4 | 5 |
| • Other | | | | | |

13. Open questions

- In your opinion, what are the 3 major problems that face the leafy green products?

1- _____

2- _____

3- _____

Annexes

- Cite three solutions that you find serve the most your expectations from these products

1- _____

2- _____

3- _____

Key Informative Interview – Chamber of Commerce, Industry, Agriculture and Trade

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. What are the services your institution is providing in Akkar and North Lebanon?
2. What are the services your institution is providing in for agricultural value chain stakeholders in Akkar and North Lebanon? (Farmers, Traders and Processors)
3. How would you reach your final beneficiaries? What are the criteria for value chain stakeholders to access your services?
4. What is the number or percentage of stakeholder registered at the CCIAT? Which incentives could be provided to increase this percentage?
5. What are in your opinion the major problems faced by the VC stakeholders (Farmers, Processors and Traders) and what kind of help is needed?
6. What would be your recommendations to increase the efficiency of the agricultural VC? Do you have any relevant projects in preparations? (Trainings, financial support, quality control, etc.)
7. What sort of organizational dispositions do you propose? (Clustering, direct sales, etc.)
8. Do you have anything you would like to add on the above discussed subject?

Key Informative Interview – Business Incubation Association in Tripoli (BIAT)

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. What are the services your institution is providing in for agricultural value chain stakeholders in Akkar and North Lebanon? (Farmers, Traders and Processors)
2. Who are your current beneficiaries? How would you reach your final beneficiaries? What are the criteria for value chain stakeholders to access your services?
3. What are the requested tests for the targeted products before they reach the market? Are they mandatory?
4. What are the requested tests to design the product as organic? Do you offer relevant certification? If not, who does?
5. What are the requested tests to design the product as exportable to the EU and Arab countries? Do you offer relevant certification? If not, who does?
6. What is the percentage of agricultural stakeholders seeking quality control assurance at your end? Which incentives could be provided to increase this percentage?
7. Kindly explain the technical functioning of your quality control system
8. What are in your opinion the major problems faced by the targeted products on the quality level?
9. What would be your recommendations to ameliorate the quality of the targeted products? Do you have any relevant projects in preparations? (Trainings, financial support, quality control, etc.)
10. Do you have anything you would like to add on the above discussed subject?

Annex 10 : Key Informative Interview – Non governmental organisation

Key Informative Interview – Supporting Entities – Non Governmental Organisation

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. What are the services your institution is providing to Akkar and North Lebanon?
2. What are the services your institution is providing in for agricultural value chain stakeholders in Akkar and North Lebanon? (Farmers, Traders and Processors), especially for the targeted products (tomato, lettuce, Pepper, Pumpkin and jute Mallow)
3. How would you reach your final beneficiaries? What are the criteria for value chain stakeholders to access your services?
4. Were you in any way included in projects related to the targeted products? Could you provide relevant reports? What were your major findings?
5. What are in your opinion the major problems faced by the VC stakeholders (Farmers, Processors and Traders) and what kind of help is needed (projects, vocational trainings, etc.)?
6. Do you have any relevant projects in preparations? (Trainings, financial support, quality control, etc.)
7. Could you name other supporting entities for the targeted products or other projects currently under execution or preparation?
8. What sort of organizational dispositions do you propose? (Clustering, direct sales, etc.)
9. Do you have anything you would like to add on the above discussed subject?

Annex 11 : Key Informative Interview – Financial Authority

Key Informative Interview – Financial Authority - Kafalat

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. What are the services your institution is providing to Akkar and North Lebanon? Do you have branches in Akkar?
2. What are the services your institution is providing in for agricultural value chain stakeholders in Akkar and North Lebanon? (Farmers, Traders and Processors)
3. How would you reach your final beneficiaries? What are the criteria for value chain stakeholders to access your services?
4. Is there any financial support programs tailored specifically for the agricultural value chains? Kindly explain.
5. Kindly explain the mechanism of presenting a dossier for financial support/ credits and the required conditions, paperwork and guarantees.
6. How do you describe your financial supporting activities for the agricultural value chain (credit limit, turnover percentage from your total activities) etc.
7. How do you describe the role of the public institutions in this financial support system (Banque du Liban, guarantees, decrease of the credit rate, etc.)
8. Were you in any way included in projects related to the targeted products? Could you provide relevant reports? What were your major findings?
9. Do you face problems with Agricultural VC stakeholders' credits payments? If yes, what are the major causes?
10. Do you have anything you would like to add on the above discussed subject?

Annex 12 : Key Informative Interview – Research entity

Key Informative Interview – Research entity – Lebanese Agricultural Research Institute

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. What are the services your institution is providing to Akkar and North Lebanon for agricultural value chain stakeholders (Farmers, Traders and Processors)?
2. How would you reach your final beneficiaries? What are the criteria for value chain stakeholders to access your services?
3. Were you in any way included in projects related to the targeted products? Could you provide relevant reports? What were your major findings?
4. What are the strengths of the targeted products value chain? How do you propose to benefit from them?
5. What are the weaknesses of the targeted products value chain? What are the solutions you propose?
6. What kind of structuring do you propose for the target products value chain to make it more efficient and accessible to consumers?
7. Where do you see investments opportunities in the value chain? (habilitation, rehabilitation projects)
8. What are the lessons learned from your activities in the Akkar agricultural sector (emphasis on the latest potato export to Holland)
9. Do you have anything you would like to add on the above discussed subject?

Annex 13 : Key Informative Interview – Agricultural input provider

Key Informative Interview – Agricultural input provider

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. What categories of agricultural input do you provide to Akkar? (Seeds, fertilizers, pesticides, agricultural equipment, agricultural products, technical advising, etc.)
2. What position does Akkar hold in your total turnover?
3. What is the part of the targeted products from the total sales?
4. Evaluate the cost of production for each of the targeted products (see farmers survey for tables)
5. What are the seeds you sell for each product and to whom do you sell them? (directly to farmers, to nurseries, etc.)
6. What kind of quality assurance system do you apply for your products (direct trials, assurance from supplier, etc.)
7. On what do you base your choice for the seeds to be introduced every season?
8. What are in your opinion the major problems faced by targeted products farmers and what kind of help is needed (projects, vocational trainings, etc.)?
9. Do you have any relevant projects in preparations? (Trainings, financial support, quality control, etc.)
10. Do you have anything you would like to add on the above discussed subject?

Annex 14 : Key Informative Interview – Governmental authority

Key Informative Interview – Governmental Authority – Ministry of Agriculture (MoA)

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. What are the services your institution is providing to Akkar and North Lebanon for agricultural value chain stakeholders (Farmers, Traders and Processors)?
2. How would you reach your final beneficiaries? What are the criteria for value chain stakeholders to access your services?
3. Were you in any way included in projects related to the targeted products? Could you provide relevant reports? What were your major findings?
4. What are the current regulations concerning the production of the targeted products?
5. What kind of quality assurance do you perform? Is it mandatory?
6. What are the major problems facing your activities in the North and Akkar region?
7. What is the governmental strategy concerning the agricultural sector in Akkar and more precisely the targeted products?
8. Do you have the latest numbers about the Akkar agricultural production and more precisely the targeted products?
9. What are the strengths of the targeted products value chain? How do you propose to benefit from them?
10. What are the weaknesses of the targeted products value chain? What are the solutions you propose?

Annexes

11. What kind of structuring do you propose for the target products value chain to make it more efficient and accessible to consumers?
12. Where do you see investments opportunities in the value chain? (habilitation, rehabilitation projects)
13. Do you have anything you would like to add on the above discussed subject?

Key Informative Interview – Traders association – Ebbet Shomra Market

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. What are the services your institution is providing to Akkar and North Lebanon for agricultural value chain stakeholders (Farmers, Traders and Processors)?
2. Kindly explain the products flowchart: whom do you receive targeted products from and to whom are they sold?
3. Kindly explain the financial dynamics (payments forms and dates, etc.)
4. What do the targeted products represent from your total turnover?
5. What is the availability of targeted products? (see farmers' survey table)
6. What is the prices fluctuation of targeted products? And what are the causes?
7. How do you describe the competition of local products (sources and effect)
8. What is the percentage of organic and fairtrade products?
9. What are the current regulations concerning the production of the targeted products?
10. What kind of quality assurance do you perform? Is it mandatory?
11. What are the major problems facing your activities in the North and Akkar region?
12. What are the strengths of the targeted products value chain? How do you propose to benefit from them?
13. What are the weaknesses of the targeted products value chain? What are the solutions you propose?
14. What kind of structuring do you propose for the target products value chain to make it more efficient?

Annexes

15. Where do you see investments opportunities in the value chain? (habilitation, rehabilitation projects)

16. Do you have anything you would like to add on the above discussed subject?

Key Informative Interview – Large surface supermarket

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Interviewee name	
Job position	
Signature	

1. Kindly explain the products flowchart: whom do you receive targeted products from and to whom are they sold?
2. Kindly explain the financial dynamics (payments forms and dates, etc.)
3. What do the targeted products represent from your vegetable sales?
4. What is the availability of targeted products? (see farmers' survey table)
5. What is the prices fluctuation of targeted products? And what are the causes?
6. How do you describe the competition of local products (sources and effect)
7. What is the percentage of organic and fairtrade products?
8. What kind of quality assurance do you perform? Is it mandatory?
9. What are the strengths of the targeted products? How do you propose to benefit from them?
10. What are the weaknesses of the targeted products value chain? What are the solutions you propose?
11. What kind of ameliorations do you propose for the targeted products to cater to the consumers' needs (packaging, availability, quality, certification, etc.)
12. Do you have anything you would like to add on the above discussed subject?

Annex 17 : Focus Group Discussion – Project beneficiaries

Focus Group Discussion – Project beneficiaries

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

1. Personal information

Name	Region	Profession	Phone number	Signature

Annexes

Part 2 - Agricultural operations of targeted products

2. What is the production cycle of the targeted products?

	Soil preparation	Seeding	Harvesting	Intensive	Extensive
Tomatoes					
Peppers					
Lettuce					
Pumpkins					
Jute mallow					

3. What is your fertilization program?

	Fertilizer	Quantity	Date
Tomatoes (<i>Solanum lycopersicum</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Peppers (<i>Capsicum annuum</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Lettuce (<i>Lactuca sativa</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Pumpkins (<i>Cucurbita pepo</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Jute mallow (<i>Corchorus olitorius</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

4. What is your pesticide application program?

	Pesticide	Quantity	Date
Tomatoes (<i>Solanum lycopersicum</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Peppers (<i>Capsicum annuum</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Lettuce (<i>Lactuca sativa</i>)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Annexes

Pumpkins (<i>Cucurbita pepo</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jute mallow (<i>Corchorus olitorius</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Production cost (per 1000 m2)

	Category	Tomatoes	Peppers	Lettuce	Pumpkins	Jute mallow
Land rental	Land					
Seeds	Input					
Fertilizers						
Pesticides						
Irrigation						
Labor (Land preparation, harvesting, etc.)	Labor					
Equipment cost (over 5 years)	Equipment					
Packaging	Post-harvest					
Transportation						
Medium						

6. What are the main obstacles facing these products production? (rate)

	Diseases	Irrigation	Production level	Soil quality	Sale price	Total cost	Sale market
Tomatoes							
Peppers							
Lettuce							
Pumpkins							
Jute mallow							

7. Do you know the difference between the below?

- Global GAP
- Organic Agriculture
- Fair trade
- ACP
- AGP
- AOC

8. What are the reasons that would make you interested in adopting one of the above mentioned production systems?

Annexes

- 9. What are the drawbacks that would not make you interested in adopting one of the above mentioned production systems?**
- 10. Do you keep unofficial books and logs? If no why?**
- 11. Do you think that keeping the books would help you have a clearer idea of your situation and help you take the right decisions?**
- 12. In your opinion, what are the 3 major problems that face the leafy green sector?**
- 13. Cite three solutions that you find serve the most the leafy green sector**

Annex 18 : Focus Group Discussion – Agriculture Students

Focus Group Discussion – Agriculture students

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

1. Personal information

Name	Region	Profession	Phone number	Signature

Annexes

Part 2 - Questions

- 2. What is the difference between GAP, fairtrade, organic and guaranteed source?**
- 3. What are in your opinion the problems faced by the agricultural sector?**
- 4. What are in your opinion the solutions for the agricultural sector?**
- 5. What is in your opinion the expected role from you within the agricultural sector?**
- 6. What is your future project after graduation?**
- 7. Do you think that agriculture could be a lucrative business?**
- 8. What are in your opinion the major points to be respected for an efficient production system?**

Focus Group Discussion – Consumers

Increasing competitiveness of vegetables value chains in Akkar

Interview information	
Interviewer name	
Date	
Signature	

Part 1 - General Information

1. Personal information

Name	Region	Profession	Phone number	Signature

2. **What is your perception of healthy of healthy food?**
3. **What are in your opinion the problems faced by producers and processors?**
4. **What is in your opinion the problem with the agricultural sector?**
5. **Would you be ready to pay more for alternative production food?**
6. **What are in your opinion the solutions for the agricultural sector sanitary problem?**
7. **What is in your opinion the role which could be played by consumers?**