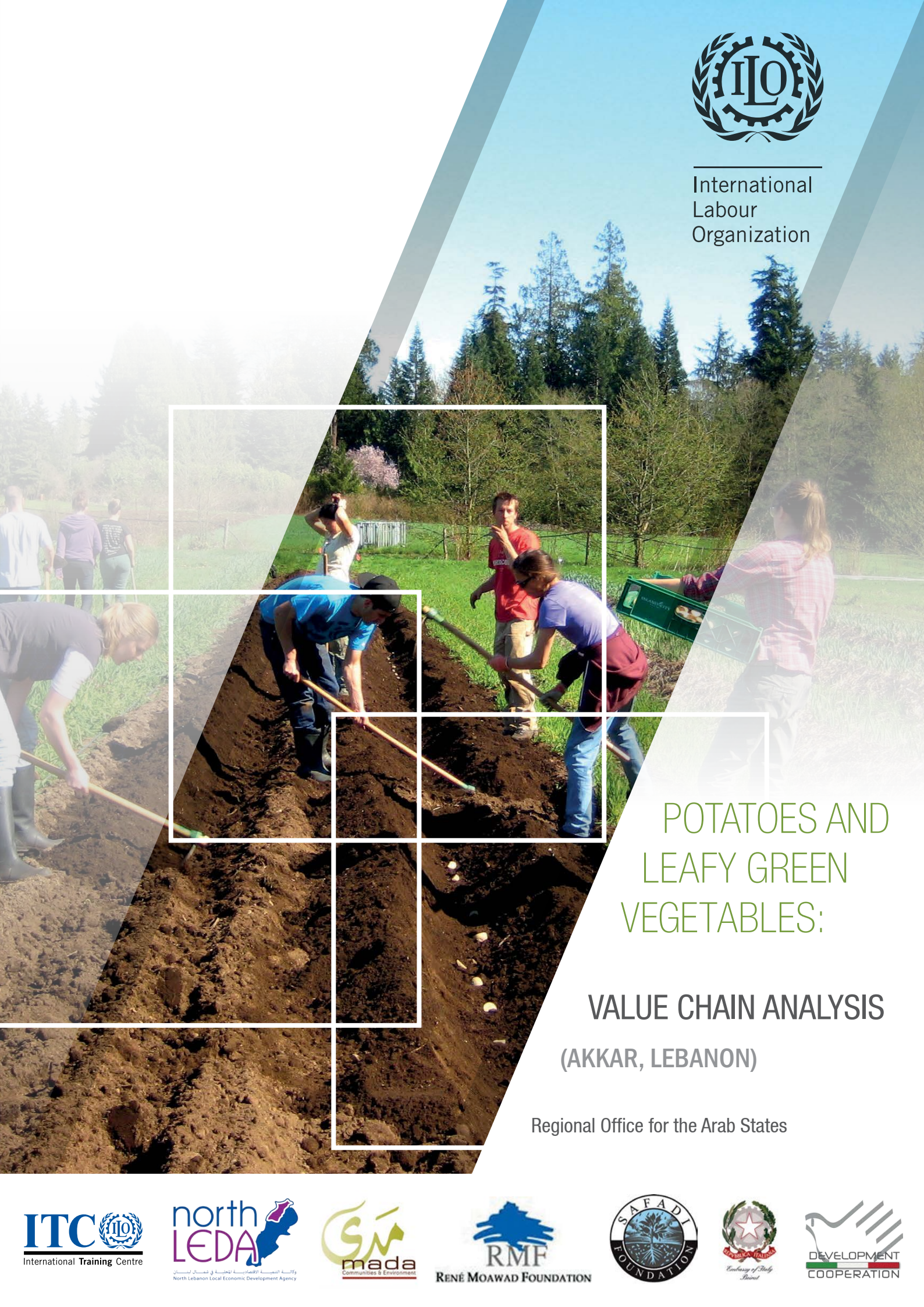




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POTATOES AND LEAFY GREEN VEGETABLES:

VALUE CHAIN ANALYSIS (AKKAR, LEBANON)

Regional Office for the Arab States

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POTATOES AND LEAFY GREEN VEGETABLES: VALUE CHAIN ANALYSIS (AKKAR, LEBANON)

International Labour Organization

Regional Office for Arab States

Hisham El Gazzar
ITC/ILO

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List of abbreviations and acronyms

ACDI-VOCA	Agricultural Cooperative Development International Volunteers in Overseas Cooperative Assistance
DHAIM	Developing Hydroponics to Access International Markets
FAO	Food and Agriculture Organization of the United Nations
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
IDAL	Investment Development Authority of Lebanon
ILO	International Labour Organization
IPM	Integrated Pest Management
LBP	Lebanese Pound
LED	Local Economic Development
LEDA	Local Economic Development Agency
MoA	Ministry of Agriculture
RMF	René Moawad Foundation
NGO	Non-Governmental Organization
USAID	United States Agency for International Development
VCA	Value Chain Analysis
WFP	World Food Programme

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Table of Content

Executive summary	8
Preface	9
Introduction and Background	10
Study objectives	11
Methodology and Technical Approach	11
Value chain analysis training	11
Selection of interviewees and methods of interview.....	11
Qualitative data analysis	12
Theoretical framework	13
Agriculture In Lebanon	13
Main agriculture areas in Lebanon.....	14
Regional profile	15
Functioning of the market system in Akkar (potatoes)	16
Potatoes	17
Mapping the value chain of potatoes	17
Weaknesses/Problems:.....	19
Strengths:.....	19
Details of the market system	21
Inputs supply	21
Production	21
Aggregation and marketing.....	23
Processing	24
Sorting and packing facilities	24
Commercial processing	25
Wholesaling and retailing	26
Exports	26
Functioning of the market system in Akkar (leafy green vegetables)	30
Leafy green vegetables	31
Mapping the value chain	33
Weaknesses/Problems:.....	34
Strengths:.....	34
Details of the market system	36
Inputs supply	36
Farmer access to inputs	36
Production	36
Aggregation and marketing	40

Processing	40
Wholesaling and retailing	40
Exports.....	40
Supporting organizations and enabling environment	42
Ministry of Agriculture	42
Investment Development Authority of Lebanon (IDAL)	43
Lebanese Agricultural Research Institute (LARI)	47
Chamber of Commerce Industry and Agriculture (CCIAT) Tripoli and North Lebanon.....	48
CCIAT agricultural activities	48
Goals and strategies.....	49
Main Agriculture Development Programmes in Lebanon	49
Cooperatives and farmers' groups	50
The René Moawad Foundation	50
Safadi Foundation.....	51
Emkan NGO.....	51
Trade agreements	52
The Euro-Mediterranean Partnership Initiative, 2002	52
The Free Trade Agreement with the European Free Trade Association(EFTA), 2004	52
Member of the Greater Arab Free Trade Area (GAFTA), 2005.....	52
The Syrian crisis and Syrian migrant workers	54
Analysis of constraints and opportunities	58
Constraints.....	58
Opportunities.....	59
Conclusions and recommendations	59
Work plan.....	60
References	68
Appendices	69

Executive summary

In response to the Syrian crisis, the ILO initiated a project in Akkar (North of Lebanon) in June 2014 with a focus on employment and livelihood issues. The aim of this project is to enhance the resilience of entrepreneurs, including farmers and workers affected by the Syrian refugee crisis in rural areas. The ILO contracted the North Lebanon Local Economic Development Agency (LEDA) to facilitate dialogue on local economic development (LED) and guide the sector selection based on a shortlist of four eligible sectors, which LEDA based on “Making markets work for the poor” (M4P) criteria. Participants of the LED dialogue approved the vegetable sector due to its high potential and its ability to meet the criteria required by the ILO (labour intensive, large-scale impact, potential for systematic change in the short to medium term and for improving growth and access).

Following the LED dialogue, a value chain analysis workshop was conducted in Chekka , and based on the same ILO criteria mentioned above, it was concluded that the project should focus on two value chains: Potatoes and leafy green vegetables. Once the two value chains were selected, a research team was formed to conduct primary and secondary market research and a complete value chain analysis in order to identify the constraints and strengths in each value chain.

On 28 January 2015, key stakeholders attended a workshop in Halba (Akkar) to validate the findings of the value chain analyses. Some constraints met a high level of agreement from attendees, such as the high cost of production, improper use of pesticides and fertilizers by farmers, excessive consumption of agricultural land without adopting crop rotation (especially for potatoes), the weak role of cooperatives, lack of familiarity with the minimum standards for the European market, lack of coordination among stakeholders and lack of appropriate machines to clean potato tubers from soil residue. Other proposed constraints received less agreement, such as the oligopoly of seed and fertilizer prices by input suppliers (potatoes), control of final product prices in the markets (potatoes), difficulty of introducing new varieties of potato seeds and the non-availability of seeds and seedlings within appropriate timeframes (leafy green vegetables).

In order to tailor different interventions to tackle the constraints of each of the two value chains, a three-day workshop was conducted in Tripoli during March 2015 for the main key players. Some constraints were found to be common to both value chains and so could be addressed as one (e.g. improper use by farmers of pesticides and fertilizers within the proposed standards and guidelines, the weak role of cooperatives, lack of experience in export and shipping procedures and the high cost of production).

Most of the proposed interventions focus on the farmer as the core base of the value chain. Empowering farmers and engaging them in an effective and positive role in cooperatives will have a positive effect on the overall value chain. It is important to note that while implementing the proposed interventions, the ILO should play the role of facilitator without becoming a part of any business model inside the value chain. This will guarantee the sustainability of interventions after the project ends.

As for low wages for agricultural workers, unequal pay and working conditions between women and men and the prevalence of child labour, these are considered as crosscutting constraints along the two value chains and linking with other donors already active in this field is highly recommended to maximise outputs.

Preface

This study, supported by the ILO, describes a value chain analysis of two of the major crops cultivated in Akkar, North Lebanon – potatoes and leafy green vegetables. It aims to draw an integrated detailed value chain where all the key actors are presented along with the vertical relations and correlations that control the processes inside the chains.

Further, it explores the main constraints and opportunities in the agricultural sector through adopting an approach dependent on compiling theoretical knowledge of the basics of value chain analysis (VCA) along with intensive fieldwork, which includes in-depth interviews with all actors in the chains.

The report was conducted by an ILO consultant and a team of seven specialists covering the technical, financial and marketing aspects of the target value chains. It is the result of a documentation review, two weeks' fieldwork in North Lebanon (Akkar) and several meetings and VCA training sessions, as well as a VCA validation workshop with local stakeholders.

In both target value chains, the focus of the study is the analysis and mapping of the chains, and identifying the bottlenecks, constraints and opportunities for potential areas of intervention for value chain development that could be addressed in the next steps. It also addresses the impact of the Syrian crisis on the agriculture sector in terms of opportunities to increase employment and improve livelihoods for those affected by the crisis, working conditions and wage rates.

The study provides a complete value chain analysis for both potatoes and leafy green vegetables starting from the inputs to the point of consumption. It addresses all steps and provides a market analysis of the product flow.

Republic of Lebanon
North Region



MAP 1: NORTH LEBANON

Introduction and Background

By December 2014, more than 1.1 million Syrian refugees were registered by the United Nations High Commissioner for Refugees (UNHCR) as living in Lebanon. The effects of the Syrian crisis and the influx of refugees in neighbouring countries are increasingly spilling over into the economic and social spheres – leading to stalled economic activity, loss of income and livelihoods, and shrinking access to quality public services. Against this backdrop, the Regional United Nations Development Group for Arab States (R/UNDG-AS) has launched a strategy that provides a regional resilience-based development response to address the short-, medium-, and long-term impacts on neighbouring countries, including Lebanon.

Within this framework, the ILO has developed its own response to the crisis with a focus on employment and livelihoods issues. In Lebanon, the ILO is implementing a project that started in June 2014, to enhance the resilience of entrepreneurs, farmers (individual and groups) and workers affected by the Syrian refugee crisis in rural areas to:

- improve the employability of «vulnerable» job seekers regarding the stresses of the labour market due to the crisis; and
- unleash the income generation and employment creation potential of agriculture value chains through local economic development (LED) and enhance the capacities of service providers to enable the creation of LED opportunities.

The project's goal is to create productive employment through LED and sustainable enterprises. The immediate objectives are:

- to enhance access to employment opportunities and livelihoods that contribute to building the resilience of rural host communities;
- promote sustainable LED in at least one rural area in North Lebanon targeting specific productive sectors; and
- develop capacity-building and business expansion strategies for entrepreneurs.

The project focuses its interventions on the agriculture sector and on rural areas in the North of Lebanon as one of the regions most affected by the flow of Syrian refugees, and which has the highest incidence of poverty (52.5 per cent and 64 per cent, respectively, in Akkar and Minnieh–Danniyeh). In this region, agriculture employs about 70 per cent of the local working population. The project's beneficiaries are expected to be Lebanese host communities in Akkar. Within the context of the second objective, the project seeks to support the implementation of socio-economic interventions for local development through two main activities: (1) an inclusive LED dialogue, and (2) a value chain analysis. The focus of all LED interventions is to overcome bottlenecks in the selected value chain and its market system in order to help build a sustainable source of employment and income for the vulnerable poor and thus increase their resilience against such current economic shocks resulting from the Syrian crisis.

The project's interventions will be implemented based on the “Making markets work for the poor” (M4P) approach, focusing on benefiting poor vulnerable people affected by the Syrian refugee crisis. The M4P approach entails enhancing the capacity of local service providers to cater for the needs of value chain actors, rather than providing externally arranged services. This allows value chain actors to develop a sustainable network, which helps build resilience and increase preparedness against shocks.

The ILO contracted the North Local Economic Development Agency to facilitate the LED dialogue and guide the sector selection based on a shortlist of four eligible sectors, which LEDA produced on the basis of M4P criteria. A group of invitees composed of representatives of Ministries, Unions, Municipalities, Cooperatives, Local and International NGOs were invited to participate in the LED dialogue. The participants were distributed into four groups where each group discussed one of the following sectors: vegetables, grapes, stone fruits, and citrus. These four groups had to confirm the feasibility of the four sectors and to meet the criteria proposed in a way to prove the ability of these sectors to achieve the objectives of the proposed interventions. The vegetable sector, which was the most prominent sector as reported in the desk review, was also highlighted and approved by the participants due to the high potential it holds and its ability to cover the ILO's required criteria (labour-intensive, large-scale impact, systematic change in the short to medium term and improve growth/access).

Study objectives

These were to:

- provide a clear mapping and analysis of potato and leafy vegetable value chains;
- examine the underlying factors (bottlenecks/challenges) inhibiting the target value chains from achieving increased productivity and full commercialization;
- identify pathways for sustainable change that can unlock market opportunities and youth employment creation potential along the target value chains;
- identify advantage points for interventions that would support the further development of the potatoes and leafy vegetables market system.

Methodology and Technical Approach

The study collected primary data and reviewed the secondary literature. The secondary literature review focused on an analysis of the market system supporting the core value chain at various levels, including the meta-level (people influencing other people's views about potatoes and leafy greens, such as local media), macro-level (people facilitating policies, laws and regulations governing business in the sector, such as the Ministry of Agriculture and the Investment Development Authority of Lebanon (IDAL), and the micro-level (core value-chain actors as well supporting suppliers of goods and services at both production and post-production levels). This process also helped identify data gaps during the field research, which targeted people growing, trading, processing, wholesaling, retailing and consuming potatoes and leafy greens, as well as those providing various services to all these value chain actors.

Primary data collection was largely qualitative, using key informant interviews. Qualitative analysis was chosen, primarily because there is little quantitative data about the potato and leafy greens market in Akkar. Furthermore, qualitative research based on interviews brings out the “voice and vision” of the interviewees.

Value chain analysis training

During the period 18–20 November 2014, a value chain analysis workshop was conducted in Chekka (see Appendix 3), after which it was concluded that the project should focus on two value chains as per the same aforementioned ILO criteria: potatoes and leafy green vegetables.

Selection of interviewees and methods of interview

This research is based on focused, in-depth interviews conducted in Lebanon in November and December, 2014. The interviews took place in two different regions, namely Akkar and Beirut. The selection of interviewees was based on their involvement and expertise in the agricultural and potato business.

Eskola and Suoranta (2005, p. 86) divided group interviews in qualitative research into four distinct categories:

- A structured interview necessitates the same questions in the same order for everyone. The answer options are also similar, and the interviewee cannot answer with his/her own words. Answers from structured interviews are the easiest to analyse.
- Semi-structured interviews also contain a predetermined set of questions, but do not contain options for answers.
- In focused interviews (or semi-structured theme interview), the themes of discussion remain constant from one interview to the next, but the questions may vary.
- Unstructured (open) interviews resemble a normal conversation, but there is still a certain topic or topics that remain in the discussion. However, not all themes are necessarily covered by every interviewee.

For this analysis, the focused interview and unstructured interview were found to be suitable because they enabled discussions on the topics and themes found in the literature, but the interviewer was not constrained by a pre-determined set of questions. The interviewer can guide the interview without controlling it completely. The focused interview has become almost a synonym for qualitative research and, if correctly used, it is an excellent method. For the purpose of field research, a team of seven people was formed from the trainees who attended the value chain training, based on their background as agronomists and field researchers. The interviewees were contacted first by this team to quickly brief them on the purpose of the interview and setup meetings. The venue for the interview was often the workplace of the interviewee. In order to make the interviewees feel comfortable to talk, the interviews were not recorded. At the beginning of the interview, interviewees were given an introduction on the project, the purpose of the study and informed how the results would be used.

Most interviews were comprised of a single interviewee. Interviewees consisted of farmers, managers of non-governmental organizations (NGOs), importers of agriculture supplies, traders/exporters and manufacturers, and directors from the Ministry of Agriculture and World Food Programme (WFP). Each interview lasted 1–3 hours, and the questions were chosen according to the expertise and work assignment of the interviewed persons. All of the interviewed persons were Lebanese citizens (except for WFP).

TABLE 1: INTERVIEWEES AND THE INSTITUTION THEY REPRESENT

Professional institution represented by interviewee	Total number of interviewees
NGOs	2
Cooperatives	1
Farmers	6
Manufacturers	1
Exporters	3
Importers of agriculture supplies	3
International organizations/embassies	2
Supermarkets	2
Government	3

Qualitative data analysis

This study uses the theory-conducting method; the aim is to study and analyse a context to understand better the causal relationships and make recommendations based on such results. In this study, most parts of the interview were written word for word, though not necessarily everything in some instances. The amount of data is large and not all can be used. Furthermore, there is no reason to analyse everything. During the interviews, the conversation sometimes derailed from the original topic, and it was not necessary to transcribe or analyse those discussions. Some new topics also emerged during the interviews, and those topics became potential topics in the next interview with other respondents. Some questions reached saturation point already after a few respondents, when it became clear that the answer was factual and did not depend on the interviewee. However, the topic remained in the discussions and the respondents were asked how to improve the situation.

The research team drew a preliminary value chain map for both potatoes and leafy green vegetables before the interviews. Based on the interviews and factual findings, the mapping was reviewed and adjusted.

Theoretical framework

Overall, there is not enough statistical data for producing valid results, thus requiring qualitative analysis. The questions, however, were structured in a way that many themes were addressed, including basic conditions such as consumer demand, production, seasonality, product durability, and method of purchase.

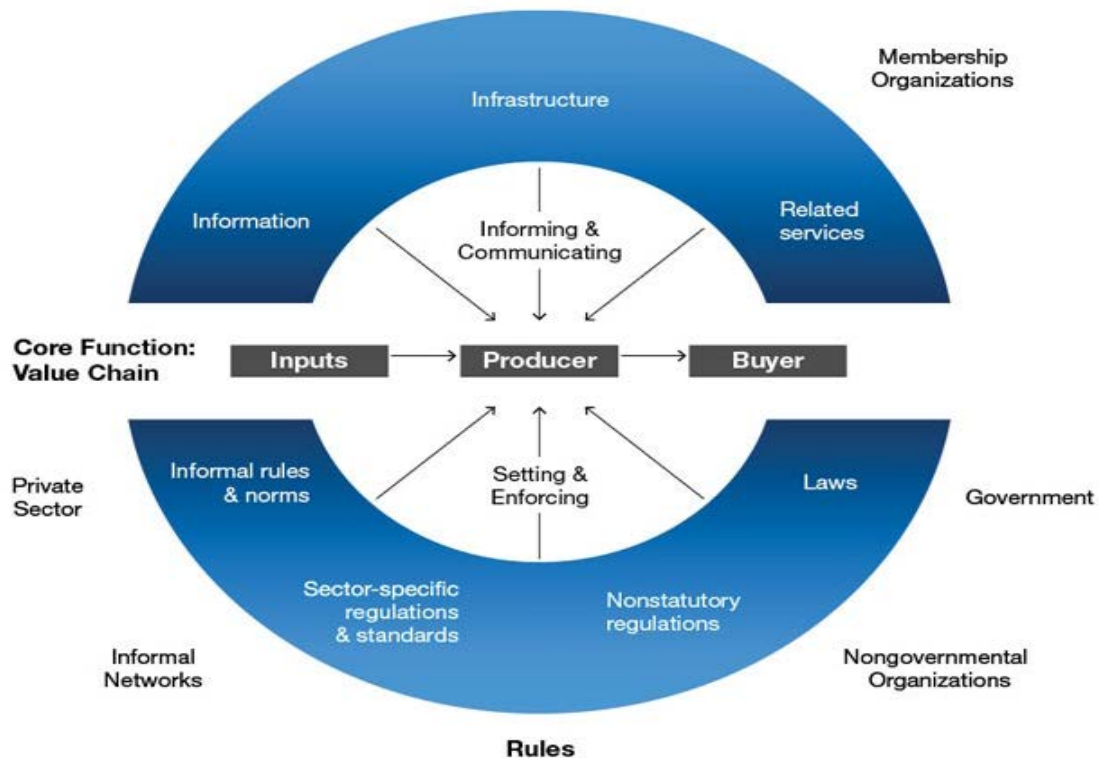
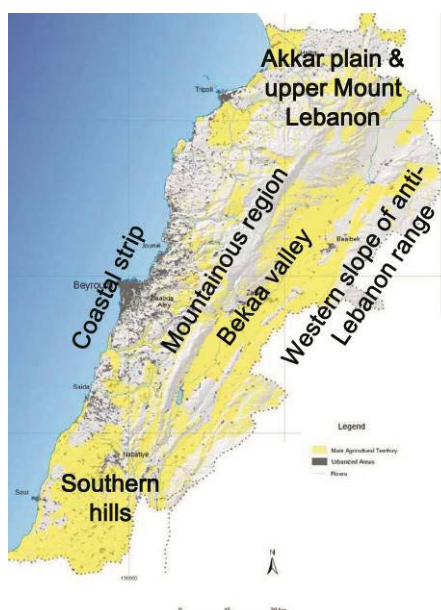


FIGURE 1: MODEL OF M4P APPROACH

From the structure side of the value chain, the answers enlighten the product differentiation and vertical coordination. The conduct of the potato industry was perhaps the most difficult part to examine, but information about pricing behaviour, and product choice was gathered. Performance in this study is about production efficiency, product quality, and profits to different actors in the value chain. Government policies are also part of the enabling environment of the value chain, and from that section data was collected about government regulations, barriers to entry, taxes, subsidies, and investment incentives.

Agriculture In Lebanon



MAP 2: MAIN AGRICULTURE AREAS (SOURCE: LANDSAT SATELLITE IMAGES)

Lebanon is approximately 10,452 km² in surface area, with 2,730 km² dedicated to agriculture, with a population of 4.47 million (World Bank 2013), 9.2 per cent of which is engaged in agriculture according to the Ministry of Agriculture. Lebanon exhibits a diverse climate as a result of its diverse topography, enabling it to produce a multitude of crops.

Agriculture in Lebanon is the third most important sector in the country after the tertiary and industrial sectors. It contributes nearly 6–7 per cent to GDP. In 2010, per capita income was approximately US\$7,500 per annum. Assuming conservatively that agriculture contributed 6 per cent to GDP (or US\$1.8 billion) and 20 per cent of Lebanon's labour force of 1.5 million was employed in agriculture, average GDP per agricultural worker was only \$6,000. Assuming that each agricultural worker

supported three dependents, average household income was \$1,500 or close to the World Bank's upper poverty line of \$4 per day, per person. At the same time, average GDP per non-agricultural worker was \$23,500.

Despite its relatively small contribution to GDP, approximately 20 to 25 per cent of Lebanon's active population is involved in agriculture to one extent or another. The magnitude of the sector is matched only by its diversity. According to a comprehensive report by the Food and Agriculture Organization (FAO), no fewer than 40 "agricultural homogenous zones" possess very distinct socio-economic and geopolitical characteristics. The strategic and coordinated development of the agriculture sector could play an important role in promoting job creation and growth for the entire economy.

Lebanon, which has a variety of agricultural lands, from the interior plateau of the Beqaa Valley to the narrow valleys leading downward to the sea, enables farmers to grow both European and tropical crops.

Main agriculture areas in Lebanon

- Coastal strip: citrus, banana and horticulture and greenhouse production.
- Akkar plain with upper Mount Lebanon: cereals, potatoes, grapes and vegetables.
- Beqaa valley: potatoes, grains, fruits and vegetables.
- Mountainous region: orchards and vegetables.
- Western slope of Anti Lebanon range: grapes, olives and cherries.
- Southern hills: olives, tobacco, almonds and grains.

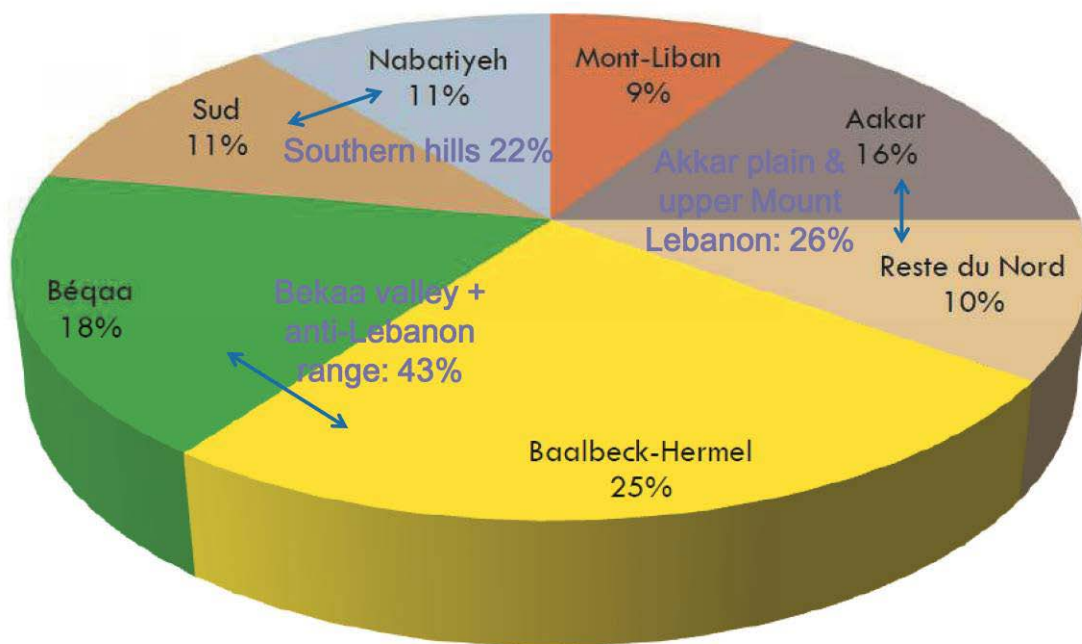


Figure 2: Distribution of farms (Source: MoA, 2010)

Improper agricultural practices leading to soil erosion and impoverishment, depletion of underground water resources, water pollution and health impacts from inappropriate use of pesticides and fertilizers, and environmental pollution from haphazard dumping of slaughter waste and animal farms are some of the main problems of this sector. Agriculture is also diminishing to rampant urbanization, such as in the coastal plains and in parts of the Beqaa Valley. The Government's policies appear to be targeting the increase in the availability of water irrigation (especially in the South) and controlling the use of pesticides, with little or no investment or incentives for water and soil conserving irrigation techniques.

Regional profile

Located north of Beirut, North Lebanon is bounded on the north by Syria, on the south by the Mount Lebanon Governorate, on the east by the Beqaa Governorate and Syria, and on the west by the Mediterranean Sea. A large and diverse region, the North can be divided into three agricultural sub-regions:

- the rural plains known for their vegetable and fruit production;
- the mountainous region known for its seed fruit, such as apples and pears; and
- the coastal region known for vines and olive growing.

The land area of North Lebanon accounts for nearly 19.5 per cent of Lebanon's total or approximately 197,200 ha. Of this, predominantly rural areas account for just over 41 per cent or nearly 81,000 ha. Among the crops cultivated in such areas are vegetables, cereals, citrus, olives, almonds and grapes. An area with tremendous agricultural potential, North Lebanon's plains are rich with water, while its mountains are well suited to fruit tree cultivation. Apples and stone fruits are widespread at elevations of 800 metres and higher.

While forests and woods are estimated at 60,500 ha, the total cultivated area in the North is estimated at nearly 62,070 ha of which 38,470 ha (62 per cent) lies in predominantly rural areas. Approximately 26,000 ha are irrigated. Overall, North Lebanon is one of the poorest parts of the country, accounting for only 12 per cent of total GDP. Ninety-five per cent of agro-industries in the North are micro-enterprises and/or small, family-run businesses with few, if any, quality standards. Only a few medium-sized industries process potatoes, juice, baked goods and dairy products.

Women are the primary labour force in agriculture, and largely responsible for seasonal agricultural activities which require patience and precision, such as sowing, weeding, and harvesting fruits and vegetables. Men are primarily responsible for handling heavy machinery, greenhouse construction and transporting crops. Wages, work conditions and the mode of payment differ according to the nationality and gender of agricultural workers, with some differences also noted per geographical region or crop. Lebanese labour is always paid more than Syrian labour – not because of nationality but because Lebanese labour is regarded as being of higher quality and is applied to types of work with more responsibility requiring higher skills. In general, men are paid double the amount of salary than women because they do the hard work that is not considered suitable for women.

The present analysis of the agricultural labour market focuses on four groups:

- Lebanese agricultural workers: semi-skilled female and male, hired or family labourers from Lebanon involved in agricultural production, post-harvest handling or food processing.
- Syrian migrant workers: women and men of Syrian nationality who have been working as agricultural labourers in Lebanon for several years, namely in agricultural production, post-harvest handling or food processing.
- Syrian refugees: both women and men who have been displaced from Syria due to conflict; they are either working or available to work as agricultural labourers in Lebanon. Based on information collected by UNHCR (2012) at the time of registration, an estimated 10 per cent of the refugee population has previous experience in agriculture. In addition, this group the work of children to increase family income is very common.
- Palestinians Refugees: according to an ILO report on facts and challenges for Palestinian employment in Lebanon (5.7 , (2012 per cent of Palestinians employed in Lebanon work as skilled agricultural workers (3.6 per cent male; 2.1 per cent Female).

In Akkar, there are 28,092 registered agricultural operators. Some 90 per cent 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 report, April 2013).

Functioning of the market system in Akkar (potatoes)

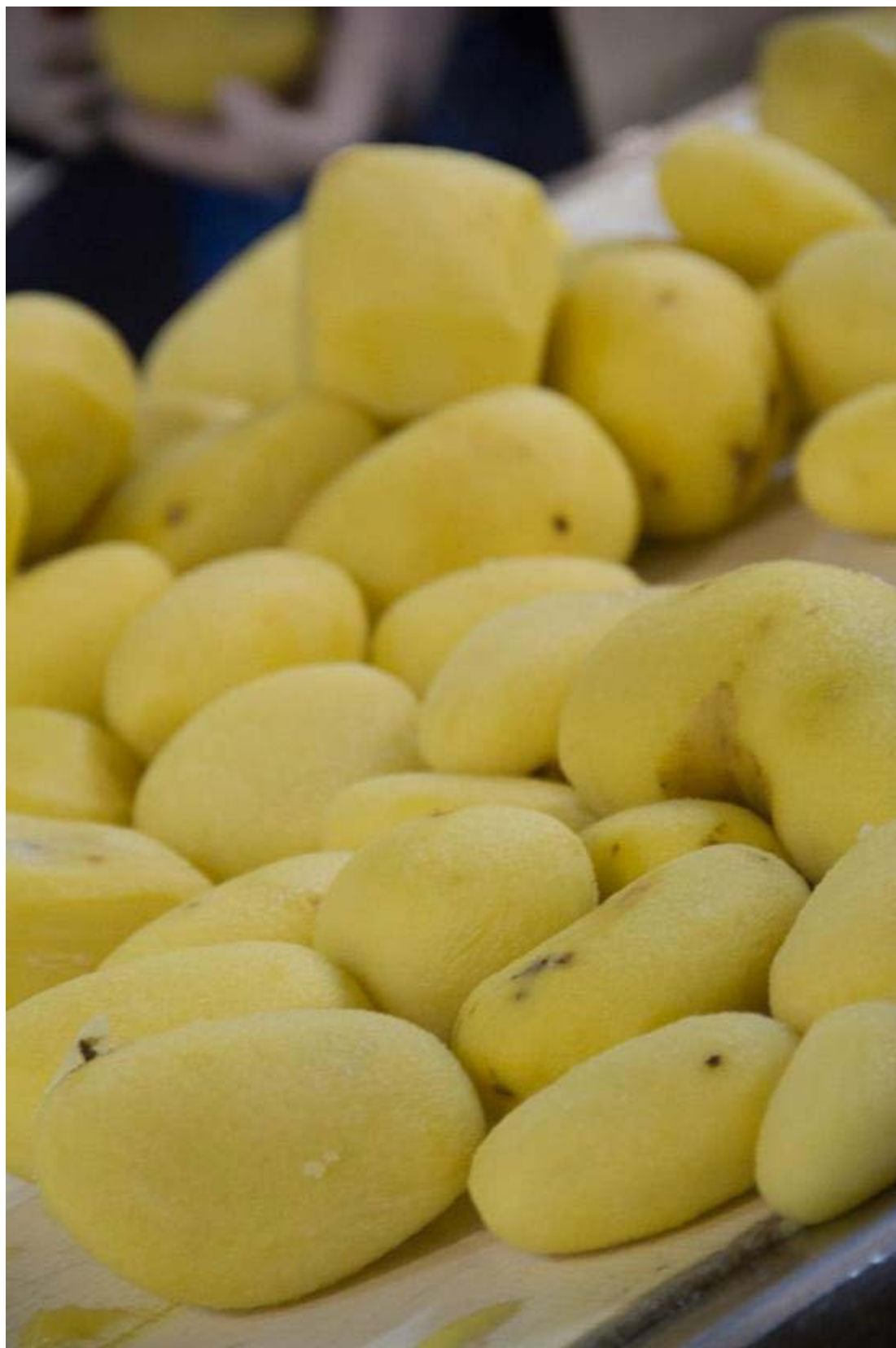


FIGURE 3: POTATOES (PHOTO COURTESY OF HISHAM EL GAZZAR)

Potatoes

Quick Facts:

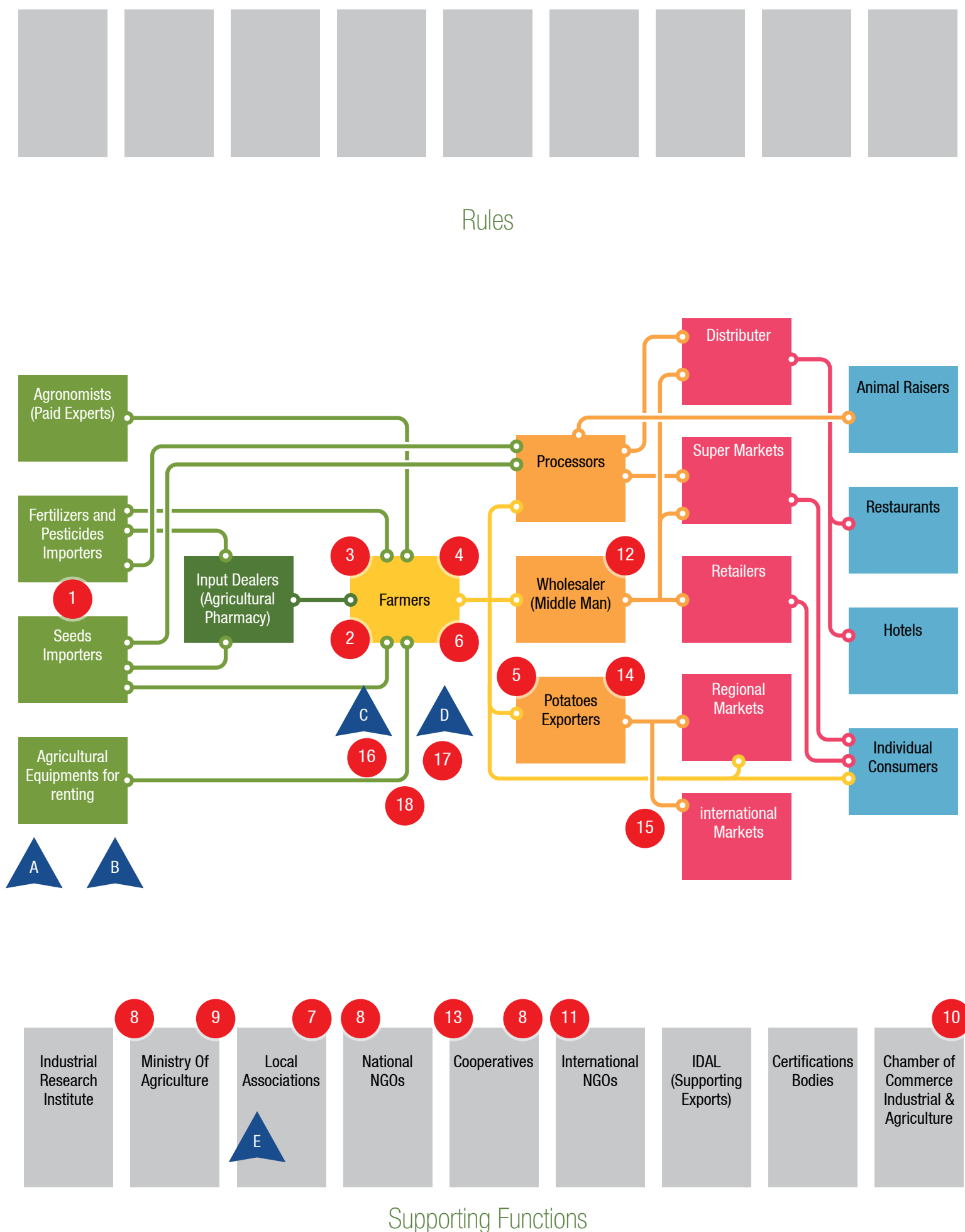
- The potato is the third most important food crop in the world after rice and wheat in terms of human consumption.
- More than a billion people worldwide eat potatoes, and global total crop production exceeds 300 million metric tons.
- There are more than 4,000 varieties of native potatoes, mostly found in the Andes.
- Potatoes can grow from sea level up to 4,700 metres above sea level.
- One hectare of potato can yield two to four times the food quantity of grain crops.
- Potatoes produce more food per unit of water than any other major crop and are up to seven times more efficient in using water than cereals.
- Since the early 1960s, the growth in potato production area has rapidly overtaken all other food crops in developing countries.
- Presently, more than half of global potato production now comes from developing countries.
- It is projected that in the future, world potato production is expected to grow at a rate of 2.5 per cent per year.
- Potatoes are a carbohydrate-rich, energy-providing food with little fat. They are particularly high in vitamin C and are a good source of several B vitamins and potassium.
- By the early 1970s, Lebanon was an important regional producer with an annual output of about 100,000 tons, about 60 per cent of which was exported to markets in other Arab countries, the UK, and even Brazil.
- Production was severely disrupted by the civil war in Lebanon in the mid 70-s, dropping to 30,000 tons in 1976.
- The Bekaa Valley is the major producing area of potatoes in Lebanon, accounting for about 80 per cent of the country's potato production.
- Potatoes from the Akkar region are favoured by Lebanese consumers for their taste.
- Around 111,311 dunums of area are used to grow potatoes in Lebanon.

The FAO (2006) states that while potato output has declined in Europe, growth is so strong in developing countries that global production has nearly doubled over the last 20 years. Potatoes grow fast, are adaptable and high yielding, and respond well with few inputs. Potatoes are ideally suited to places where land is limited and labour is abundant; these are conditions that characterise much of the developing world. Potatoes also have considerable untapped potential for further increases in yield and productivity, especially in some marginal farming areas unsuitable for other crops (FAO 2006). In addition, potatoes are insulated from international price shocks (Prakash 2010, p. 14).

Mapping the value chain of potatoes

The main functions of the potato value chain identified in the study start from input supply, flowing through to production, aggregating and marketing, processing, wholesaling, retailing and consumption. The number of actors at each function of the value chain are large in most cases and these, together with the constraints, opportunities and supporting institutions, which may reflect policy/enabling environment issues, as well provision of business development and other support services, are discussed in later sections.

FIGURE 4: AKKAR POTATO VALUE CHAIN MAP



Weaknesses/Problems:

1. Oligopoly of seeds and fertilizer prices by input suppliers;
2. Improper use by farmers of pesticides and fertilizers within the proposed standards and guidelines;
3. Excessive consumption of agricultural land and not adopting crop rotation;
4. The difficulty of introducing new varieties of potato seeds;
5. Lack of appropriate machines to clean potato tubers from soil residue;
6. The large number of small-scale cultivated lands;
7. Inaccuracy of agricultural information provided via text messages to the farmer and not offered on a regular basis;
8. Lack of follow-up on the correct application of agricultural information provided during training sessions;
9. Lack of adequate information and statistical data for the sector (import, export, prices in the domestic and overseas market);
10. Lack of coordination among stakeholders;
11. Lack of coordination between projects funded by foreign and Arab countries;
12. Control of the final product prices in the markets;
13. Weaknesses in the role of cooperatives;
14. Lack of experience in export and shipping procedures to Europe;
15. Unfamiliarity with the minimum standards for the quality of the product for export to Europe;
16. Low wages for agricultural workers and unequal pay and working conditions between women and men.

Strengths:

- A. Availability of fertilizers and pesticides;
- B. Availability of several types of potato seeds;
- C. Availability of agricultural experts;
- D. Availability of agricultural inputs and production for farmers;
- E. Availability of training courses;
- F. Timing of the harvest season boosts competitiveness;
- G. Potential access to European Union (EU) markets.

The analysis of the potato value chain revealed weaknesses along the whole chain. There were no linkages between the various actors, value chain facilitators and service providers leading to myriads of challenges along the chain (the circles in Figure 4 above).

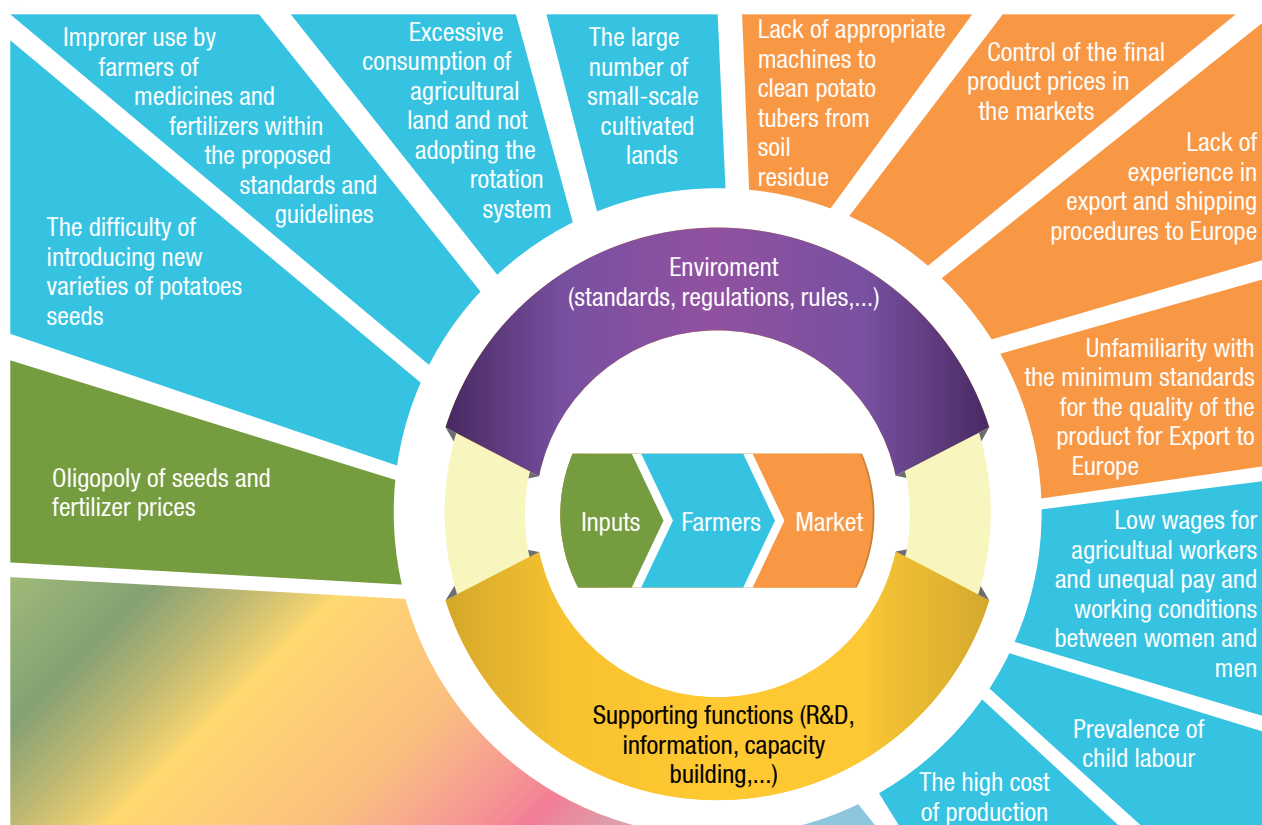


FIGURE 5: CONSTRAINTS AFFECTING MAIN CORE VC OF POTATOES

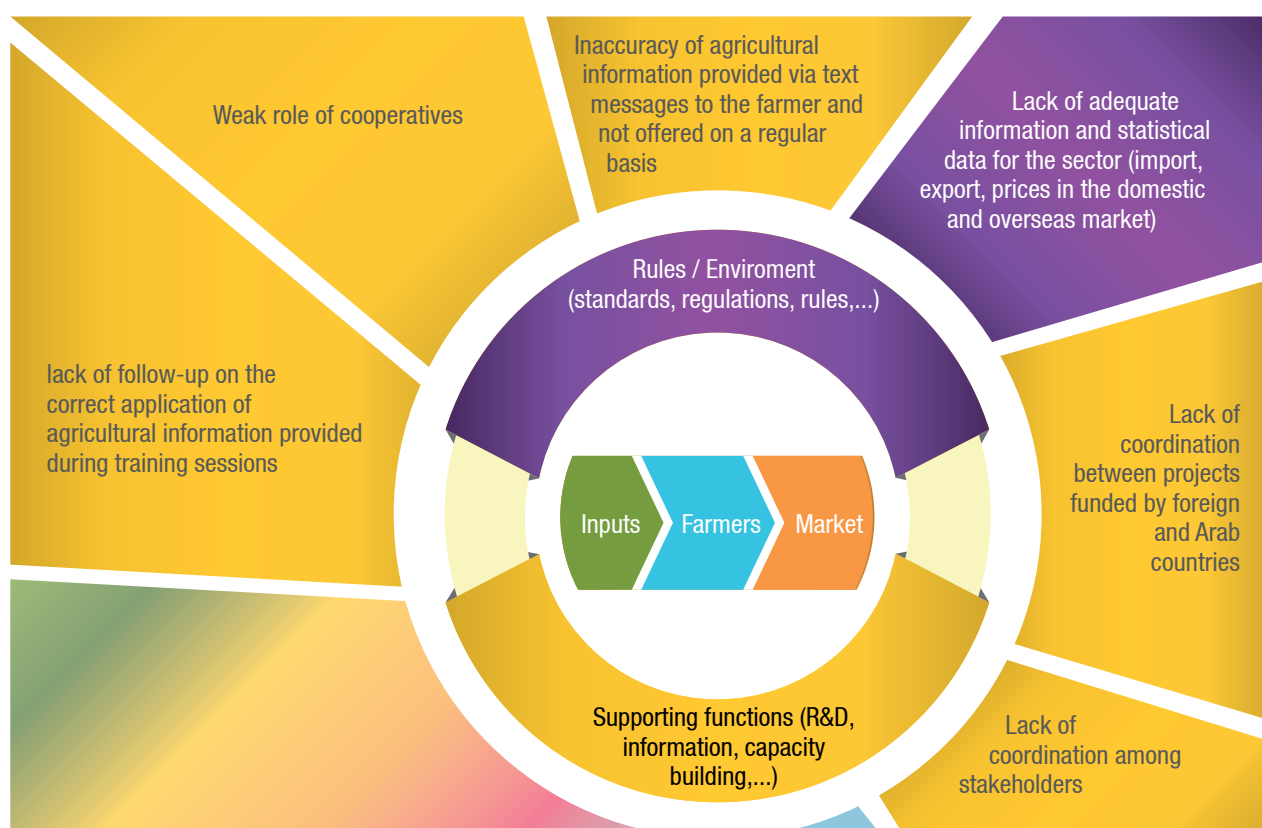


FIGURE 6: CONSTRAINTS AFFECTING SUPPORTING ORGANIZATIONS OF POTATOES VC

Lebanon's potato VC is rather complex. It was common to find many actors in the VC playing more than one role. For instance, one of the interviewees is a farmer, trader, owner of a shop at the wholesale market, exporter, chairman of a cooperative and vice chairman of a syndicate. Some traders, exporters and processors reach back to the beginning of the VC and play the role of input suppliers by providing farmers with seeds, fertilizers and pesticides. In a way, this helps the farmers to proceed with buying the seeds, fertilizers and pesticides without having to invest their own money. However, on the other hand, they become attached to the traders/exporters, which deprives them of the freedom to sell their crop to other traders or exporters. (see Figure 8 on the Farmer -Trader Relationship in section 4.2.3 Aggregation and Marketing).

On 28 January 2015, key stakeholders were invited to attend a workshop in Halba (Akkar) to validate the findings of the VCA of potatoes in Akkar. The following is the result of this validation workshop.

Some constraints met high level of agreement from all attendees like high cost of production, improper use of pesticides and fertilizers by farmers, excessive consumption of agricultural land without adopting crop rotation, the weak role of cooperatives, unfamiliarity with the minimum standards for the European market, lack of coordination among stakeholders and lack of appropriate machines to clean potato tubers from soil residue.

Other constraints were not agreed upon by all attendees like oligopoly of seeds and fertilizers prices by input suppliers, control of final product prices in the markets and difficulty of introducing new varieties of potato seeds .

Details of the market system

Inputs supply

Inputs, such as land, seeds, fertilizers, and pesticides, are key elements of the agricultural production systems in the North. Land rental prices have been trending upwards in the North, due to increased demand for land, mostly from Syrian farmers (even in the pre-crisis period). Land rental prices in Akkar have increased from 700,000 LBP to 5 million LBP per hectare over the last 4 years.

The cost of some agricultural inputs has increased since the Syrian crisis began, particularly in border areas where fertilizers and pesticides were imported from Syria. This has compounded the already rising input costs due to government restrictions on some pesticides.

Lebanon does not produce certified seed. There are no gene banks or potato breeders in Lebanon either. The total amount of certified seed potato imported is mainly from EU Member States. Lebanon imports around 70 per cent of its potato seed needs from the Netherlands. Other source countries are Belgium, France, Germany and Denmark. Currently around seven companies are importing potato seed into Lebanon, which is sufficient for such a small market. Importers of seed potatoes are registered with the MoA and must submit details regarding the exporting company, quantity, variety, and the registration number of the producer.

The majority of the seed used (around 80 per cent) is basic seed from the EU. However, in the northern potato producing area, the Akkar plain, small potatoes that were once grown from EU basic seed, are now sold and used as seed potatoes by farmers in the Beqaa. In fact, small potatoes are harvested in April/May on the Akkar plain, and planted for the late season in the Beqaa valley in July/August. They are used mainly in small fields and for farmers' own consumption. Around 2 tonnes of seed per ha is used. Productivity is around 15 tonnes per hectare in the north. A comprehensive system is in place for controlling the import of certified seed by the Government. Plant health checks consist of visual inspection and testing (100 per cent of seed potato lots are tested). Nevertheless, it came to the attention of the research team that one or two potato seed shipments were defective and yet managed to pass port checks to be sold in the local market.

Production

Farmers in Akkar mainly grow the "Spunta" variety for local and regional markets, and for processing factories that produce frozen fries and chips. They also grow the varieties "Agria" for export to the EU and "Hermes" for the Russian market.

The Beqaa Region, which accounts for 80 per cent of potato production, has larger fields, higher yield, cold stores for potatoes and packing facilities. In the North, cold storage is not used because seed potatoes are planted just after importation and ware potatoes are immediately sold on the local market as they do not face competition from Beqaa at this period.

The potato harvest in Akkar begins on April 5 and ends around June 15. Then, for 2 months, the land is often left fallow to be planted again in December. Akkar farmers produce around 75,000 tons of potatoes throughout this period. Some 30,000 tons are consumed locally, while the rest are exported. Farmers and traders are concerned that they will not be able to export these amounts into certain Arab markets because transportation through Syria has almost ceased due to the Syrian crisis and maritime transport is costly. With the Beqaa potato harvest approaching in June, Akkar farmers would rather sell their produce locally, despite the undervalued price. Although local prices would barely cover their production costs, it is still better to sell instead of storing the produce.

In the Akkar plain, potatoes are irrigated from artesian wells and the Oustouwan River. Each crop is irrigated between 2 and 4 times. After potatoes are grown, generally the land will be left fallow or a vegetable crop will be cultivated during summer before planting potatoes again in December.

Equipment sharing between farmers is not normal practice (i.e. water irrigation systems, tractors, etc.). Without proper equipment, potatoes can be hard to manage; they are prone to disease and subject to tuber degeneration.

While crop rotation is essential to minimise the build-up of soil-borne diseases and pests, in addition to maintaining adequate soil structure and fertility, it is not widely practiced.

In Akkar, farm sizes are generally small and potato growing is very popular both as a cash crop and as a food crop for home consumption. Small-scale farmers use a part of their seasonal ware potato production for their own home consumption, which means they do not receive any cash for this portion for subsequent investment.

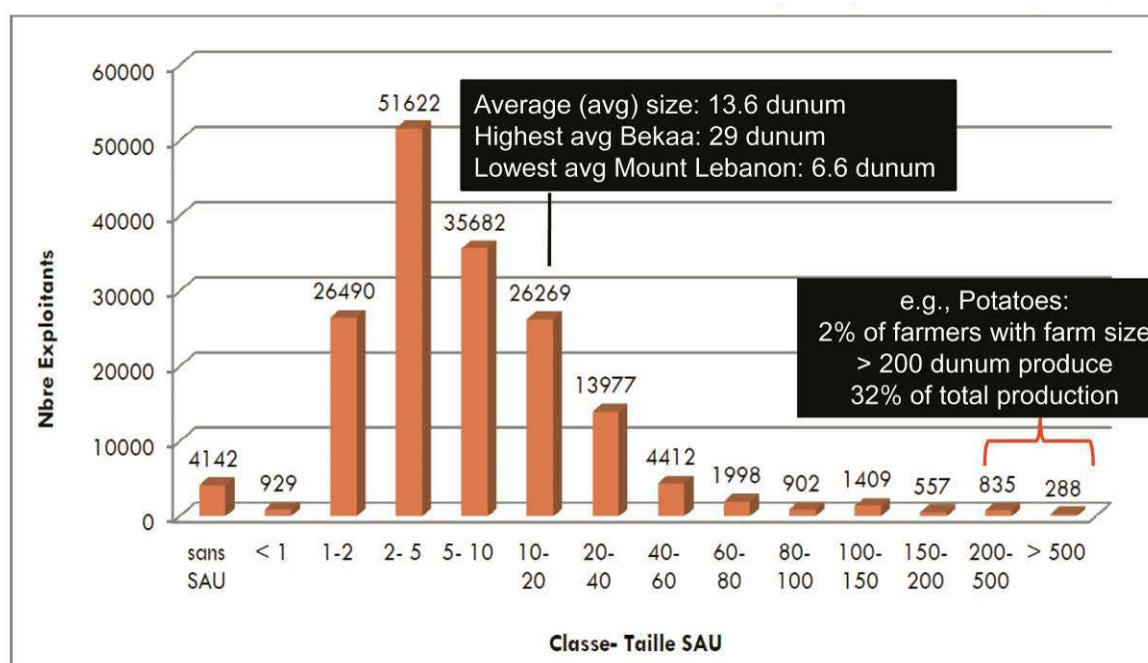


FIGURE 7: FARM SIZES IN LEBANON (SOURCE: MOA, 2012)

Only 2 per cent of farmers grow potatoes in areas larger than 20 ha, but these farms account for 32 per cent of total potato production. These are the producers interested in exporting to the EU market and they are mainly organized as family companies. Having strong cooperatives helps gather small farmers and empower them to buy their input supplies, and produce and sell their crops collectively and efficiently.

To better understand the potato value chain in Lebanon, the research team has calculated the cost of potato production per dunum as: 1 Ha = 10 dunums

- Land rental = 500,000 LBP per year (potato share is 200,000 per season).
- Seeds = 340,000 LBP (200 kg x average price of 1,700 LBP).
- Fertilizers = 300,000 LBP (200 kg x average price of 1,500 LBP).
- Farming operations = 100,000 LBP.
- Pesticides = 200,000 LBP.
- Irrigation = 100,000 LBP (cost for 5 times).

Harvesting = 80,000 LBP (50,000 LBP mainly for women as men are given jobs requiring significant physical strength + 30,000 LBP for tractor).

Total = 1,320,000 LBP per dunum. If the average production per dunum is 2 tonnes, then the cost of 1 kg of potato on land is around 660 LBP. Sale prices in the market differ significantly from one season to the other. Prices could reach a low of 200 LBP and a high of 800 LBP with an average of 450 to 550 LBP.

The above calculation indicates that seed is the most expensive item in the overall cost of potato production. Buying seeds from cheaper sources or switching to other kinds of potato that have higher production yield could decrease the cost of production, enabling the farmer to increase his profit and allow exporters to compete in the international market (e.g. the Synergy potato produces 2–3 times more quantity than the Spunta potato and matches the EU preference/demand).

Aggregation and marketing

Farmers sell their products in spot markets, which are physical markets where farmers and traders converge to buy and sell products at a given period. Farmers do sell directly to buyers at their homes and/or farms. They get less income but do not need to pay for transport. Farmers also sell through contracts to traders, exporters or factory owners. Prices are predictable, but sometimes they can be lower in comparison to spot markets. Quantities are specified in advance so that farmers have assured markets through contract sales.

Farmers are often dependent on traders, who have the upper hand when negotiating prices because the farmer is constantly in debt to the trader for the cost of seeds, fertilizers and pesticides that were received in advance.

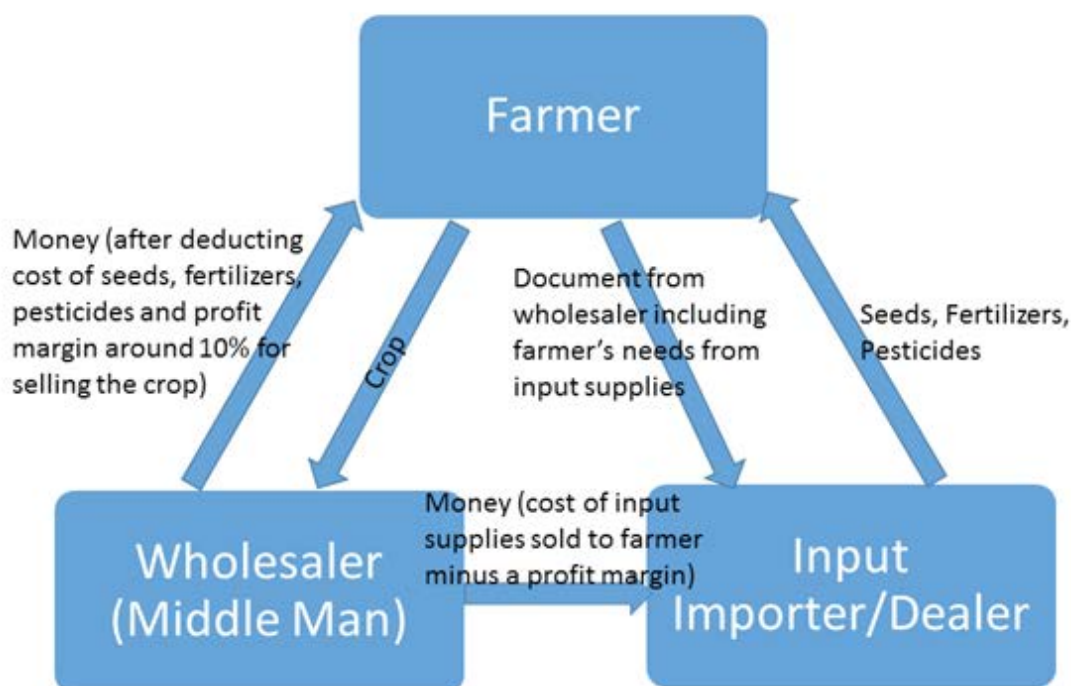


FIGURE 8: FARMER-TRADER RELATIONSHIP

Akkar potatoes are marketed through fragmented chains that lack coordination and information exchanges. Constraints on achieving a higher agricultural performance and higher productivity are associated with inefficient marketing, poor infrastructure, and inefficient financial systems. For example, the “Kafalat Agriculture Programme” is implemented within the framework of the Agricultural and Rural Development Programme (ARDP), funded by the EU and executed by the Lebanese Ministry of Agriculture, which aims at financing activities related to the agriculture business in all respects. This programme is co-financed by the EU and Kafalat SAL, and responds to special needs using funds raised by activities of small-scale agriculture and tree plantation. EU support has enabled the extension of resources to increase the guaranteed amount for small-scale agriculture, as well as the duration of the guarantee and of the grace period for arboriculture.

TABLE 2

Loans under the Kafalat Agriculture Programme

Name of programme	Small agriculture
Investment type	To finance all types of farming and agricultural activities, including fixed assets and working capital needs
Maximum loan amount	LBP 65 million
Loan duration	Up to 7 years
Guarantee ratio	%85
Grace period	Between six months and one year

The research team noticed that farmers still prefer to borrow money from traders and not from “Kafalat”, mainly for two reasons:

- Traders do not have a formal system of applying for a loan and do not require any legal documents from farmers. The relationship is based mainly on trust.
- In case of a farmer’s inability to repay his debts due to a bad crop season, the trader postpones all unpaid debts to the next crop season and still provides the farmer with all his needs from input supplies.

Processing

Sorting and packing facilities

In North Lebanon, around 25 sorting and packing facilities are available. They mostly handle fruit (80 per cent of business) and vegetables (20 per cent of business) for export markets or high-end shops in Beirut. The system is semi-automated.

Sorting and packing facilities are concentrated mainly in Zgharta, 7 km away from Tripoli; others are found in Minnieh and Danniye. The research team noticed that in Akkar, sorting and packing facilities were increasing due to high demand. These are principally family businesses of export traders who compete against each other.

Traders control the market by fixing the purchase price and buying from farmers. They also hire daily workers for sorting and packing labour work, pay for transporting the packed produce to the export market and arrange trade deals in the export market.

Sorting and packing facilities employ both Lebanese and migrant workers, males and females, generally at equal levels in terms of working conditions. During visits by the research team, some teenagers were spotted working in these facilities. Lebanese workers are paid 5 per cent more than Syrian workers and are usually more trusted in handling sensitive products like apples. The level of activity of these facilities is directly related to the demand level in export markets. The higher the demand, the more workers are hired to fulfil orders.

The research team noticed that good packaging and branding adds value to these products, and producers who managed to do that (e.g. Lama) succeeded in opening new export markets, as well as selling locally to big retailers. A 10 per cent bonus is added to the export subsidy received from IDAL when any facility is ISO 22000 certified. ISO 22000 takes a whole chain approach to food safety, providing a standard that is not just for food processors, but goes all the way from the farm to the fork, including packaging and ingredient suppliers, caterers, storage and distribution facilities, chemical and machinery manufacturers, and can be applied to primary producers, such as farms. ISO 22000 extends the successful management system approach of the ISO 9001:2000 quality management system standard, which is widely implemented in all sectors, but does not itself specifically address food safety by incorporating the principles of Codex HACCP. Although ISO 22000 is very important, it does not deal with working conditions or how businesses can operate in a socially responsible way. Therefore, it is recommended to tie IDAL subsidy bonus not only with ISO 22000 but also with ISO 26000 – Social Responsibility.

Commercial processing

In North Lebanon, there are two French fry factories (Famous Frites and Super Frites).

Famous Frites buys “Agria” potatoes from the field. Previously, they used to buy from 50 farmers using the contract system, but this system did not work out due to lack of commitment from farmers. Currently, Famous Frites buys potatoes from ten big farmers who accept their terms and conditions and do not get involved in the production phase. They import also from Egypt, due to cheaper prices compared with Lebanese potatoes, and use four cold storage rooms (capacity of each storage room is between 1000 and 1500 tonnes).

The following are the processing steps at Famous Frites:

1. Washer machine – wash dust from potatoes.
2. Di-stoner machine – clean any stones from potatoes.
3. Steam peeler machine – steam potatoes with high temperature (160C).
4. Brusher machine – remove skin from potatoes.
5. Tank – prevent potatoes from oxidizing by keeping them in water.
6. Water cutter machine – cut potatoes into fries along two dimensions (9mm x 9mm or 6mm x 6mm).
7. Tank – prevent fries from oxidizing by keeping them in water.
8. Three boilers – remove starch. After the third boiler, sugar and phosphate are added to give fries their white appearance.
9. Rollers – grade chips to combine similar lengths together.
10. Dryer machine – expose fries to a temperature of 80C for 30 minutes.
11. Fryer – use industrial margarine blocks to fry chips (180C).
12. Pre-cooler – cool fries. This is an intermediate step between the fryer and the freezer.
13. Freezer – freeze fries (15-C).
14. Packing machine – weigh and pack fries into plastic bags, then into cartons.
15. Storage – store carton boxes in a freezer (30-C) for distribution.

The research team noticed that the processing steps are long and could have generated many job opportunities but, due to the use of high tech automated machines, a very small number of employees was operating the factory. Nonetheless, the Famous Frites owner did complain about the lack of highly skilled labourers, particularly in the area of quality control/production supervision.

Famous Frites uses salespersons to distribute the final product to supermarkets, hotels and restaurants. Previously, they exported fries. However, due to high local demand, they now sell all their products in the local market. In addition, they sell potato skins and low-quality fries to cattle growers.

Wholesaling and retailing

The absence of sufficient post-harvest facilities and processing plants is affecting the sales of potatoes. With an increase in production costs, tough competition from cheap Egyptian and Syrian produce in domestic markets, and blocked transit roads for export, Akkar farmers are in a critical situation.

Only one supplier from Akkar is supplying the big supermarket chain Carrefour in Beirut. Carrefour depends on other suppliers from Beqaa and other areas in Lebanon to guarantee their daily supply of potatoes. They also import some potato varieties from France, which are not available in Lebanon, for high-end consumers.

Each supplier has a yearly contract with Carrefour but prices change on a daily basis and are set according to the market price. Suppliers are paid automatically at the end of each period according to the contract with Carrefour. Carrefour does the grading once the potatoes are received from the supplier. Potatoes that do not comply with the terms agreed upon are rejected and returned to the supplier. Carrefour is planning to implement a traceability system to ensure the good quality of their products.

As for Spinneys, another big supermarket chain in Lebanon, they have five main suppliers of potatoes from Lebanon. Spinneys sells unwashed, not pre-packed, potatoes.

Exports

During the last 5 years, the quantity of potatoes exported from Lebanon has increased significantly, which shows that there is a high potential for expansion in this sector.

TABLE 3

Lebanon's potato export

Year	Exported potatoes (tonnes)
2010	949 108
2011	727 118
2012	509 98
2013	143 192
2014	408 234

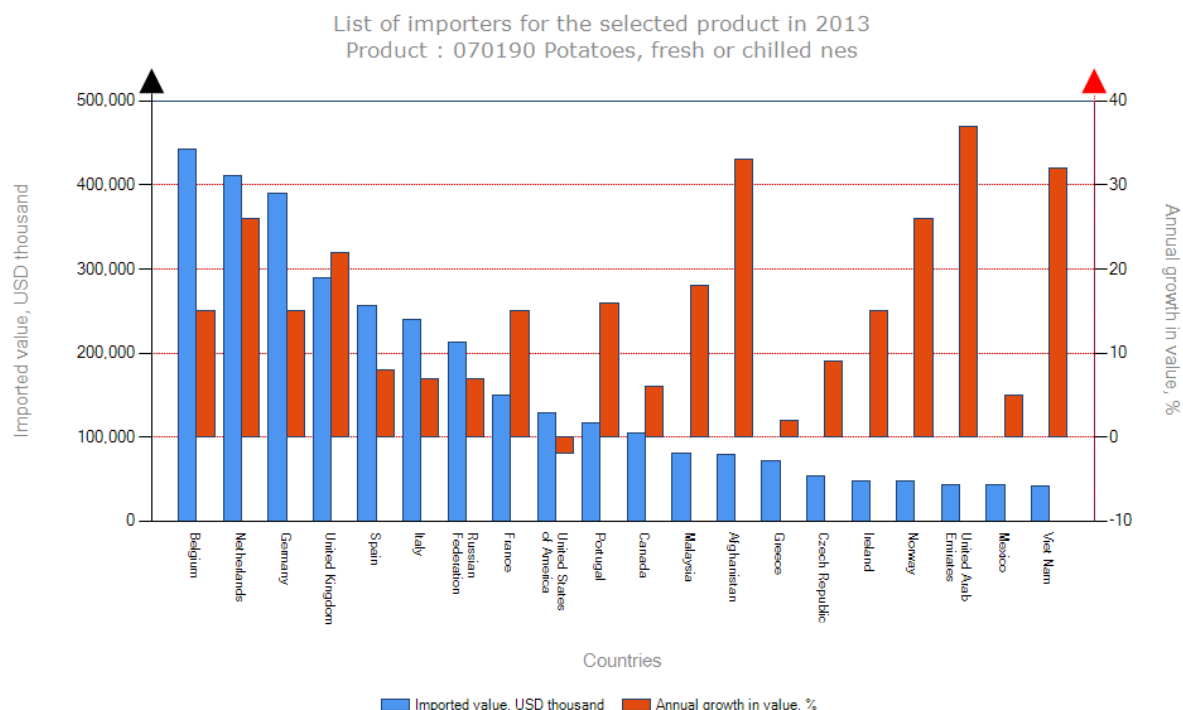


FIGURE 9: RELATION BETWEEN POTATO WORLD IMPORTERS AND ANNUAL GROWTH IN VALUE (SOURCE: ITC)

Figure 17: shows that the top three world potato importers are Belgium, Netherlands and Germany. The top three countries with the highest annual growth of importing potatoes by value are the UAE, Afghanistan and Vietnam. Netherlands is considered the country with the highest levels of imported quantity and growth in value combined together. The EU countries are the top importers of potatoes, together with Russia, due to the very cold weather in winter, which is not suitable for growing potatoes. These countries also have continuous high demand for potatoes all year round. Therefore, the research team highly recommends targeting these countries as potential export markets.

Akkar ware potatoes are mainly exported to neighbouring Arab and Gulf countries. This has been greatly affected by the Syrian crisis during the last couple of years. Syrian borders are frequently closed, transportation costs have greatly increased to cover additional expenses to pass through the Syrian territories, and security issues have created a great threat to goods transported through Syria. Some exporters have tried to transport potatoes via sea ferries to the Gulf countries to avoid driving through Syria. However, this increased the cost immensely and some shipments were damaged en route.

On 1 August 2013, the European Commission published a decision (2013/413/EU) which grants Lebanon derogation from certain provisions of Council Directive 2000/29/EC, and paves the way for the export of Lebanese potatoes to the EU. The decision taken by the European Commission allow imports of 50,000 tonnes of ware potatoes not intended for planting, and originating from the two most important Lebanese agricultural production regions of Akkar and Beqaa.

These Lebanese potatoes have to be shipped to the EU through a designated point of entry (currently only Italy) in order to ensure effective controls and fulfil phytosanitary requirements. Additionally, any consignments need to be accompanied by a phytosanitary certificate issued by the competent authority in Lebanon, which is the Ministry of Agriculture.

The decision to allow Lebanon a derogation from the general ban on the import of potatoes to the EU is an acknowledgement of the efforts made by Lebanese authorities, as well as the Lebanese farming community to improve the sanitary and phytosanitary quality of the products and the supply chain. Support was provided by the European Union and Member States, notably Italy and its Embassy to Lebanon through a €400,000 project implemented with the L'Istituto Agronomico Mediterraneo di Bari between 2010 and 2012.

The decision allows Lebanon to benefit from the 50,000 tonnes duty free quota for ware potatoes negotiated under the EU-Lebanon Association Agreement. The possibility to export potatoes into the European Union was expected to provide substantial economic opportunities, particularly for those agricultural regions most affected by the impact of the Syrian crisis. Unfortunately for the newly opened EU market, the prices of ware potatoes in the local market rose almost to the same level of export prices, which led to a huge decrease of the potatoes exported to the EU.

One kilogram of Akkar potatoes is currently sold for 500 LBP. Exporters complain this price is too high for them. With transportation fees added, the price of Lebanese potatoes would become higher than the price of potatoes already available in most export destinations. Although high local prices of potatoes in the local market is good for farmers, in the long run this does not support the idea of being sustainable in the international market.

Table 4

List of importing markets for potatoes, fresh or chilled, exported by Lebanon Source: ITC.

Importers	2014	Exported value in 2014, USD, 000's	Exported quantity in 2014, tons
	Exported unit value, US D per ton		
World	208	48786	234407
United Arab Emirates	218	11214	51438
Jordan	198	7663	38610
Kuwait	197	7238	36797
Syrian Arab Republic	293	5801	19773
Saudi Arabia	197	4471	22666
Qatar	206	3024	14663
Oman	191	2805	14684
Iraq	124	2783	22441
Russian Federation	413	2526	6111
Bahrain	168	1190	7064
Togo	1292	31	24
Turkey	213	17	80
Côte d'Ivoire	448	13	29
Egypt	346	9	26
Congo	1000	1	1

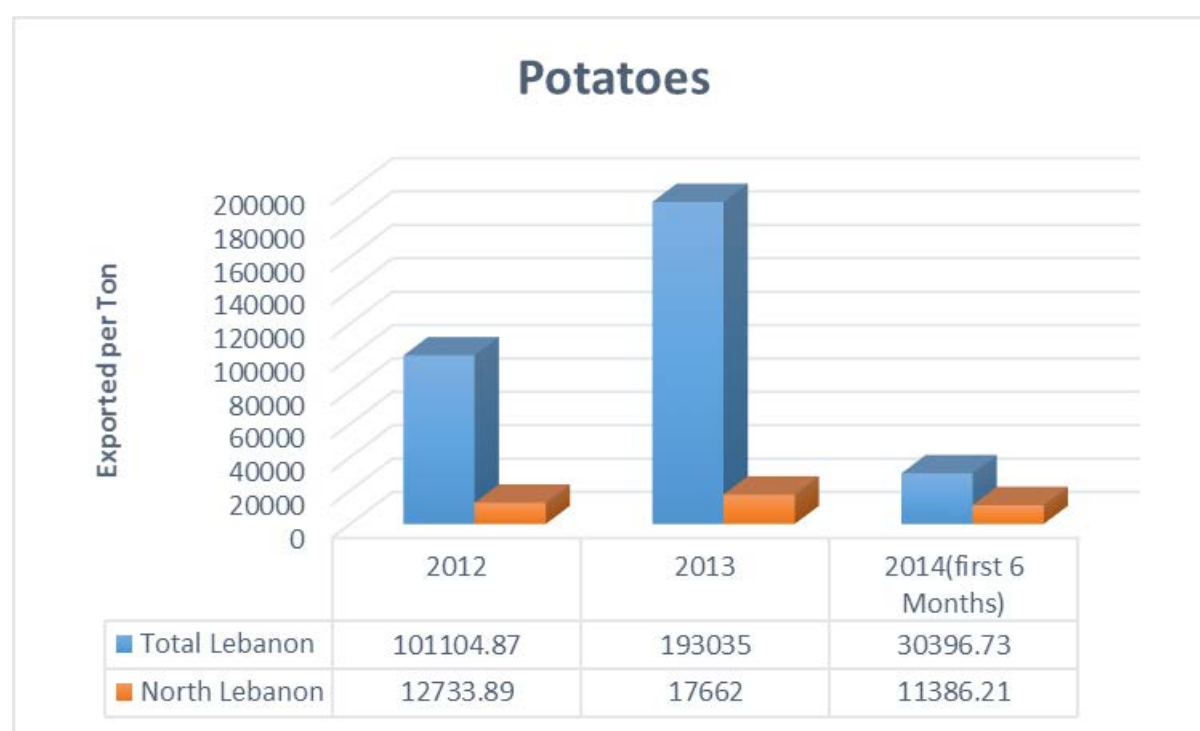


FIGURE 10: EXPORTED POTATOES IN TONNES (SOURCE: IDAL 2014)

Most interviewees stressed the importance of GLOBALGAP certification. GLOBALGAP's Fresh Fruit and Vegetable Standard is implemented to raise standards in the production of fresh fruit and vegetables and is recognised by European retailers. Certification to the standard ensures a level playing field in terms of food safety and quality, and proves that growers are prepared to constantly improve systems to raise standards. GLOBALGAP (formerly EUREPGAP) was set up by the German-based company EHI and is made up of leading European food retailers. With a membership of over 500 companies, GLOBALGAP is committed to creating international standards for agriculture. The research team highly recommends paving the way for Lebanese farmers in Akkar to proceed with being GLOBALGAP certified as this will solve many problems in the value chain and will ease access to the export market.

In Lebanon, many certification bodies offer certification to the standard, giving both existing and new customers the opportunity to demonstrate best practice to the rest of the supply chain.

Functioning of the market system in Akkar (leafy green vegetables)



FIGURE 11: SEEDLING PRODUCTION IN GREEN HOUSE (PHOTO COURTESY OF HISHAM EL GAZZAR)

Leafy green vegetables

In Lebanon, the cultivated area of leafy green vegetables is 72,996 dunums, including 4,247 dunums in plastic houses.

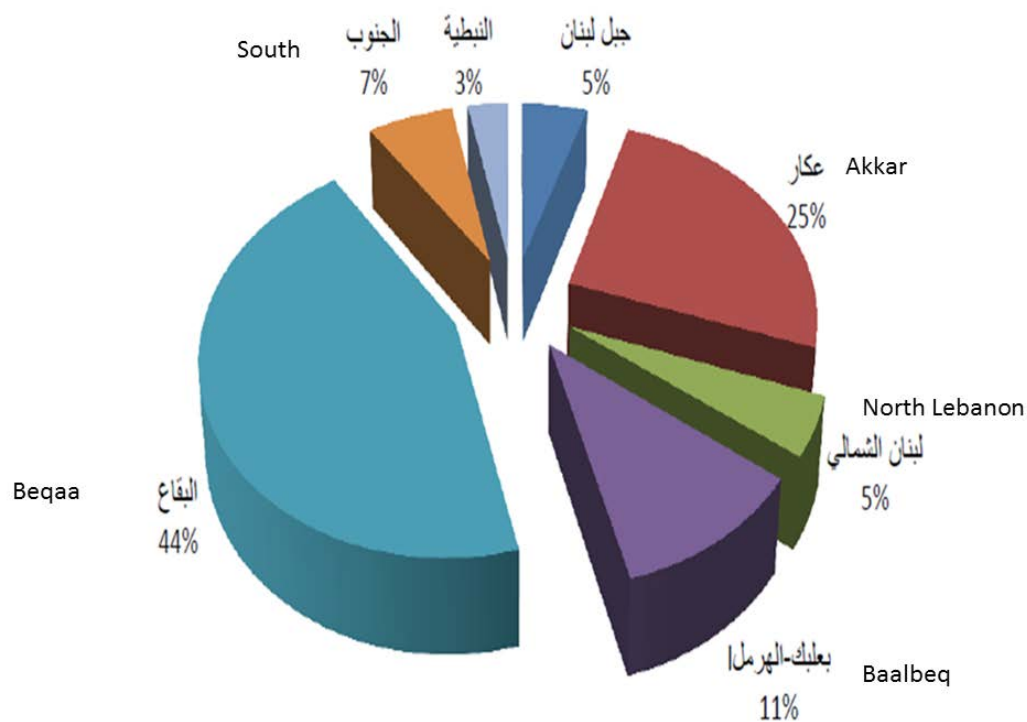


FIGURE 12: DISTRIBUTION OF PLANTED SURFACE BY GOVERNORATE (SOURCE: MOA, 2010)

Akkar is a major production area for vegetables at a national scale (MoA, 2010). 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.

The following table displays the cultivated crops in Akkar according to the MoA in 2010 (including leafy green vegetables and excluding potato).

TABLE 5

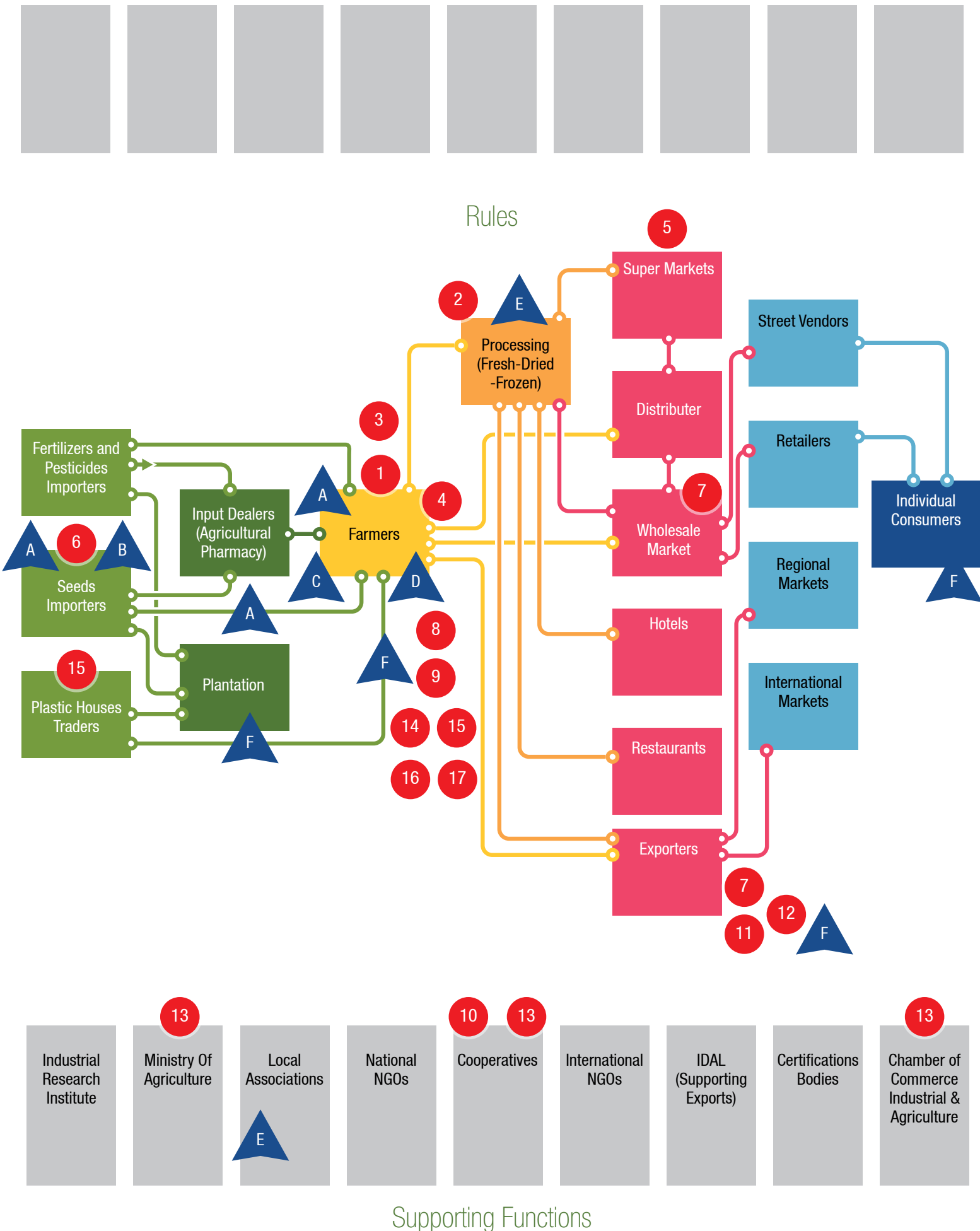
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CROP	Cultivated Surface (ha)	% Coverage of Akkar compared to 7 Governorates
TOTAL VEGETABLES	602 26	%23
Green Beans	829	%27
Chickpeas	546	%19
Broad Beans	387	%24
Peas	146	%14
Lettuce	259	%10
Spinach	250	%66
Cabbage	212	%19
Cauliflower	145	%19
Molokhia (mallow)	115	%46
Tomato	789	%18
Cucumber	543	%13
Eggplant	788	%38
Squash and Zucchini	502	%35
Onions	529	%14
Radish	142	%48
Carrots	35	%12
Parsley	586	%53
Thyme	53	%29
Mint	57	%33

In this study, the research team agreed to focus on spinach, radish, lettuce, chicory, parsley, mint, thyme, rocca (rocket) and mallow as a sample of crops representing the leafy green vegetables cultivated in Akkar.

Mapping the value chain

FIGURE 13: AKKAR LEAFY GREEN VEGETABLES VALUE CHAIN MAP



Weaknesses/Problems:

1. Very short shelf life;
2. Limited availability of drying machines and focus on certain crops;
3. Difficulties of introducing new technologies in the sector (e.g. soil-less ;production);
4. Difficulties of selling the crops in some instance;
5. Depressed prices in some instances;
6. Non-availability of seeds and seedlings within the appropriate times;
7. Unavailability of places allocated to cooling at the airport and some local markets;
8. Improper use by farmers of pesticides and fertilizers within the proposed standards and guidelines;
9. Pollution of irrigation water by wastewater;
10. Weak role of cooperatives;
11. Lack of experience in export and shipping procedures;
12. Unfamiliarity with the minimum standards for the quality of the product and packaging for export;
13. Lack of planning or organization, according to market needs or periods of Agriculture;
14. Lack of familiarity with the farmer for some new varieties and in demand;
15. High cost of production;
16. Low wages for agricultural worker and unequal pay and working conditions between women and men;
17. Prevalence of child labour.

Strengths:

- A. Ease of importing seeds;
- B. Availability of a large number of importers of seeds;
- C. Possibility of planting more than one season per year;
- D. Possibility of planting more than one crop per land;
- E. Possibility of linkage to agro-food industry;
- F. Increase in demand from domestic and foreign markets;
- G. Labour intensive;
- H. Availability of agricultural experts;
- I. Availability of training courses.

The VC for Lebanon's leafy green vegetables is not as complex as for potatoes. The farmer in this VC buys seeds, fertilizers and pesticides from local suppliers. Even manufacturers of plastic houses are located in Lebanon. In addition, nurseries are available too. Farmers either buy seeds and/or seedlings directly from nurseries or provide them with their own seeds to grow.

On 28 January 2015, key stakeholders attended a workshop in Halba (Akkar) to validate the findings of the value chain analysis of leafy green vegetables in Akkar. A high level of agreement was reached on many of the findings related to the constraints within the VC. These included: a very short shelf life; limited availability of drying machines; difficulties in selling crops and low prices in some instances; lack of cooling facilities at the airport and some local markets; improper use of medicines and fertilizers by farmers; contamination of irrigation water by wastewater; the weak role of cooperatives; lack of familiarity with the minimum standards for the European market; and lack of experience in export and shipping procedures. Other constraints did not meet unanimous agreement, such as the lack of availability of seeds and seedlings within an appropriate timeframe.

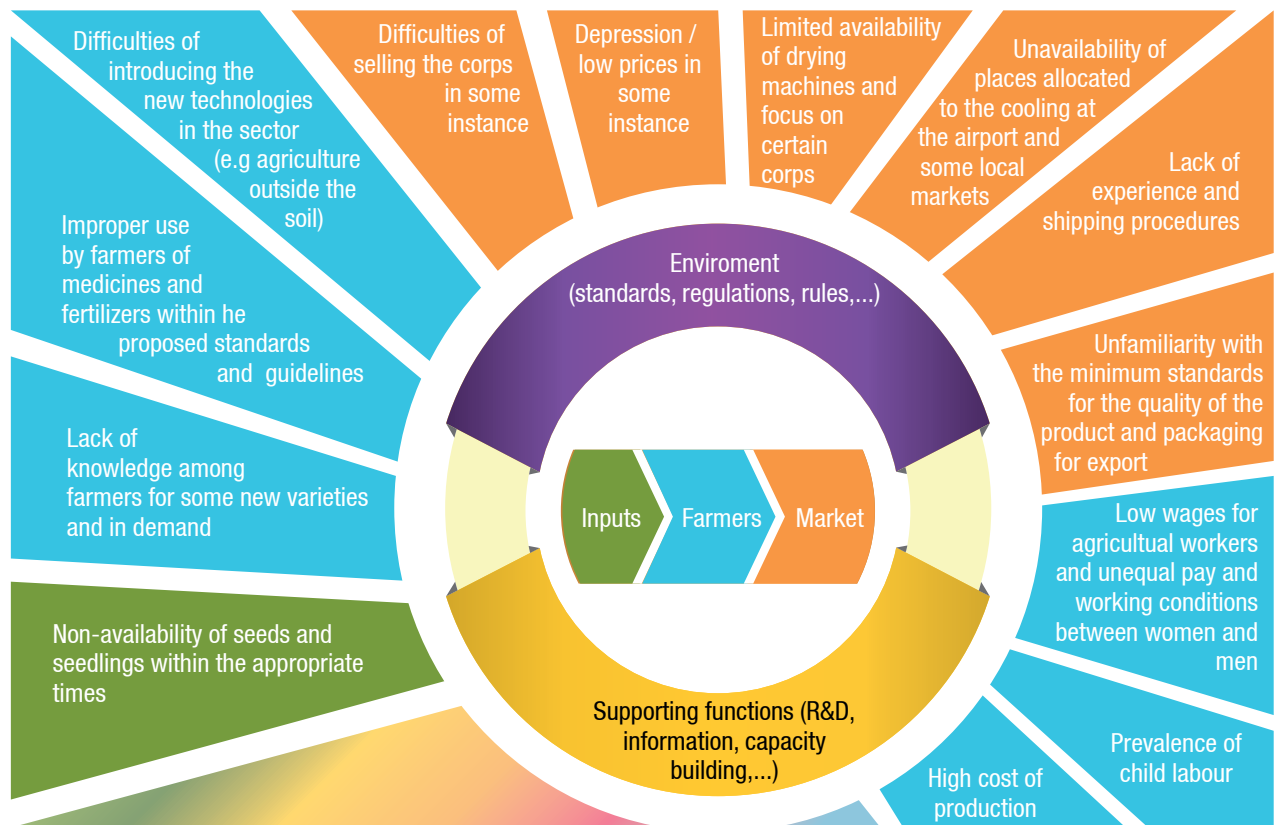


FIGURE 14: CONSTRAINTS AFFECTING MAIN CORE VC OF LEAFY GREEN VEGETABLES



FIGURE 15: CONSTRAINTS AFFECTING SUPPORTING ORGANIZATIONS INVOLVED WITH LEAFY GREEN VEGETABLES VC

Details of the market system

Inputs supply

Similar to the potato VC, the key elements of the agriculture production system are available in Lebanon. 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 (i.e. France and Italy), except for thyme and parsley, which is imported from Syria. Only a few farmers have complained about a shortage of seeds at certain times but they always buy and stock seeds for years well ahead as a contingency plan.

Farmers tend to use Chinese pesticides because they are cheap and provide good results.

Farmer access to inputs

None of the farmers that were interviewed complained about restricted access to inputs.

Production

One of the crops that falls in the category of leafy green vegetables is lettuce. Lettuce includes a variety of types, the most common being Romanian and Iceberg.

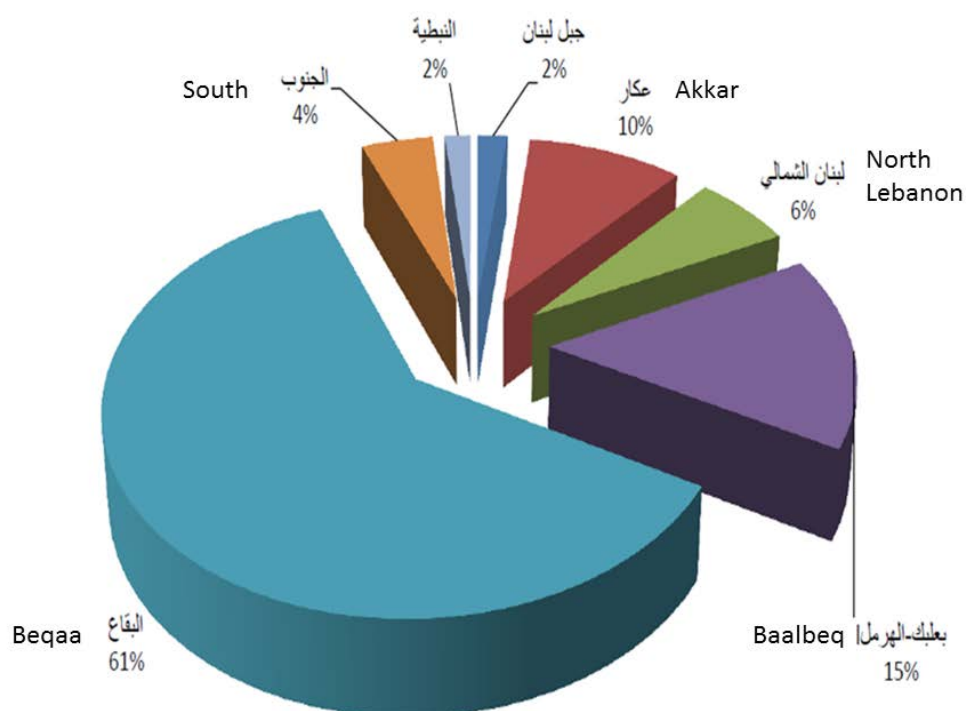


FIGURE 16: LETTUCE – DISTRIBUTION OF PLANTED SURFACE BY GOVERNORATE (SOURCE: MOA, 2010)

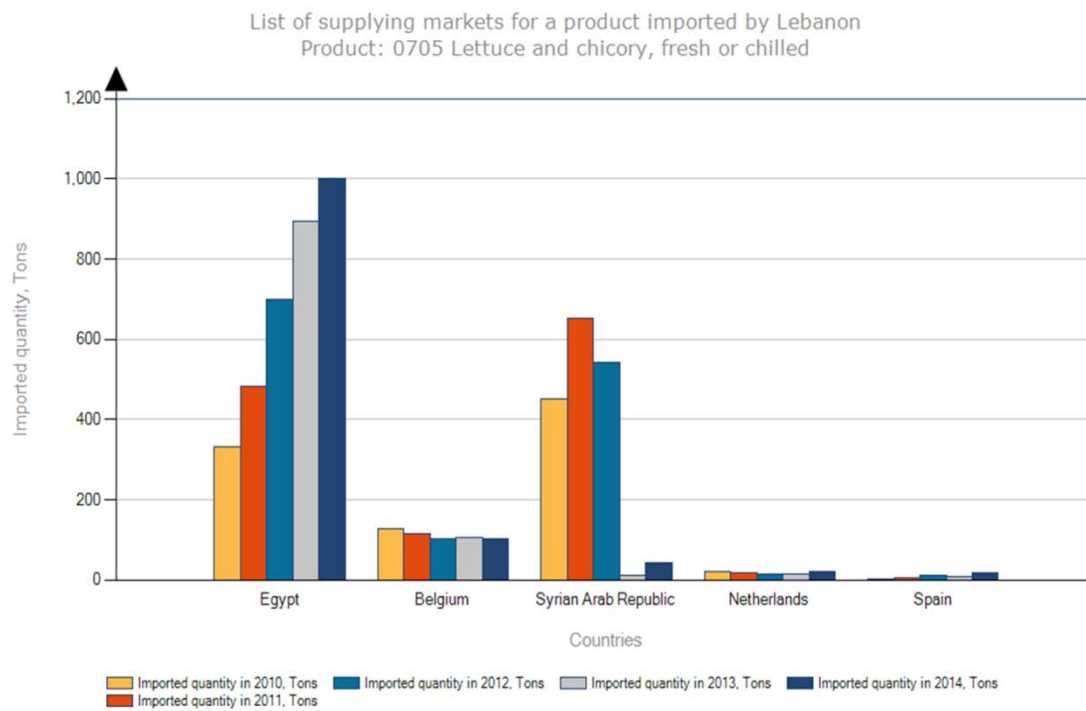


FIGURE 17: SUPPLYING MARKETS OF FRESH OR CHILLED LETTUCE AND CHICORY IMPORTED BY LEBANON (SOURCE: TRADE MAP)

From Figure 17, it can be clearly seen that due to the unstable political and security situation, the imported quantities of lettuce and chicory from Syria have dropped significantly, in favour of Egypt. This is an indication that the local market can still absorb more local production.

Other salad greens include parsley, mint, thyme and rocca. At 44 per cent of the total, Akkar is the top area for salad greens cultivation.

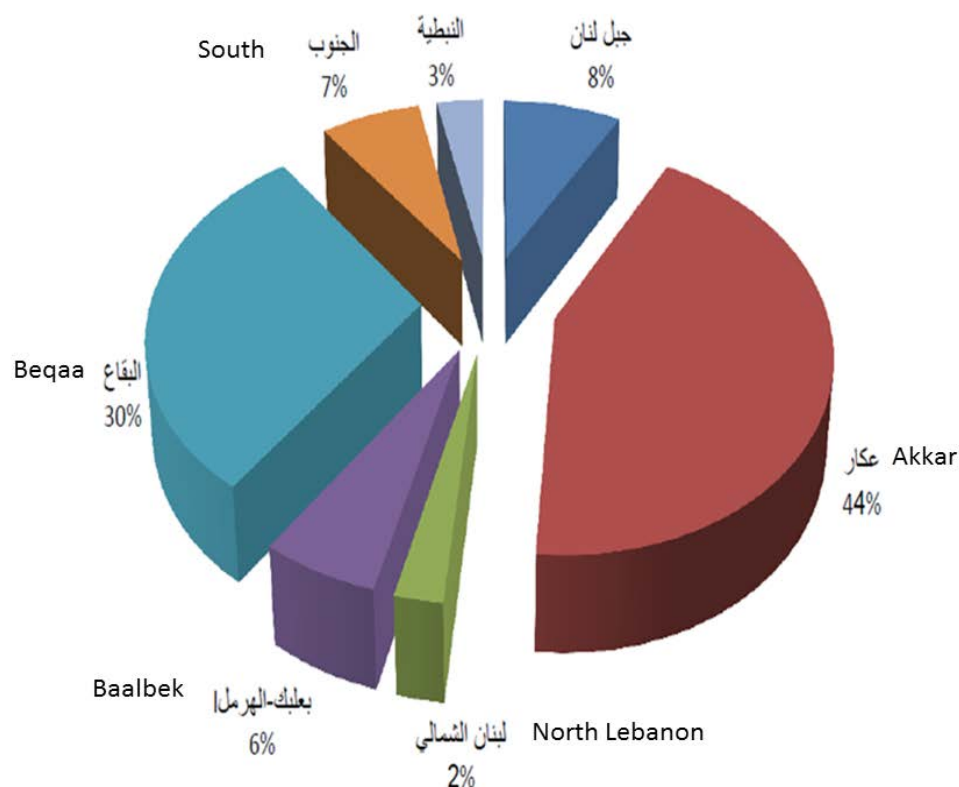


FIGURE 18: SALAD GREENS – DISTRIBUTION OF PLANTED SURFACE BY GOVERNORATE (SOURCE: MOA, 2010)

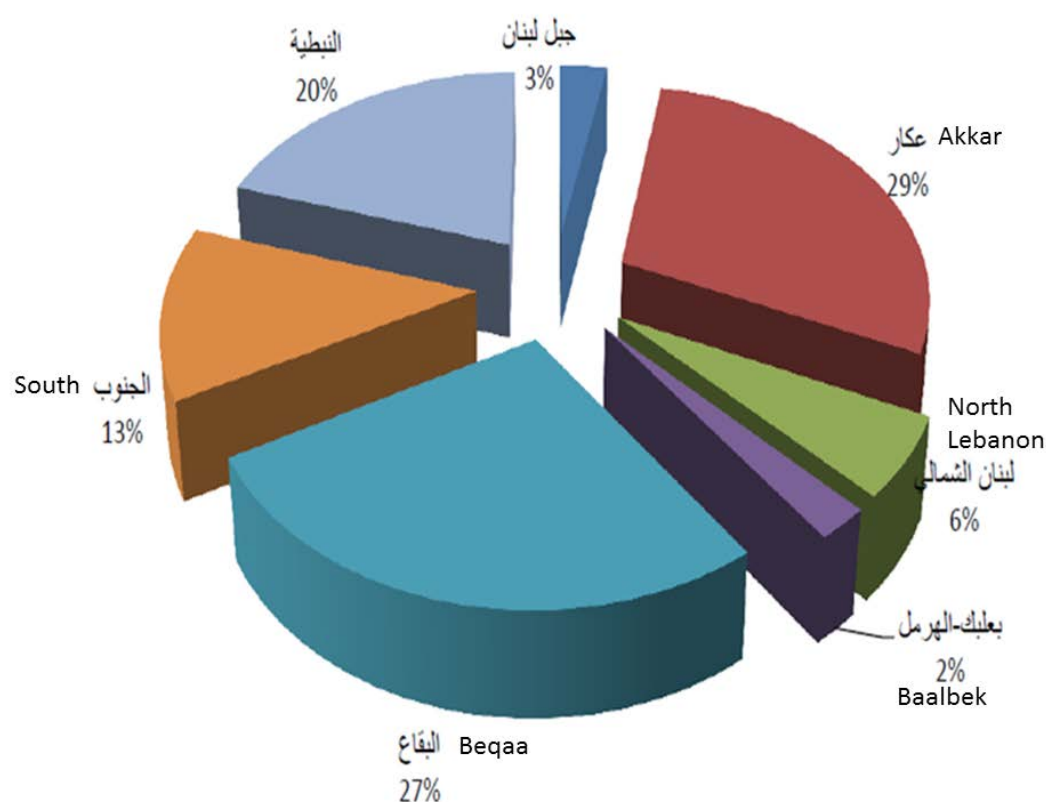


FIGURE 19: THYME – DISTRIBUTION OF PLANTED SURFACE BY GOVERNORATE
(SOURCE: MOA, 2010)

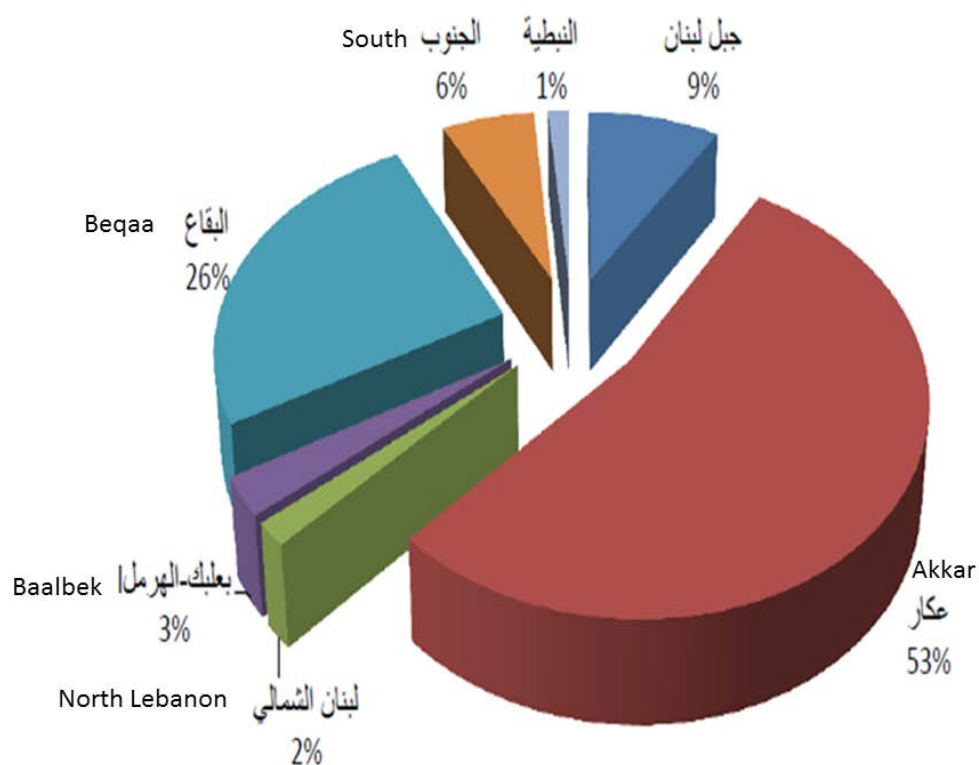


FIGURE 20: PARSLEY – DISTRIBUTION OF PLANTED SURFACE BY GOVERNORATE
(SOURCE: MOA, 2010)

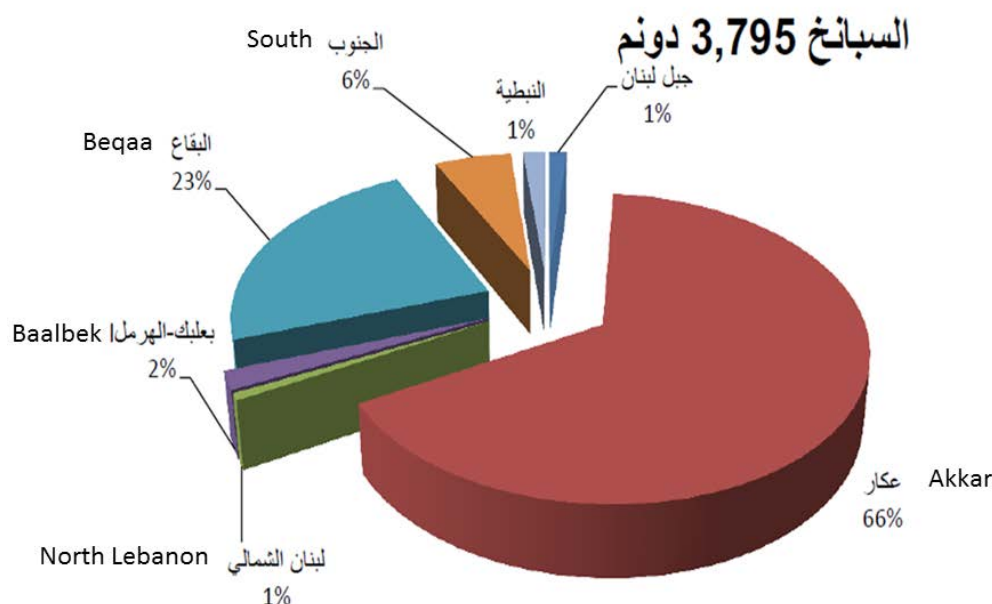


FIGURE 21: SPINACH – DISTRIBUTION OF PLANTED SURFACE BY GOVERNORATE
(SOURCE: MOA, 2010)

The season for leafy green vegetables in Akkar starts in September and ends in June. From June until September, the plastic is removed and replaced by nets to cool down the temperature inside the green houses. Some crops, like rocca, thyme and mint, are planted during this period while periodical maintenance is carried out.

To better understand the leafy green vegetables value chain in Lebanon, the research team has calculated, as an example, the cost of iceberg as following: (per plastic house). The following calculation assumes that one dunum can hold up to 3 plastic houses:

- Land rental = 675,000 LBP per year (225,000 per plastic house).
- Seeds = 140,000 LBP (1400 sapling per plastic house).
- Fertilizers = 100,000 LBP per plastic house.
- Farming operations = 10,000 LBP per plastic house.
- Pesticides = 30,000 LBP per plastic house.
- Irrigation = included in farming operations.
- Harvesting = 10,000 LBP per plastic house.

Total = 515,000 LBP per plastic house. If the average production per plastic house is 1400 Iceberg lettuces, then the production cost of each lettuce is around 368 LBP. If the cost of packaging (around 133 LBP per lettuce) is added, then the total cost per iceberg is 502 LBP. Sale prices in the market differ from one season to another but the average price is around 1,000 LBP.

The above calculation indicates that the highest costs are land rental and seeds in lettuce production. This explains the increase in amount of land offered for rent during the last years.

For greater competitiveness in both local and international markets, the research team advises the use of hydroponics for a higher crop yield.

Production of leafy green vegetables is labour intensive and depends mainly on Syrian refugees who live in camps beside the fields. Men (3,000 LBP per hour) are paid double the wages of women (1,500 LBP per hour). The research team observed many Syrian children working in the field; children are paid the same rates as women.

Aggregation and marketing

Farmers sell their products directly to wholesale markets, distributors and exporters. Products are sold at the wholesale markets of Akkar, Tripoli and Beirut. Farmers collect their sales money on a weekly basis from traders minus a 10 per cent commission fee. Traders, not farmers, set selling prices. Unsold products are returned to the farmer, although usually this is a very small quantity, if any, and mainly during the summer season due to the short shelf life of leafy green vegetables.

One of the highest seasons for leafy green vegetables is during the month of Ramadan. During that month, prices in Lebanon increase, making their purchase more difficult. The increase in prices might reach 100 per cent due to very high demand. Farmers usually adjust their production cycle to target this month for higher profitability.

Processing

While most people in rural areas still rely on traditional foods for their basic diet, those in urban and cosmopolitan centres 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.

Some Lebanese companies and NGOs process salads. Freshly harvested from the farms or wholesale markets, they clean, vacuum, pack and label the vegetables in the factory.

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

Wholesaling and retailing

The retail market is dominated by large supermarket chains such as Spinneys, Carrefour and Monoprix, and local medium and small-sized outlets, Bou Khalil and Charcutier Aoun. With big supermarkets, suppliers have a yearly contract to provide them with their daily needs of leafy green vegetables. Prices change on a daily basis and are set according to market price. Suppliers are paid automatically at the end of each period according to their contracts.

Exports

Most Lebanese exports of leafy greens vegetables involve fresh produce that is subject to sanitary and phytosanitary controls imposed by importing countries. Another obstacle is the lack of harmonized technical standards and approaches. An inability to meet the high standards of compliance set by clients in terms of quality, defect tolerances, presentation, packaging, traceability, marking and pesticide residues often restricts export expansion. Despite these difficulties, some Lebanese exporters have achieved significant penetration of EU markets in specific commodities.

One of the main leafy green vegetable exporters, Mr Joseph El Hawly (Euro Co.), mainly depends on his relatives in France to market his Lebanese products. Leafy green vegetables are shipped once or twice a week by airfreight.

Due to the unavailability of cool storage at Beirut airport, he sends his products directly to the airplane right before departure to avoid any damage to the products. Using the correct packaging for each crop is also crucial for protecting the shipment from damage.

As for Spinneys, the big supermarket chain in Lebanon, they do inside-exports with their other branches in Qatar, Egypt and Jordan. The quantities exported are not big (3–4 tonnes) but this is an indication of the high potential for leafy green vegetables for export. In addition, during winter, demand for leafy green vegetables increases in most of Europe.

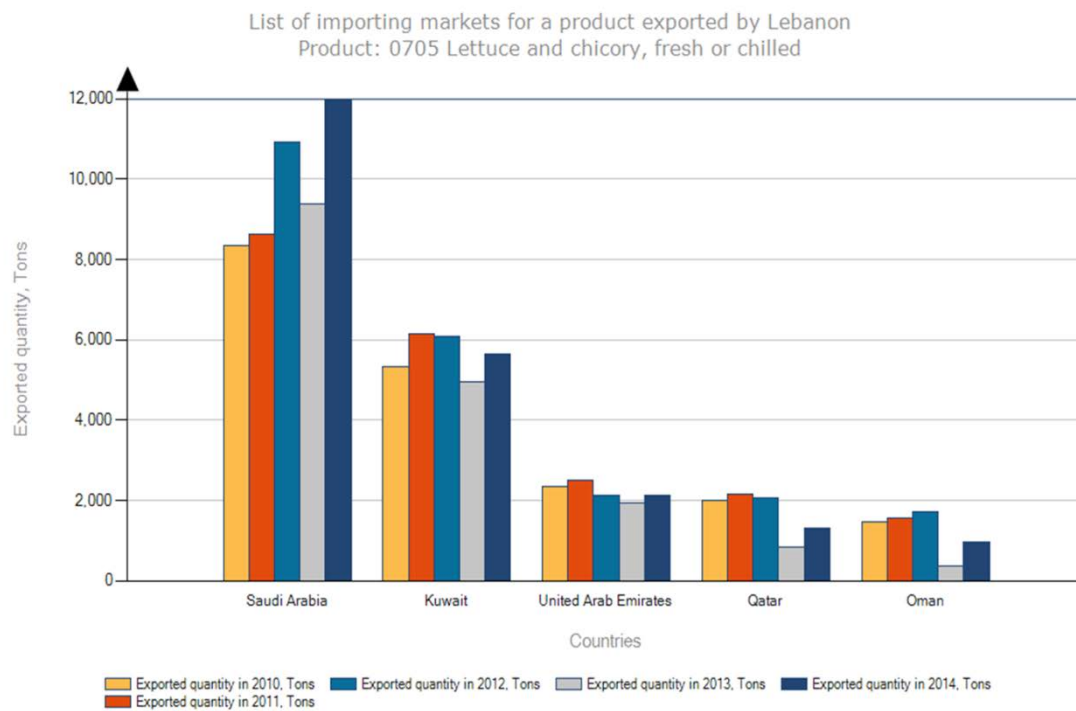


FIGURE 22: EXPORT MARKETS FOR FRESH OR CHILLED LETTUCE AND CHICORY FROM LEBANON (SOURCE: TRADE MAP)

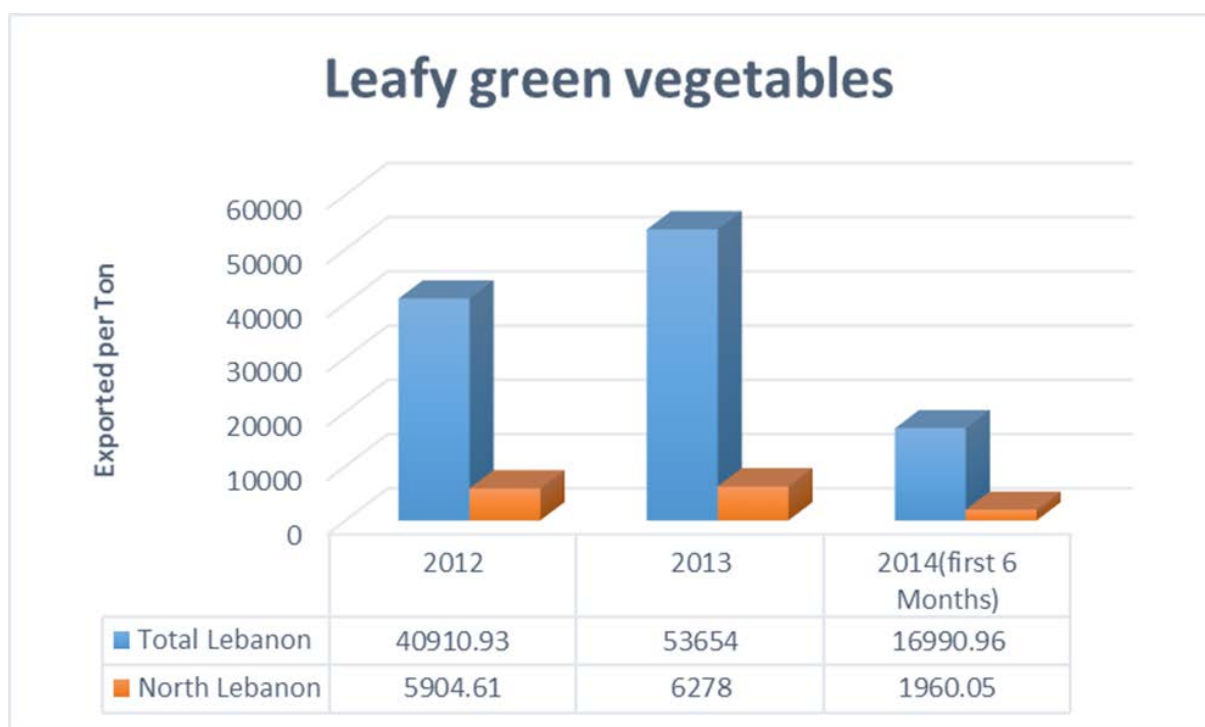


Figure 23: EXPORTED LEAFY GREEN VEGETABLES IN TONS (SOURCE: IDAL 2014)

Supporting organizations and enabling environment

Ministry of Agriculture

The MoA is the institution responsible for setting the strategic framework for agriculture, and formulating and implementing policies and programmes for the development of the sector in Lebanon. The MoA is responsible for developing a suitable legal and regulatory framework, and enhancing infrastructure development to promote investment and improve agricultural production and marketing. The MoA also plays an important role in the management of natural resources of the country (agricultural land, irrigation water, forests, fisheries, pasturelands) and contributes to rural development programmes.

The agricultural sector in Lebanon still suffers from chronic structural weaknesses, thereby necessitating the adoption of adjustment programmes at different levels. In this context, the MoA Strategic Framework for the period 2010–2014 was formulated in December 2009, and built around eight pillars setting forth interventions at the central and local levels, using a combination of programmes/projects and policy measures aiming at decreasing cost of production and improving quality of Lebanese agricultural products.

The main pillars of the MoA Strategic Framework and Implementation Programmes include:

- updating and issuance of appropriate regulations;
- improving the organizational structure and role of the MoA and enhancing coordination among the public, private and civil society sectors;
- modernizing the agricultural infrastructure and increasing the efficiency of using natural resources;
- improving agricultural extension;
- enforcing control on agricultural products, inputs, forests, fisheries and hunting;
- developing value chains, and improving the quality, processing, marketing and exports of agricultural products;
- establishing a credit scheme for small and medium-sized projects;
- conserving natural resources (soil, forests, biodiversity, use of marginal lands and pasturelands, and fisheries).

Around ten years ago, a committee was formed for the potato sector, consisting of representatives of the MoA, universities, farmers, cooperatives and parties from the private sector in order to follow up and coordinate sectorial issues. Unfortunately, this committee is no longer active.

All interviewees stressed that the potato is not a priority crop for the Lebanese Government and, therefore, does not get the attention of policy makers. Potatoes are not yet important for the Government budget in the same way that citrus or some exported cash crops are. At the farm level, government policies are not visible and potato farmers do not experience the effects of the policies in their everyday life. There is a clear message from the interviewees that the future of the crop depends on the agricultural policy.

On the other hand, the Ministry is suffering from a tight budget. For 2015, the Ministry budget is US\$45 million, out of which US\$30 million is dedicated to cover operational expenses (including salaries) and only US\$15 million is assigned for implementing planned activities. The minimum budget that would allow the Ministry to perform better is thought to be between US\$70–90 million.

Among the projects in the agricultural sector that are currently or were recently active in Akkar, the following can be mentioned:

- ADELNORD EU/CDR project: agricultural infrastructure development (roads, irrigation infrastructure, water harvesting) coupled with extension activities, etc. (Completed);
- ARTGOLD and MDG ACHIEVMENT FUND UNDP projects: strategic action plan for vegetable production on the plain, strategic action plan for olive production in Dreib, and field training for farmers, etc. (completed);
- LEBANON RECOVERY FUND FAO/MoA project: Recovery and rehabilitation of the dairy sector in Bekaa and Hermel – Akkar Uplands.

Investment Development Authority of Lebanon (IDAL)

Established in 1994, IDAL is the national investment promotion agency that aims to promote Lebanon as a key investment destination, and attract, facilitate and retain investments in the country.



FIGURE 24: IDAL

Investment Law No. 360, enacted in 2001, reinforced IDAL's mission by providing a framework for regulating investment activities in Lebanon and created a range of incentives and business support services for investors. Investment Law No. 360 identified a set of priority sectors that showed the most promising opportunities in terms of their investment potential and impact on socio-economic growth. The identified sectors included industry, agriculture, agro-Industry, tourism, information, communication, technology, and media.

IDAL enjoys financial and administrative autonomy and reports to the President of the Council of Ministers, who exercises a tutorial authority over it. Apart from supporting the inflow of investments, IDAL is also mandated to assist in the support, promotion and marketing of Lebanese products, particularly agricultural and agro-industrial products and materials used in the agro-industry in Lebanon.

The export promotion services include:

- providing data on export markets and potential export opportunities;
- supporting companies in accessing external markets;
- providing technical assistance to exporters in selected fields;
- subsidizing participation in foreign fairs.

Two programmes, AGRI PLUS and AGRO MAP, were put in place by IDAL to provide financial and non-financial support to both sectors, successfully helping to boost the trade of agriculture and agro-industrial products.

The move from «EXPORT PLUS» to «AGRI PLUS»

In 2001, IDAL put in place the “Export Plus” programme to support exporters in the marketing of their agricultural products in regional and international markets. This support came in the form of direct cash subsidies to cover a portion of exporters’ transport costs. In 2011, with the completion of the programme and the government moving away from direct subsidies in favour of supporting programmes that would boost productivity and quality, in line with World Trade Organization (WTO) requirements, a Ministerial Committee was formed to recommend a new form of support for the agriculture sector.

As a result, the new «AGRI PLUS» programme was developed and consists of four key components:

- production streamlining, to provide exporters with the adequate training to improve quality of production and foster the growth of new products that meet regional and international demand;
- packaging improvement, to support exporters in improving packaging and cooling centres to meet international norms of quality;
- marketing and promotion, to promote the sector regionally and internationally in addition to providing the required technical and financial support for exporters to participate in food fairs;
- financial support, to provide a portion of the packaging cost of exporters (farmer, trader, cooperative, etc.).

The medium-term objectives of the programme are to:

- increase the volume of Lebanese agricultural exports and contribute to the exporting of excess produce;
- support exporters in maintaining their presence in traditional markets;
- support exporters in accessing new markets;
- increase buyers confidence in Lebanese products in both traditional and new markets;
- improve the technical and managerial skills of both producers and exporters;
- disseminate information related to market needs and trends among stakeholders.

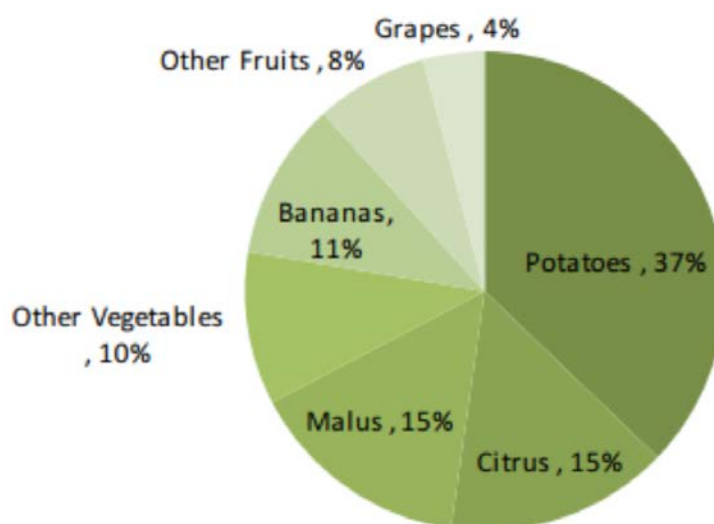


FIGURE 25: EXPORTS BY PRODUCT TYPE, 2013 (SOURCE: IDAL)

The “Agri Plus” programme registered positive results over the course of 2013 despite the impact of the Syrian crisis on the Lebanese economy (most of Lebanon’s agricultural and industrial exports are normally transported through Syrian territory). Export volumes reached a total of 522,538 tonnes in 2013, a 15 per cent increase on 2012 levels. Potato accounted for the bulk of exported agricultural produce (37 per cent of total exports), followed by Citrus (15 per cent) (see Figure 25).

Moreover, Lebanon’s main export partners remain in the Middle East–North African region, mainly zones A and B. Syria, Saudi Arabia, Kuwait, Egypt, the United Arab Emirates, and Jordan received around 99 per cent of all agricultural exports. The programme divided the world to four zones to increase the competitiveness of Lebanese products in potential markets as follows:

- zone A: Syria and Jordan;
- zone B: Gulf countries and African Arab countries;
- zone C: Europe and Africa;
- zone D: North and South America, Australia.

Over the 2012–2013 period, exports of most agriculture products rose in volume. In particular, potato and other vegetable exports increased by 91 and 31 per cent respectively.

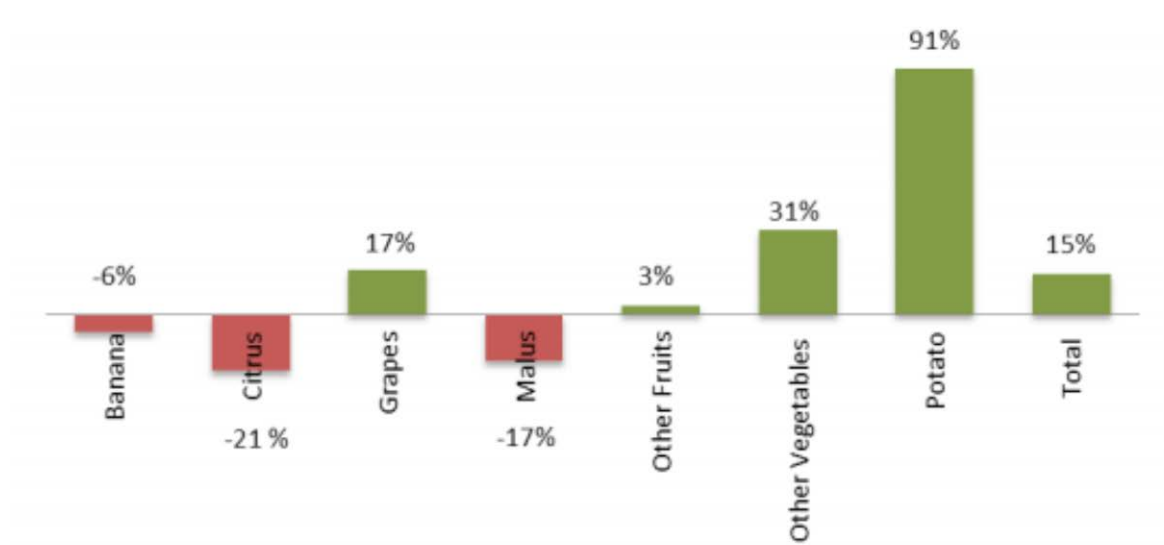


FIGURE 26: CHANGES IN AGRICULTURAL EXPORTS BY PRODUCT TYPE, 2012-2013
(SOURCE: IDAL)

Similarly, agriculture exports have increased in all export zones with the exception of zone C (Europe & Africa).

The number of adherents to the “AGRI PLUS” programme during 2013 was 143. The graph below (Figure 27) shows the distribution of adherents by province. Adherents from the Bekaa region were the most prominent.

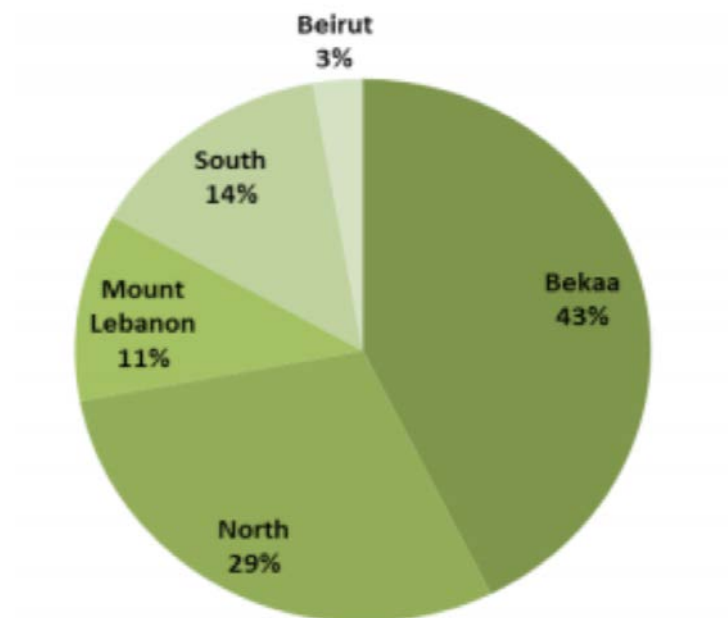


FIGURE 27: DISTRIBUTION OF “AGRI PLUS” ADHERENTS BY PROVINCE, 2013
(SOURCE: IDAL)

With its plan to encourage exporters to improve the quality of their products in terms of produce and packaging, IDAL grants the subsidies to potato and leafy green vegetable producers according to the following table (Table 6).

TABLE 6
IDAL SUBSIDIES BY ZONE

Potatoes & other vegetables	Zone A	Zone B	Zone C	Zone D
Superior packing	56,000	80,000	160,000	240,000
Packing grade 1	45,000	64,000	128,000	192,000
Packing grade 2	33,000	48,000	96,000	144,000

Source: IDAL, March 2012.

IDAL grants 20 per cent additional subsidies¹ to any exporter who obtains a certificate of quality for his product along with a certificate for the packinghouse where the product is being packed. Both growing and packaging procedures must adhere to the highest international standards to obtain certificates from internationally approved sources. In 2013, some 141 packinghouses fulfilled IDAL's criteria and conditions and were registered in the programme. The graph below (Figure 28) shows the distribution of packinghouses by province.

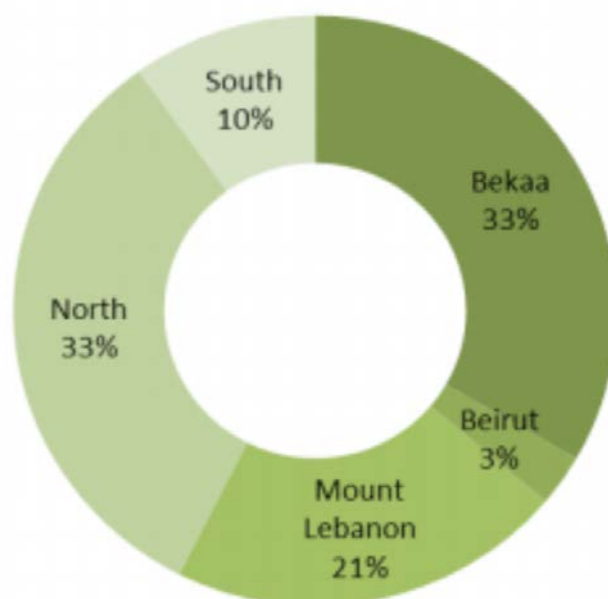


FIGURE 28: DISTRIBUTION OF PACKINGHOUSES BY PROVINCE, 2013 (SOURCE: IDAL)

Consequently, positive results have begun to show after two years of operation. In terms of quality of products, 17 exporters presented certificates for one or several lands which have obtained a GAP certificate.

In terms of packinghouses, only three of the packinghouses had international certificates at the beginning of 2012. However, as a result of IDAL's encouragement through additional incentives, 19 additional packinghouses acquired certificates during 2012–2013. Another seven of the active packinghouses are also in the process of obtaining certificates, bringing the number of accredited packinghouses to 29, which represents 21 per cent of the total active packinghouses.

¹ The IDAL board of directors decides subsidy percentages annually and may alter them depending on market conditions and what best serves the Lebanese agriculture production

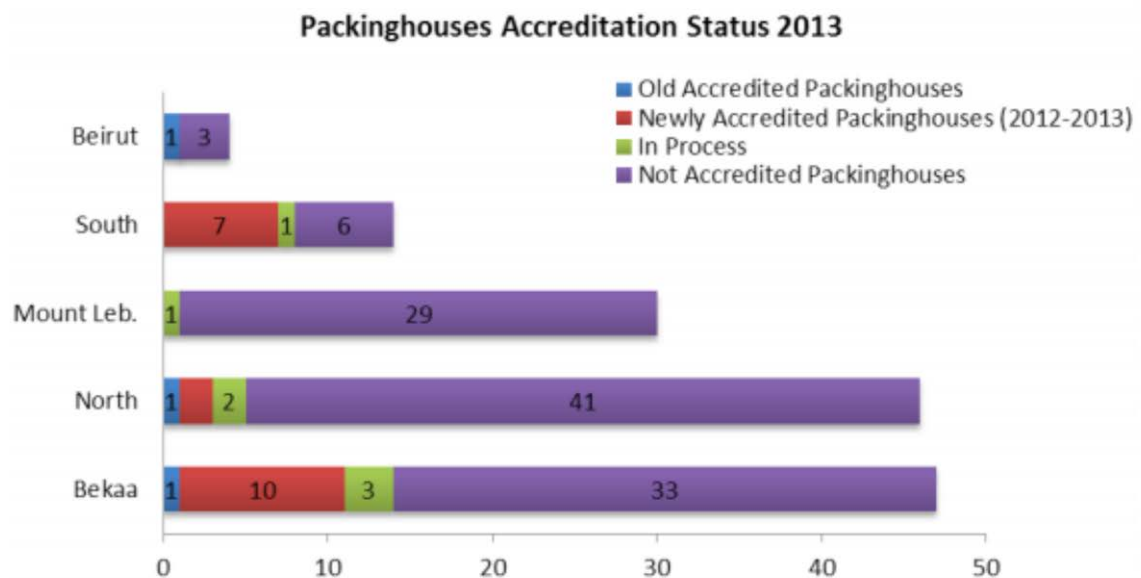


FIGURE 29: PACKINGHOUSES ACCREDITATION STATUS 2013 (SOURCE: IDAL)

IDAL is making a big effort to reach all its objectives but is facing a major constraint regarding implementation of the “AGRI PLUS” programme – a lack of necessary funds. At the time of writing they are almost two years behind, paying exporters their subsidy shares that were due in the first quarter of 2013. This is considered a huge barrier for small exporters and only large exporters are able to survive this tough situation.

According to all interviewees, IDAL managers are cooperative and ready to share information, figures and copies of documents on request. They have a good database, which is updated frequently. The only negative point raised was that there is no categorisation between the different types of potato, which, if available, would provide greater detail on export figures.

Lebanese Agricultural Research Institute (LARI)

LARI is a governmental organization under the supervision of the Minister of Agriculture. The institute conducts applied and basic scientific research for the development and advancement of the agricultural sector in Lebanon. In addition, the institute maintains close ties with farmers and aims to develop research activities that address their cultivation problems.

LARI has at its disposal eight experimental stations (Tel Amara, Tourbol, Kfardan, Kfarchakhna, Abdeh, Sour, Fanar, Lebaa) in an area of 280 hectares of agricultural land. The stations are located in agricultural areas where subtropical and temperate crops are produced. In these stations, research projects are conducted to solve the problems facing the agricultural sector in this area.

In addition to LARI's key role in testing water, soil and potatoes for export, it conducts some development activities such as the production of quality seeds. LARI also sends free SMS messages containing weather and technical information to farmers. Some of the interviewed farmers were satisfied with this service but said they required more technical information in the messages.

Chamber of Commerce Industry and Agriculture (CCIAT) Tripoli and North Lebanon



The Lebanese Chambers of Commerce were founded by special governmental decree No. 36 of 1967, which regulated their activities representing the commercial, industrial and agricultural sectors. In North Lebanon, the Chamber of Commerce, Industry and Agriculture of Tripoli and North Lebanon (CCIAT) is a not-for-profit public utility organization, specialized in supporting trade, industry, agriculture and services. It is entitled to ownership, sale, acquisition, mortgage, acceptance of donations and contributions, loan acquirement, litigation and other similar tasks.

CCIAT agricultural activities

While there is no freestanding agricultural department at the CCIAT, agricultural programming consistent with the Chamber's mission and goals currently includes six primary activities, including:

- The Agriculture Development Programme. This EU-funded project ended in 2008.
- The Quality Control Centre Laboratories (QCC). Unique in North Lebanon, QCC was established to test and verify food products for compliance with international standards and norms. Aimed at serving a number of sectors in the agro-industry, its specialized staff use up-to-date equipment, essential utilities, documentation, and accredited methods. The QCC labs currently provide a multitude of services, including chemical, physical, and microbiological analyses of food products.
- The Product Research and Development Plant researches and conducts trials on improving product quality, taste, shelf-life, packaging and labelling of agro-industrial products. The plant also provides industries with scientifically derived nutrition facts of their products to be labelled on commercialized goods.
- The Local Economic Development Agency (LEDA). This is a non-profit, non-governmental organization established in March of 2011 with the support of the United Nations Development Programme – the UNDP ART GOLD North Lebanon Initiative. LEDA's mission is to facilitate the sustainable and balanced long-term development of the northern region of Lebanon in accordance with strategic plans that favour public-private partnerships and value human, social, economic and environmental resources. The ultimate objective is to improve living conditions of the population by providing job opportunities, pursuing social equity, and environmental protection.
- The Business Development Centre (BIAT), supported by the EU and serving all economic sectors and businesses with potential for growth. BIAT provides business support services to both start-ups and existing SME's. Such services include market research, business planning, capacity building, training and coaching, financial consultancies and technical expertise.
- The Developing Hydroponics to access Impactful Markets (DHAIM) project. DHAIM is a five-year effort supported by the US Agency for International Development (USAID) and implemented by ACDI/VOCA – an American NGO. DHAIM will run through until September of 2015.

Programmes and projects are implemented as resources (primarily grants from foreign donors) become available and these activities are downsized, or cease altogether, when funds are expended. This lack of continuity has posed challenges for the Chamber in serving North Lebanon's agricultural sector with sustainable and responsive programmes.

Importers, exporters and traders are registered with the Chamber of Commerce. Before potatoes or leafy green vegetables can be exported, a certificate of origin has to be issued by the Chamber of Commerce after applying to

Import, Export and Quarantines Department at the MoA for approval.

Goals and strategies

CCIAT has developed goals and related strategies for the 2012–2017 planning period. Six goals were articulated, dealing with organizational development, service provision, capacity building, value chain linkages, public awareness and policy intervention. In order of priority, they are:

- Organizational Development. To build the financial, human resource and other capabilities of the CCIAT to serve North Lebanon's agricultural sector sustainably and effectively.
- Service Provision. To provide relevant and high-quality business development, technical and marketing services for farmers and other value chain actors in North Lebanon.
- Capacity Building. To build the capacity of farmers and other agricultural value-chain actors to survive and prosper.
- Value Chain Linkages. To facilitate mutually beneficial linkages between and among value chain actors throughout North Lebanon and beyond.
- Public Awareness. To position the CCIAT as a widely known and highly regarded resource serving North Lebanon's agricultural sector.
- Policy Intervention. To provide advice and recommendations to the relevant government authorities concerning the agricultural sector.

Although this is what this sector needs, none of the interviewees in this study mentioned CCIAT at all. This indicates that all of the above remained a plan but failed to reach or affect the main beneficiaries in this sector.

Main Agriculture Development Programmes in Lebanon

As a developing country, Lebanon has several development programmes (e.g. EULEBPOT and Corridor Vert). Achieving conformity to European standards of quality for potato production in Lebanon – EULEBPOT:

- Thematic area: Potato chain certification (Institutional building, laboratory and technical assistance).
- Duration: July 2011–July 2012.
- Countries involved: Lebanon, Italy.
- Financed by: Italian Ministries of Foreign Affairs General Directorate for Development Cooperation.
- Total budget: 582,114 Euro
- General objectives: Increasing stakeholders income and food security by fostering potato quality production through application of good practices and proper varieties fulfilling the Lebanese-EU association agreement.
- Project purpose: Increasing sustainable quantity and quality of potato production in Lebanon, in order to comply with EU standards for export

Results:

- A legislative framework for potato phytosanitary status is setup and operational.
- A dedicated phytosanitary field control is setup and operational.
- A monitoring and traceability network system is setup and operational.
- Technical assistance for quality improvement is assured.
- Communication and visibility.

In the specific case of import inspections, in 2004 and 2005, in the context of the “Corridor Vert” (or “Green Corridor”) project with Italy, 15 inspectors were trained in Ravenna port on import inspections of ware potatoes. Before 2003, training was also provided in the Netherlands at ports exporting seed potatoes.

Cooperatives and farmers' groups

Almost every village has a local agricultural cooperative, nevertheless functional cooperatives are rare. Most of the cooperatives are created to get better access to support from different organizations and institutes, rather than to have a development objective for a certain value chain or market. Many of the cooperatives are active in ensuring training for farmers in specific fields (pruning, pest control, etc.), but rarely tend to develop marketing activities or empower farmers to be competitive on the market or to get inputs at lower prices (economy of scale).

The René Moawad Foundation

It is a non-profit, non-political, non-sectarian, tax-exempt U.S. organization promoting sustainable human development in Lebanon. It was established in the U.S. in 1993, with headquarters in Washington DC, to advance the mission and goals of its counterpart in Lebanon and to diversify its sources of funding and support. This is achieved through numerous fundraising events held nationwide that support the Foundation's many projects on the ground in the fields of agricultural and social development, education and health care. The Foundation's ultimate objective is promoting peace and stability in Lebanon through development.

RMF pursues a dual action plan in combating the severe problems confronting the agricultural sector in Lebanon. First, it supports the agricultural sector by improving the socio-economic conditions of farmers and increasing its competitiveness. Second, RMF promotes environmental protection by encouraging public awareness of existing problems and the adoption of ecologically sound agricultural practices.

In general, the Foundation is working on Social, Human and economic Development.

Social Development Includes Humanitarian as well as Health Activities: Three Mobile clinics are serving 200 remote village in the north of Lebanon providing Medical care and Medicines. A clinic in Zgharta, well equipped serves also a large fringe of the Community.

Human Development: Education proved to be the main prerequisite for human as well for economic development in an increasingly knowledge based economy, therefore the foundation worked hard to implement educational activities in a large number of schools all over Lebanon. In 2012, the foundation started together with the Ministry of education the 'René Moawad Technical Institute' on their campus in the north that had the best exams results at the end of the school year in June 2013.

Economic Development: The foundation chose agriculture development knowing that more than 40 per cent of the Lebanese people have to live out of this sector.

Within the agricultural development of North Lebanon, RMF is addressing the following problems:

- high costs of production;
- insufficient mechanization and the usage of obsolete production technology;
- small size of plots and an absence of economies of scale;
- an absence of standards, norms and quality controls;
- the lack of commercial structures and ignorance of existing commercial networks;
- a large number of middlemen who greatly reduce income among the smaller and mid-size farmers;
- high prices for storage and transportation and insufficient storage facilities;
- a lack of technical assistance and support services for agricultural extension services;
- an absence of irrigation systems and the usage of inefficient means of irrigation;
- a lack of qualified workers;
- an absence of public policies aimed at reforming the agricultural sector;
- identifying appropriate local and export markets.

The RMF's strategy is to investigate these problems and propose constructive and integrative solutions responding to the most urgent needs. In addition, RMF addresses the entire production process - from product cultivation to final commercialization - and offers the necessary basic support and agricultural means for all stages of production and commercialization. This comprehensive approach best promotes development of the industry and long-term sustainability.

Rural and agricultural development has been a cornerstone of RMF's activities from the very start and in 1996 the Agricultural Center of the North (CAN) was created. This centre offers numerous services to the farmers of North Lebanon. In addition, RMF has several ongoing projects as it continues to expand its services.

Safadi Foundation

The Safadi Foundation (based in Tripoli, North Lebanon) provides a number of public services in Tripoli. Safadi Foundation has four sectors of intervention through which it implements projects funded by donors and grass roots activities funded by the foundation, that respond to the region's needs, these sectors are: Rural Development and sustainable Agriculture Sector, Social Development Sector, Education Sector and Culture Sector. Safadi Foundation works mainly with the municipalities, community-based organization, Embassies and Universities.

One of their current projects is Developing Horticulture to Access International Markets (DHAIM), the implementing partner is ACDI-VOCA, funded by USAID (2011-2015), in partnership with Hariri and René Moawad Foundations, Arc En Ciel and the Chambers of Commerce of Tripoli, Saida and Zahlé Long-term goal is to improve lives and livelihoods of rural Lebanese producers through increased revenue.

Emkan NGO

Emkan is a Lebanese non-governmental organization (NGO) that provides microfinance services for the economically active poor in Lebanon. Emkan was registered as a local association with the Lebanese Ministry of Interior in February 2008 by the Hariri Group, and began its lending operations in July 2009. In addition to providing microfinance services, Emkan also engages in community development activities through the implementation of sustainable economic development projects and programmes.

Two Emkan projects are relevant here:

- (a) The Akkar Wholesale Market (AWM). The objective of the Akkar Wholesale Market ("AWM" or "Market") for fruits and vegetables is to improve the socio-economic situation of local producers with special attention given to the less well-to-do farmers (i.e. small and medium-size farmers) through facilitating a market place for agricultural products and improving agricultural production, post-harvest techniques and/or practices. AWM will contribute to increasing farmers' income levels and will add value to crop production while creating new job opportunities.
The Market is situated in Qobbet Bshamra, near Bebnine (one of the largest towns in Akkar district) at only 200 metres from an international major road that provides easy access to Tripoli, Beirut and the northern border with Syria. It is also strategically located near Qlayaat Airport (3 km) and only 20 km away from the port in Tripoli. The market is being built over an 8,000 square metre area, on a plot of 70,000 square metres, consisting of 65 wholesale outlets, management offices, a sorting and packaging area, parking lots, generators and general service facilities.
- (b) The Cold Storage and Sorting Facility, Fnaideq. This "facility" is implemented by Emkan in the context of initiating development activities in the Jurd of Akkar, famous for producing excellent quality fruits. This is especially pertinent, as farmers will be assisted in preserving their produce during the summer harvest season, then marketing them when demand is high at preferential prices.

The facility in Fnaideq (Akkar district) covers a 1,300 square metre area on a plot of 4,500 square metres, and consists of six separate cooling rooms with a consolidated capacity of 48,000 boxes, a sorting and packaging workshop, management offices, parking lots and an allocated space for generators. The facility will also provide farmers with agricultural extension services to enhance the quality and quantity of produced fruits, especially regarding irrigation and use of fertilizers and pesticides.

Trade agreements

Lebanon has signed bilateral and multiple trade agreements with many Arab and European countries as part its trade liberalization agenda. It is also a signatory to 54 bilateral investment agreements for the promotion and protection of investments.

Lebanon has adopted trade liberalization policies as part of its comprehensive economic strategy to integrate Lebanon further into the global economy. It has signed trade agreements with Arab countries and the European Union.

The Euro-Mediterranean Partnership Initiative, 2002

Since 2003, Lebanese industrial and most agricultural products, which fall within the limits of tariff quotas, enjoy free access to the EU market. As part of the Euro-Mediterranean Partnership initiative, an Association Agreement with the EU was signed in 2006, which stipulated the progressive elimination of tariffs on imported goods manufactured by European countries by 2014. The Agreement has put in place the necessary conditions for progressive and reciprocal liberalization of trade in goods with a view to establishing a bilateral free trade area, including relevant provisions on customs cooperation, competition, protection of intellectual, industrial and commercial property, and services.

The Free Trade Agreement with the European Free Trade Association(EFTA), 2004

In June 2004, a free trade agreement between the European Free Trade Association (EFTA) and Lebanon was signed and grants Lebanese industrial exports (including fish and other marine products, as well as processed agricultural products) free access to markets in Switzerland, Liechtenstein, Norway, and Iceland.

Member of the Greater Arab Free Trade Area (GAFTA), 2005

As a member of the Greater Arab Free Trade Area (GAFTA), Lebanon receives full exemption of tariffs on all agricultural and industrial goods traded between the 17 Arab member countries, since January 2005.

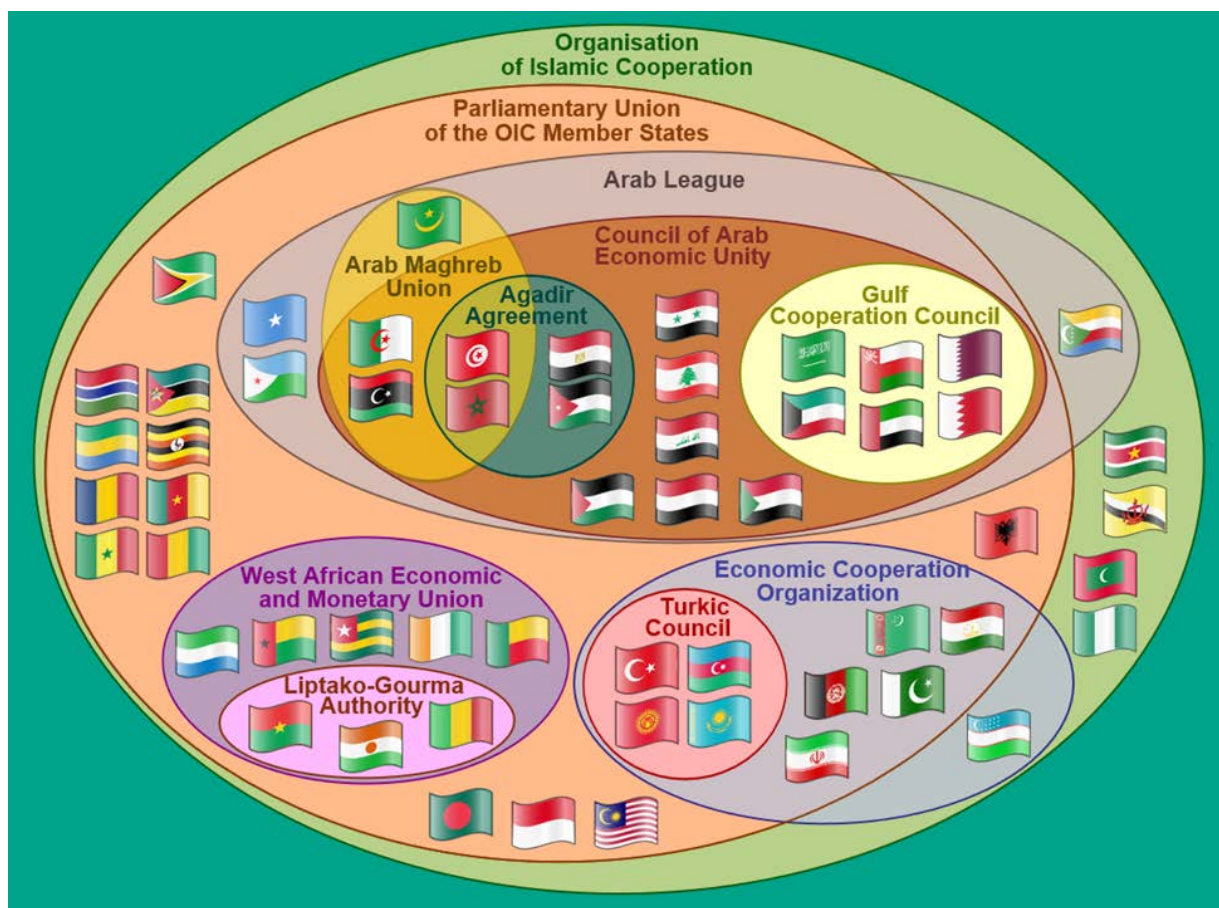


FIGURE 30: RELATIONSHIPS BETWEEN ARAB ISLAMIC TRADE ORGANIZATIONS

Bilateral free trade agreements exist with Egypt, Iraq, Kuwait, Syria, and the UAE. Since 1999, Lebanon has also been an observer in the World Trade Organization (WTO).

Lebanon has so far signed trade agreements with its main regional trading partners, the Arab Countries (the Greater Arab Free Trade Area, GAFTA) and the European Union (EU Association Agreement), and the EFTA states. These accords include chapters dealing with agricultural and agro-industrial goods, but differ on the level of tariffs imposed on imports arriving into Lebanon. These agreements have also helped increase the value of Lebanese agricultural exports by 54 per cent between 2005 and 2008, despite a chronic trade deficit. Lebanese farmers continue to face serious competitive challenges from imports, which have also risen 60 per cent during this same period. These numbers suggest that all stakeholders need to strengthen their interactions with each other to crystallize a vision that will help amplify and broaden the gains from international trade, while also minimizing costs (Ministry of Economy and Trade, Trade & Development Newsletter, September 2009).

While the WTO Agreement on Agriculture prohibits the use of export subsidies, developing countries are exempt under the Agreement's special and differential treatment provisions. Article 9.4 allows developing countries to use subsidies aimed at reducing the cost of marketing, including internal and external transport, as well as handling and processing costs.

Trade agreements, particularly free trade agreements, seek to open new markets that are usually closed to imported products due to the existence of high tariffs or other restrictions. In order for Lebanese agricultural products to take advantage of these agreements, the following conditions should be met:

- product specifications should comply with import market conditions;
- product development should cater to existing market demand;
- product prices should be directly competitive with local products in neighbouring countries;
- production costs should be lowered or made equal to the cost in neighbouring countries and countries where the products are intended to be exported.

One weakness of Lebanese production remains in that domestic standards do not meet international standards, especially European ones. In addition, agricultural products cultivated in Lebanon do not always match export market tastes and preferences, while shipping costs are among the highest in the region, and direct shipping destinations are limited. Costs remain the highest in the region due to the lack of direct support and services in Lebanon, which is contrary to the prevailing situation in neighbouring countries, despite the aforementioned free trade agreements. Lebanon will only benefit from international trade and the opening of new markets if opportunities to access these markets are created.

Should Lebanese products become competitive, this will undoubtedly reflect positively on overall production levels, the marketing of these products, and increase their added value. This will have an impact on overall economic activity in rural areas, and will enhance the social stability of workers in the agricultural sector, particularly women.

The Syrian crisis and Syrian migrant workers

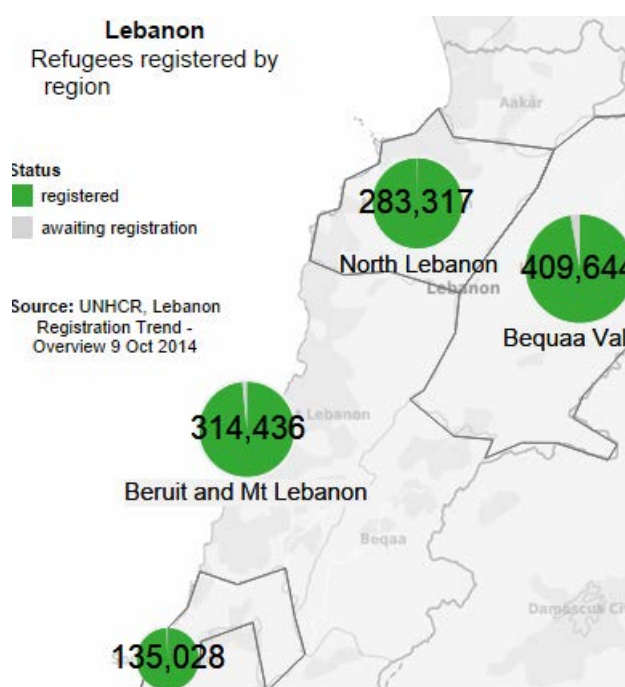


FIGURE 31: REGISTERED REFUGEES IN LEBANON BY REGION

An estimated 9 million Syrians have fled their homes since the outbreak of civil war in March 2011, taking refuge in neighbouring countries or within Syria itself. According to the UNHCR, over 3 million have fled to Syria's immediate neighbours, Turkey, Lebanon, Jordan and Iraq.

Several factors have facilitated the flow of Syrians into Lebanon, the first and most obvious being that Lebanon has maintained largely open borders throughout the crisis, while Syria's other neighbours have increasingly restricted crossings since the beginning of 2013. This has made the route to Lebanon the path of least resistance for many of those fleeing the violence. Another important factor is that many Syrians lived in Lebanon before the conflict began. This pre-crisis population, which has existed since the 1950s and was estimated to number around 500,000 in 2011, comprises the many family, political, and business networks that span the Lebanese-Syrian border and facilitate refugees' access to Lebanese soil.

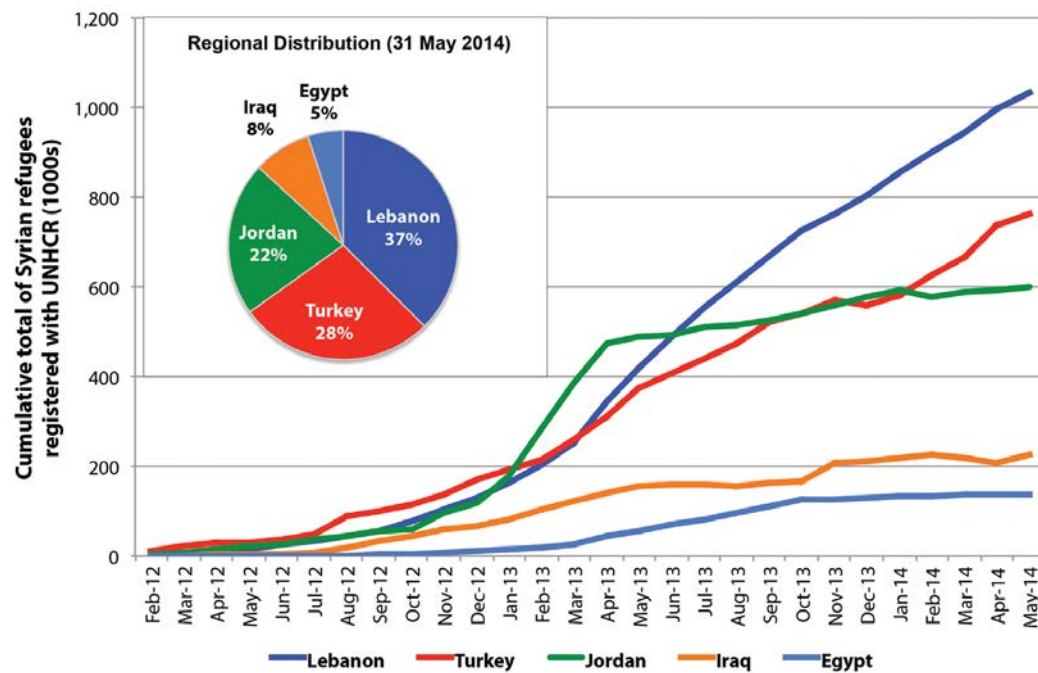


FIGURE 32: SYRIAN REFUGEES REGISTERED TO UNHCR IN NEIGHBOURING COUNTRIES, JANUARY 2012 TO MAY 2014 (SOURCE: UNHCR)

In short, the population most vulnerable to any shock is being asked to give the most. Lebanon is at risk of paying the price for its hospitality with severe political and economic destabilisation.

Refugees looking for work are confronted with severely depressed wages for daily labour. Refugees, together with the residents of many rural communities, tend to work in the agricultural and construction sectors, so are often in direct competition for scarce jobs. The FAO reported in 2014 that some areas of Lebanon had witnessed up to a 60 per cent decrease in wage rates for day labour.

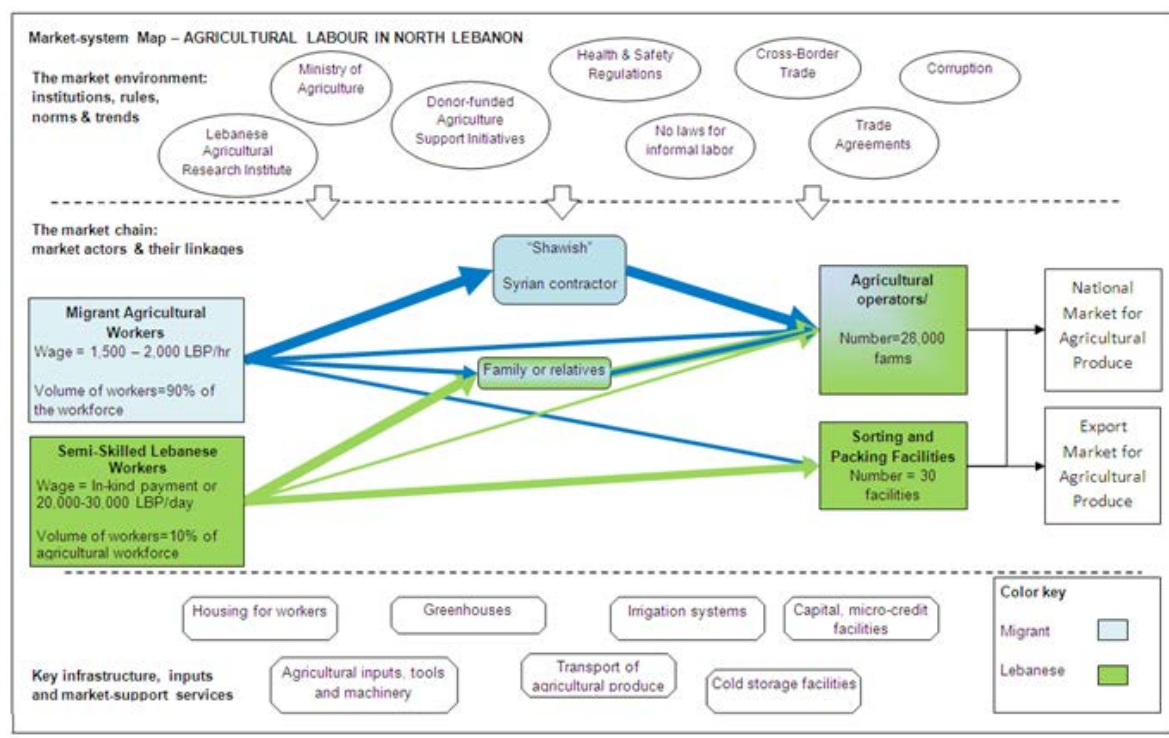


FIGURE 33: AGRICULTURAL LABOUR MARKET SYSTEM (SOURCE: EMMA)

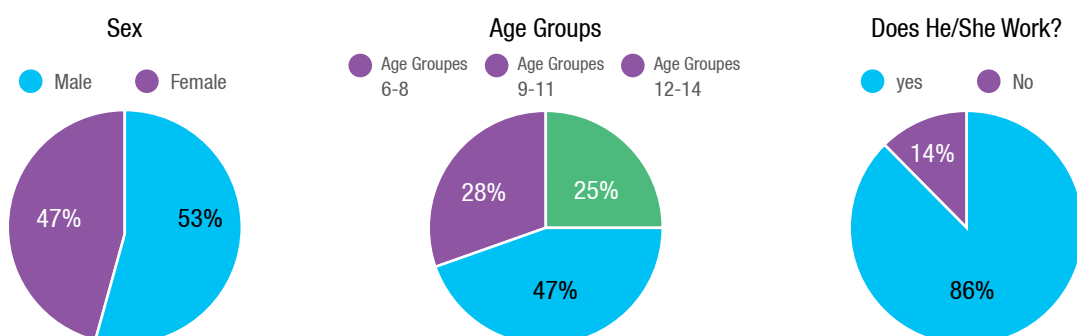
In Akkar, the agricultural labour market may be characterized as mainly full-time family farm operators who rely largely on seasonal family labourers and hired workers. The large majority of paid seasonal workers are Syrian migrant workers. Agricultural work conditions are unattractive to unemployed Lebanese – working hours are long and the wages, although higher than those for migrant workers, are still insufficient to cover living costs. Lebanese workers are often given preference by Lebanese employers for higher-skilled work. Agricultural jobs are usually secured through relatives or personal contacts.



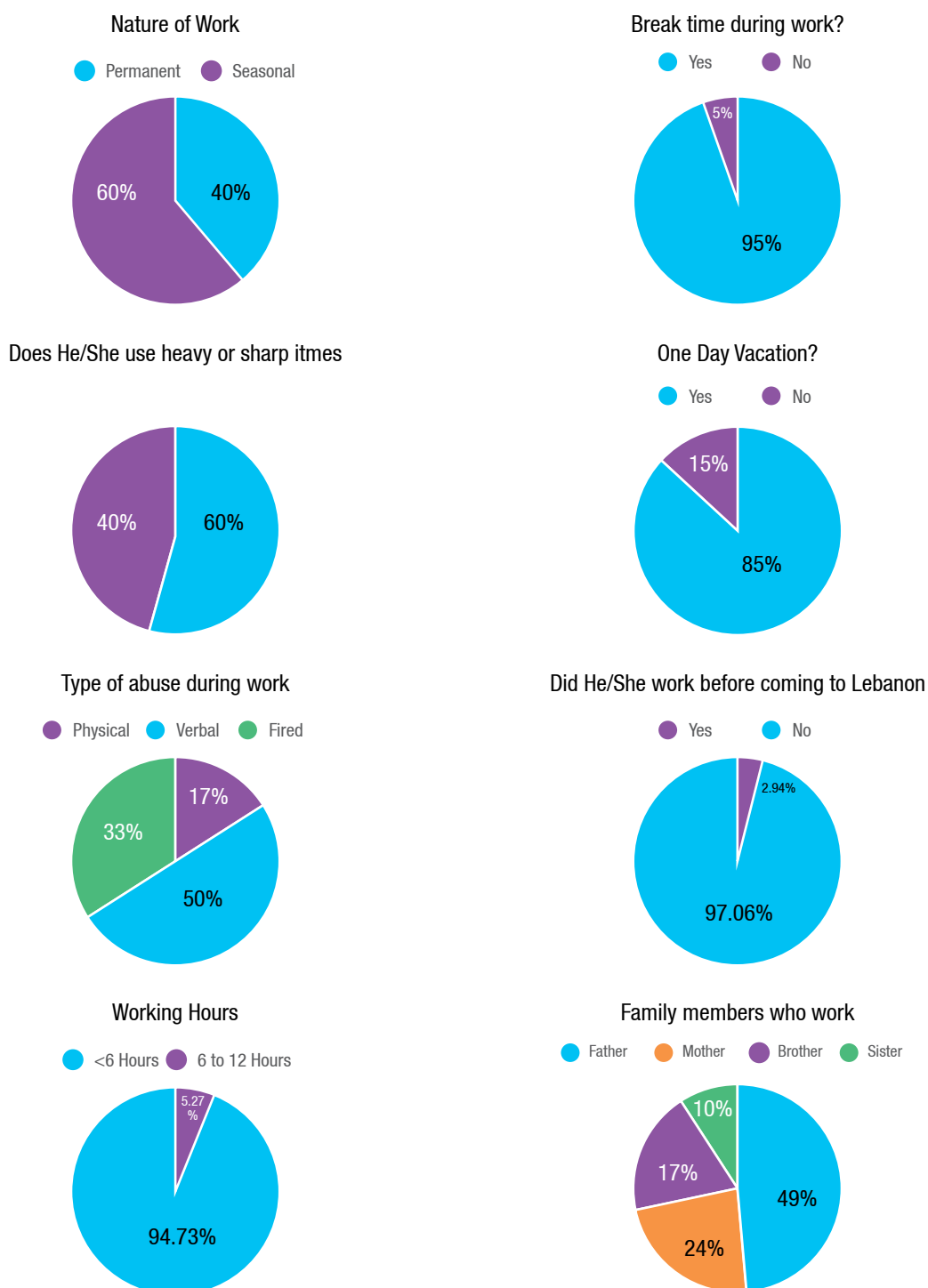
FIGURE 34: A BOY AND A GIRL WORKING AT A NURSERY IN AKKAR
(PHOTO COURTESY OF HISHAM EL GAZZAR)

Many male and female seasonal migrant workers live adjacent to agricultural lands in tented communities that are managed by a community leader known as a “Shawish”. The Shawish rents the tents and serves as intermediary between the seasonal migrant workers and his clients – farm operators with whom he has established personal contact throughout the years. The Shawish charges the worker a fixed rate per working hour (varying from 500 to 750 LBP). Refugee workers are paid on a daily basis and are keen to keep their jobs despite receiving aid vouchers. Some Syrian migrants work on a full-time basis in agricultural lands through direct contact with landowners. These full-time migrant workers are paid on a monthly basis and often live on the property.

In December 2014, the research team requested Beyond Association to conduct a rapid assessment on child labour in Akkar. Some 150 children in Arqua and Tal Abbas Al Gharbi in the Akkar area were questioned. The results showed a high degree of child labour – 86 per cent of the children worked, with the worst forms of child labour being widespread (60 per cent of working children used sharp or heavy items, 95 per cent worked 6 to 12 hours per day). The results of the survey are as follows:



From the 86 per cent who answered positively to the question, “Do you work?”, the following results were found:



In addition, 35 per cent did have an injury during work and 5 per cent have more than one job.

The above rapid assessment confirms that child labour, including the worst forms of child labour, is a critical issue and cannot be overlooked. Given the situation of Syrian refugees in Lebanon, working towards the eradication of child labour would require a comprehensive solution across all sectors. Due to the extent of the issue, child labour interventions are targeting ‘risk reduction’ rather than ‘prevention’ in order to support and protect working children. The ILO is well placed to take the lead on advocacy and awareness-raising on child labour. Where feasible, interventions should link with existing support systems and service provisions for children.

Analysis of constraints and opportunities

Constraints

The following key challenges of both value chains (potatoes and leafy green vegetables) in Lebanon have been identified:

- Market integration issues are causing high supply risks and high transaction costs. Potatoes are usually marketed through fragmented chains that lack coordination and information exchanges along the whole value chain.
- Producer groups. The farm gate price of potatoes is often based on limited negotiation, and smallholders do not have the market savvy or access to necessary market information. Uneven bargaining leads to uneven pricing that, in turn, will deter producers from responding to market incentives. This makes the formation of producer groups, to share expertise and strengthen the bargaining power within the chain, essential.
- Public and private support is lagging behind. Agriculture policies and resources have traditionally focused on cash crops for export, leaving potatoes at the periphery. Correcting this imbalance and seeking substantial levels of public and private investment is critical.
- Pesticide residues and water contamination. Although an American University in Beirut (AUB) study in 2010 found that most vegetables and fruits are relatively pesticide free, the research team is aware that farmers are using surface water for irrigation that is contaminated with sewage.
- Lack of food traceability. Under EU law, “traceability” means the ability to track any food, feed, food-producing animal or substance that will be used for consumption, through all stages of production, processing and distribution. It is vital that when national authorities or food businesses identify a risk they can trace it back to its source in order to swiftly isolate the problem and prevent contaminated products from reaching consumers.
- Extension services. Agricultural extension is a general term meaning the application of scientific research and new knowledge to agricultural practices through farmer education. The field of ‘extension’ now encompasses a wider range of communication and learning activities organized for rural people by educators from different disciplines, including agriculture, agricultural marketing, health, and business studies. In Lebanon, less than 11 per cent of farmers receive it, out of which 86 per cent get it through input providers (MoA, 2012), who are thus able to control the farmers and the whole VC.
- Cooperatives. Nearly all (96 per cent) farmers do not belong to a cooperative (MoA, 2012) due to their poor performance in opening new markets to farmers and an inability to solve their frequent production and financial problems.
- Availability of foreign potatoes, notably from Egypt, which some traders import in great quantities before the asset deadline in the agricultural calendar year set by the Ministry of Agriculture (typically around the end of March/early April). This means that cheap potatoes are imported from Egypt very shortly before the potatoes from Akkar come to the market. This makes it more difficult for Akkar farmers to sell their potatoes at a fair price.
- The agriculture sector suffers from a lack of funding, receiving less than 1 per cent of the state budget. Private-sector finance and bank loans for agriculture are limited. The net result has been a lack of investment, undermining productivity and competitiveness. The Government has expanded a subsidy programme on interest rates to reduce the cost of borrowing for small and medium-sized businesses. It is intended especially for the agriculture, manufacturing and tourism sectors. Export Plus, a government subsidy programme, is aimed at assisting certain agriculture producers with exporting their crops (vegetables, fruit, flowers and eggs).
- Agri-food transformation/food processing (mainly for fruits and vegetables), considered to be a major part of Lebanon’s agriculture and agri-food industry, is developed but requires assistance and rebuilding. The local distribution market suffers from an absence of government quality control, a lack of marketing regulations, and competition from lower-priced products from the border and neighbouring countries.

Opportunities

Several opportunities have been identified:

- Akkar potatoes, an early crop, is harvested in April when potatoes are in short supply and command good prices in the local market. The EU imports potatoes at the same time of the year, which makes it a market of high potential considering the required variety types (mainly Agria).
- High demand for leafy green vegetables, especially in Europe during the winter season.
- Trade Agreements. Lebanon has signed several trade agreements that open the door for exporting potatoes and leafy green vegetables to many countries, including a derogation of the import ban of Lebanese potatoes to the EU.
- Technical and capacity building training. Many NGOs and international donors are working on training farmers in Lebanon to be open minded regarding new technology and techniques in farming, in addition to changing old inefficient habits and adopting best practices.
- The availability of local agricultural experts in Lebanon is a substantial asset. These experts should help drive development work in this sector.
- Possibility of linkages to the agro-food industry. Both potatoes and leafy green vegetables are in high demanded, whether fresh or processed.

Conclusions and recommendations

Most of the root causes to the problems of the agricultural sector are related to government policies, which have not expressed a clear agriculture strategy – especially for remote areas like Akkar. Other problems are related to certain key players (mainly traders and wholesalers) in the VC, who control the whole process by financing farmers for all their input materials. Having said that, a few problems are also related to the farming culture, which resists change and new ideas.

Due to the short timeframe of this project, the research team recommends joining forces with current projects to maximise efforts and ensure future sustainability. Short to medium goals should be set to have a quick impact. It is also highly advisable, due to the nature of the sector, to work on capacity building with farmers for a full cycle (or even two cycles if possible) to show them step by step how to increase the productivity of their land. All chosen interventions regarding farmers should aim at teaching them how to think like a small entrepreneur.

The following are some recommendations for future interventions:

- **Farmers should develop:**
 - awareness on entrepreneurial skills;
 - awareness on best agricultural practices regarding irrigation supply, pesticides and fertilizers use, and frequent water and soil analysis (every two years);
 - awareness on new types of crops and new technology, such as hydroponics for leafy greens;
 - awareness on the importance of crop rotation;
 - awareness on the importance of working in small groups, cooperatives or clusters in order to decrease share and reduce costs of production, distribution and marketing, as well as to share expertise and strengthen the bargaining power within the chain;
 - awareness on the correct methods of calculating costs and keeping records and other basic business management;
 - awareness on GLOBALGAP standards and methods of adopting them;
 - awareness on different available options regarding access to finance.
- **Traders, wholesalers, processors and exporters should develop:**
 - awareness on the potential of investing in processing potatoes and leafy green vegetables;

- awareness on Fair Trade and Ethical Trading principles;
 - awareness on export logistics, marketing, exhibiting at international trade fairs, travelling on trade missions and opening new markets;
 - awareness on GLOBALGAP standards and methods of adopting them.
- **Supporting organizations should:**
 - link efforts and share lessons learned between different NGOs, associations, cooperatives, donors and governmental organizations for greater impact, and to provide better services and improve outreach to beneficiaries;
 - play a role in providing financial support (e.g. from large active NGOs, such as René Moawad and the Safadi Foundation) to farmers to gradually break the tight grip of traders and wholesalers over the whole value chain;
 - create dedicated programmes on gender and child labour issues;
 - raise awareness on best practices to better manage cooperatives and self-sustainability;
 - encourage greater facilitation by financial institutions for businesses to access finance and micro credit;
 - adopt new pilot projects (e.g. empower one cooperative and showcase it as a success story for other cooperatives to follow).
 - **The enabling environment requires:**
 - the Government to enforce implementation of an agriculture calendar so that production is maximized, risk is reduced, and competitiveness is increased through forming a steering committee with core members who are active key players from the whole value chain;
 - a reduction of import duties on agricultural equipment and farm-related inputs like seeds, fertilizers, etc.;
 - more effective application of laws at the local level and greater municipality involvement to this end;
 - more government advice, support and training on advanced techniques, international export standards, quality of inputs and produce, product testing facilities and services, etc.;
 - the development of warehousing and storage facilities at main ports;
 - new national projects regarding clean water for irrigation;
 - the establishment of a training centre for specialized crops;
 - opening up exports to the EU using the Netherlands as a designated point of entry for Lebanese potatoes and targeting neighbouring countries like Belgium and Germany.

Work plan

In order to tailor different interventions to tackle the constraints of each of the two value chains, a three-day workshop was conducted in Tripoli during March 2015 for the main key players. After intensive training on the basics of VCA, finding the root cause of any problem, identifying different business models in a VC and different types of interventions, the trainees were asked to:

- put the constraints of each value chain in order of importance;
- find the root cause of each constraint;
- identify the best possible intervention for each constraint; and
- write an action plan for all different interventions proposed.

The following is the action plan proposed:

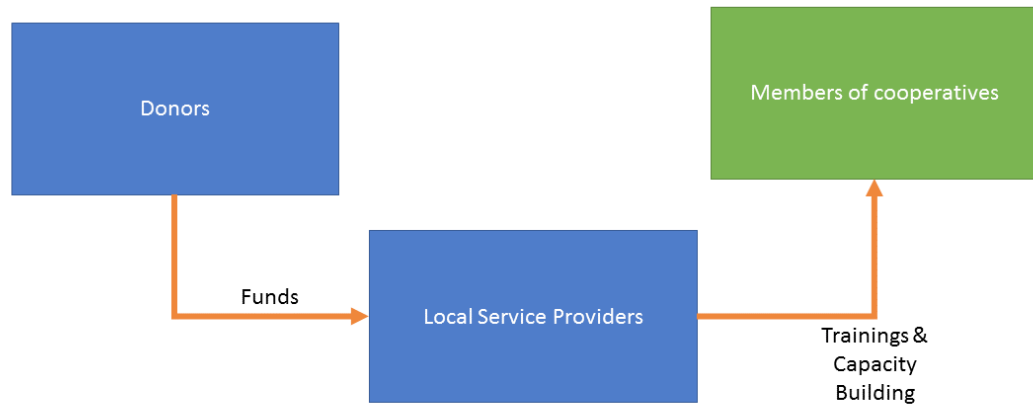
Potatoes

S	Constraints	Root causes	Interventions	Service provider	Type of service	Service beneficiary
1	The high cost of production	High prices of seeds	Empowering the role of cooperatives	Donors, local service providers	Training & capacity building	Members of cooperatives
			Establish a lab for in vitro	Private Sector Donors, LARI	Knowhow & financing	Input suppliers, farmers
2	The weakness of the role of cooperatives	A defect in the concept of the role of cooperatives	Awareness on the role of cooperatives	Donors, ministries, local service providers, NGOs	Information, workshops	Farmers
			Empowering the role of cooperatives and create a compensation fund	Donors, ministries	Information, funding	Cooperatives
3	Improper use by farmers of pesticides and fertilizers within the proposed standards and guidelines	Farmer's culture (resisting change)	Empowering the farmer	MoA, NGOs, donors, local service providers, LARI	Capacity building workshops (theoretical + hands on in the field), entrepreneurial skills	Farmers
		Failure to follow correct agricultural practices				
4	Lack of appropriate machines to clean potato tubers from soil residue	Most of the crop is sold in the local market or exported by trucks to the regional markets - Not feeling the need to export to Europe	Empowering the traders and farmers	Donors, NGOs, CCIAT, Ministry of Foreign Affairs, IDAL	Capacity building workshops (EU requirements, Export procedures, International Trade Fairs)	Traders, farmers
5	Lack of experience in export and shipping procedures to Europe					
6	Unfamiliarity with the minimum standards for the quality of the product for export to Europe		Facilitating the access to Global GAP certification	Ministry of Economy, MoA, IDAL, Exporters, Certification bodies	Market Information, technical assistance and trainings on GLOBAL GAP standards and implementation processes	Farmers, packinghouses
7	Lack of adequate information and statistical data for the sector (import, export, prices in the domestic and overseas markets)					
8	The difficulty of introducing new varieties of potatoes seeds	Farmers fear of inability of selling new varieties of potato crops	Linkages to markets before planting any new varieties	Ministry of Foreign Affairs, CCIAT, Exporters	Contracts with farmers to buy the crop before planting	Farmers
			Introducing new varieties similar to «Spunta» but with higher yield production	LARI, NGOs, Seeds importers	Workshops on new varieties	Exporters, farmers

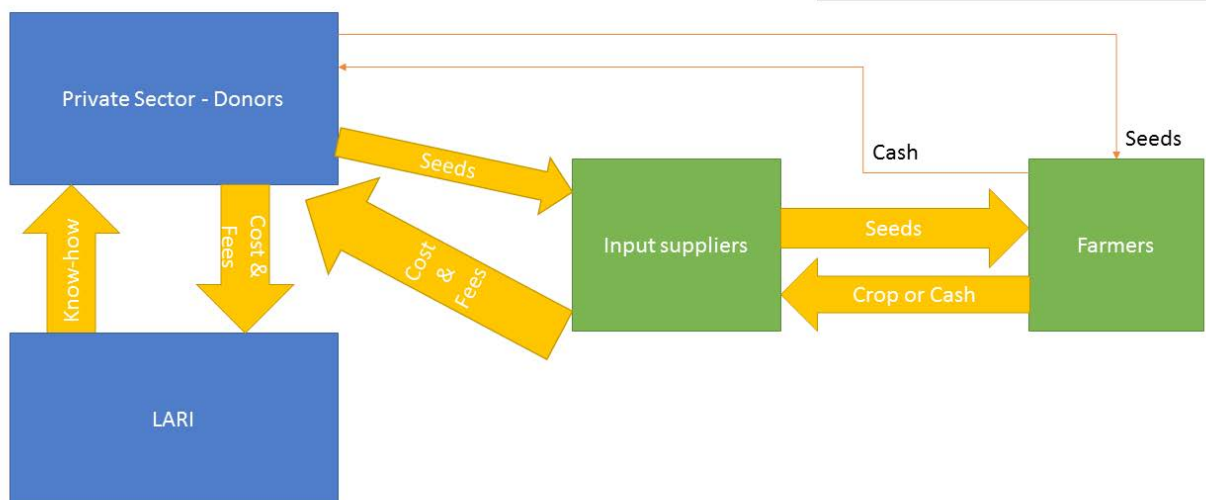
Leafy green vegetables

S	Constraints	Root causes	Interventions	Service provider	Type of service	Service beneficiary
9	Very short shelf life	Not realizing the potential of processing	Providing good locations for coolers and providing processing and packaging machines	Donors, ministries	Linking the private sector and cooperatives with donors for funding buying the required machines	Private sector, cooperatives, traders
10	Limited availability of drying machines and focus on certain crops	Lack of financial liquidity				
11	Pollution of irrigation water by wastewater	Lack of sewage system	Establish refineries of wastewater	Donors	Linking donors with municipalities	Municipalities
12	Difficulties of introducing new technologies in the sector (e.g. soil-less production)	Not realizing the potential of modern agriculture practices and new technologies	Empowering the traders and farmers	Donors, LARI	Workshops on new technologies (hydroponic, culture hors sol, water sprinklers)	Farmers, traders

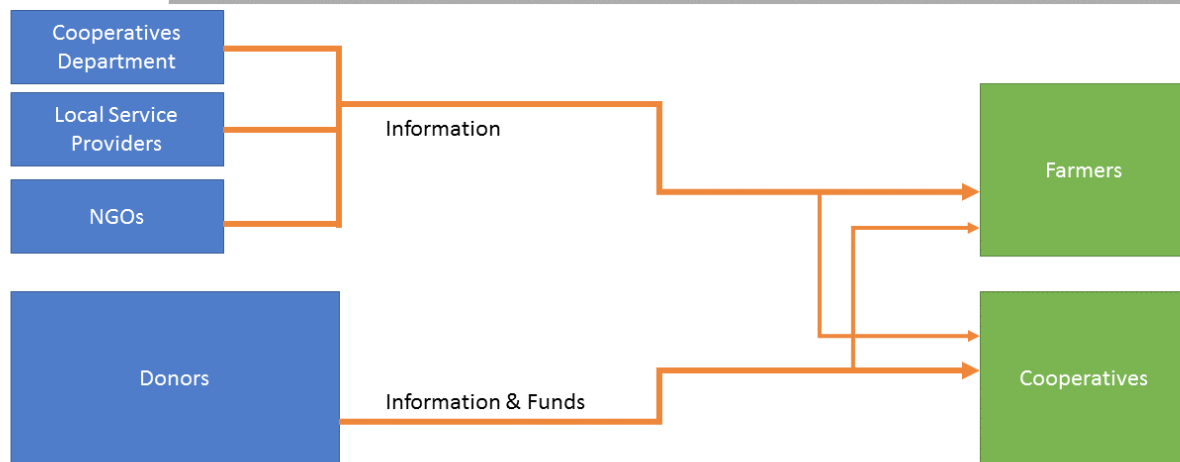
Business Model # 1A Empowering the role of cooperatives



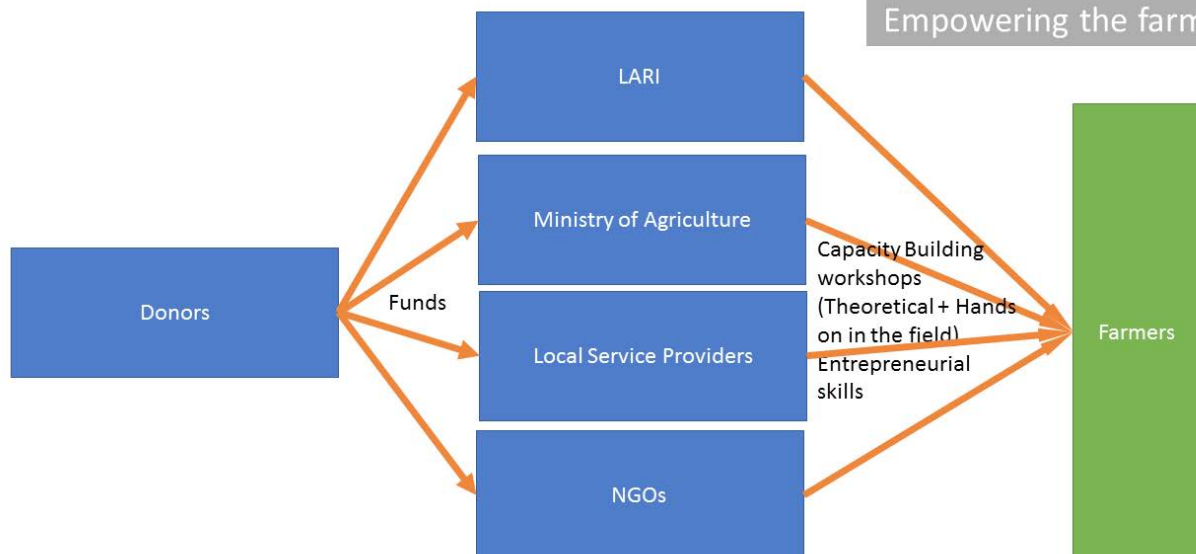
Business Model # 1B Establish a Lab for In Vitro

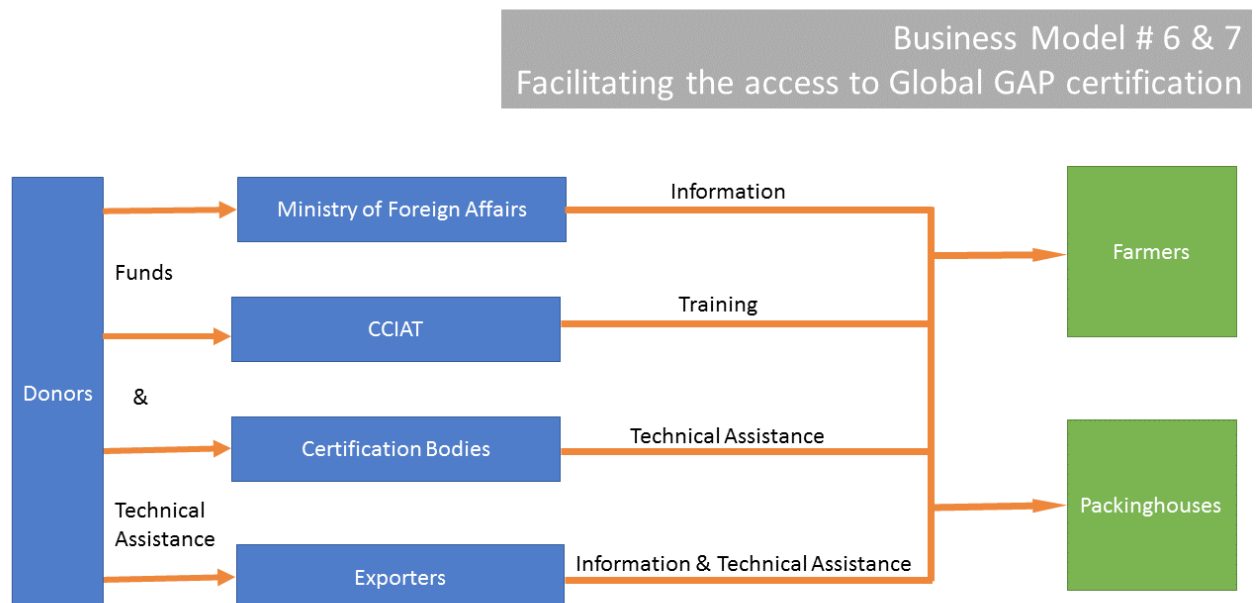
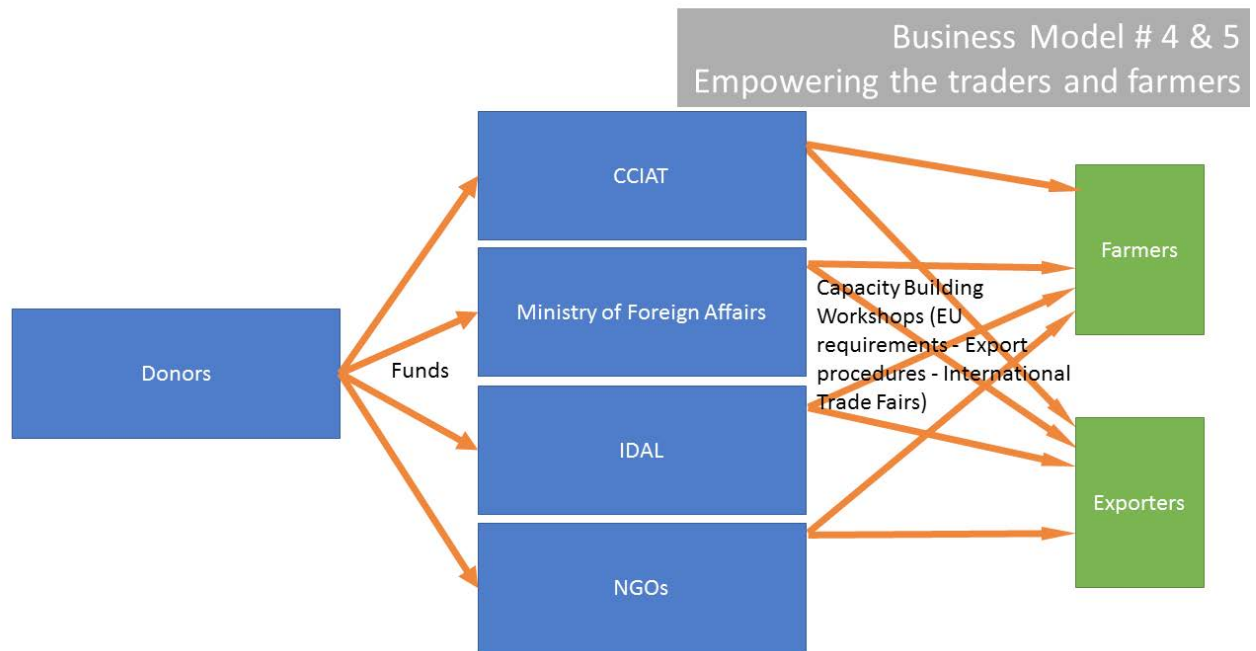


Business Model # 2
Awareness on the role of cooperatives
Empowering the role of cooperatives and create a compensation fund

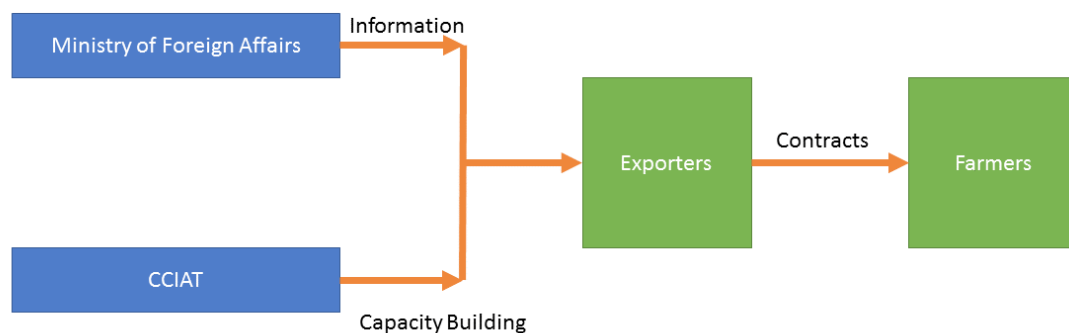


Business Model # 3
Empowering the farmer

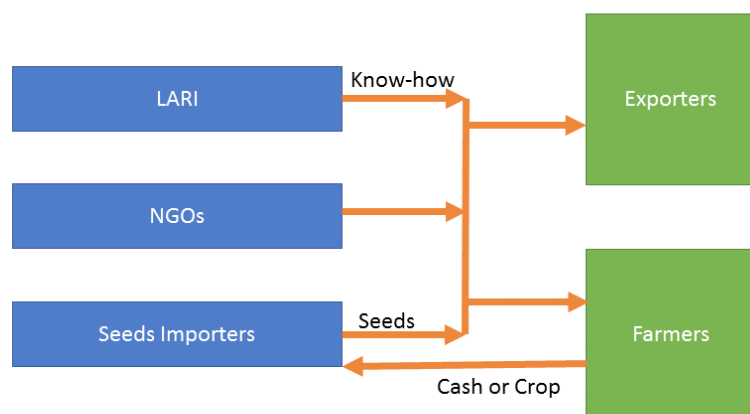




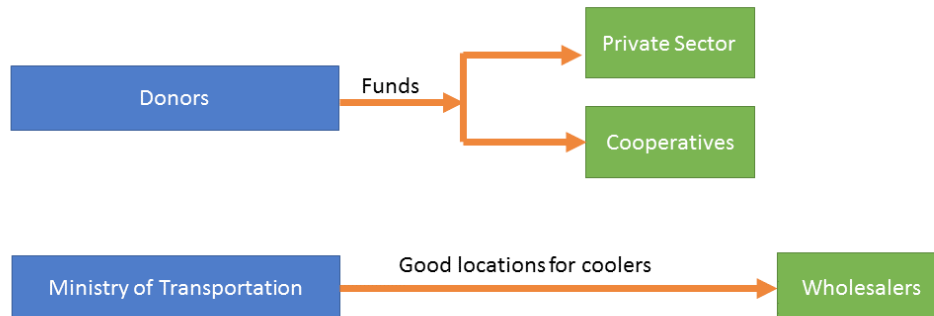
Business Model # 8A Linkages to markets before planting any new varieties



Business Model # 8B Introducing new varieties but with higher yield production



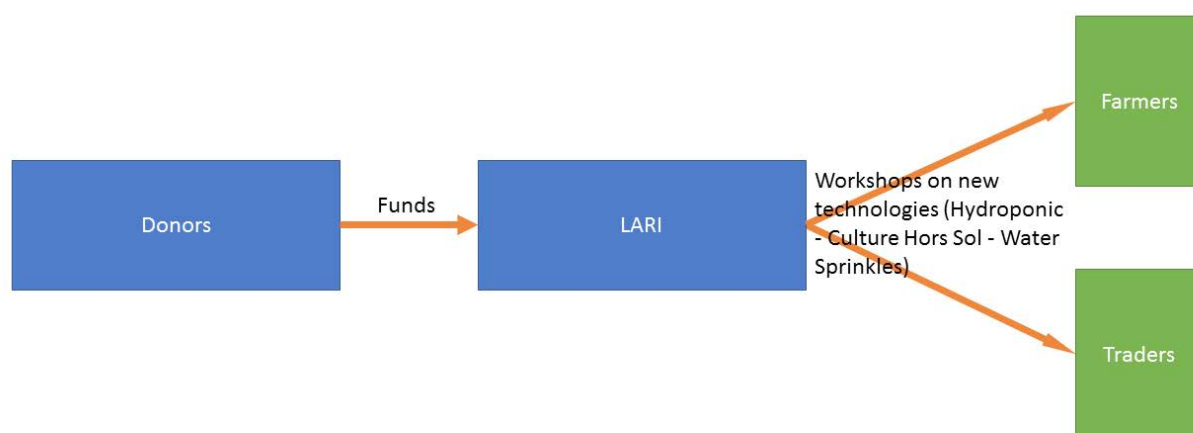
Business Model # 9 & 10
Providing good locations for coolers
Providing processing and packaging machines



Business Model # 11
Establish refineries of wastewater



Business Model # 12 Empowering the traders and farmers



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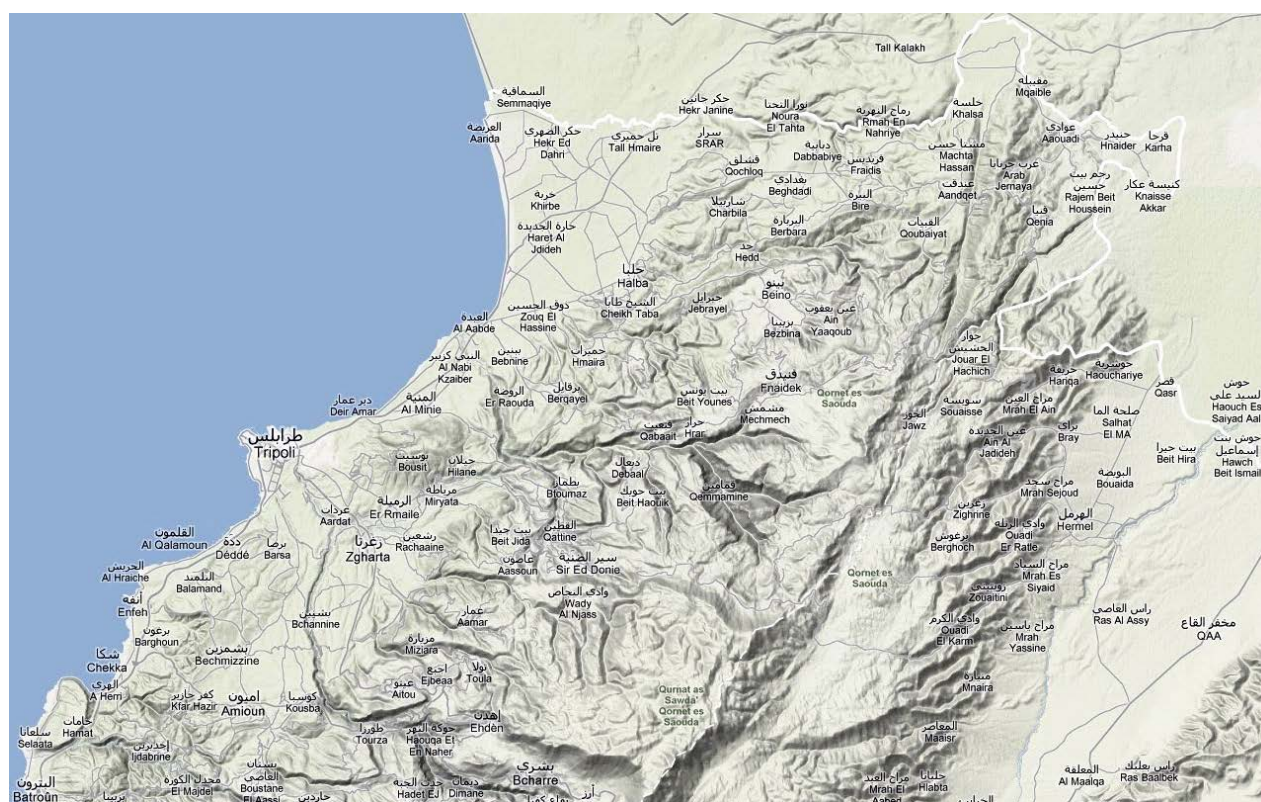
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Appendices

Appendix 1: Map of North Lebanon



Appendix 2: List of stakeholders consulted

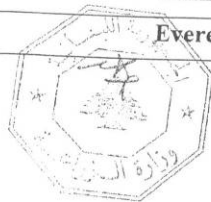
Contact Name	
Rana Mawlawi	CCIAT
Nabil Moawad	Rene Moawad Foundation
Georges Kedissi	ComPtoir Agricole du Levant
Maxim Daoud	Unifert
Hussein Rifai	Farmer, Importer, Exporter and Trader
Omar El Hayek	Farmer, Importer, Exporter and Trader
Michel Issa El Khoury	LARI
Mohamed Ali El Hawly	Farmer
Samir El Bekaey	Grower
Mohamed Hussein Taleb	Ministry of Agriculture – Akkar
Elias Hdayed	Famous Frites
Abdulnasser AlSamad	LAMA
Abdel Aziz El Samad	Exporter
Brett Hanley	World Food Programme (WFP)
Drs. Hester M.J. Somsen	Embassy of the Kingdom of the Netherlands in Beirut
Mohsen A. El Amine	IDAL
Maria Assi Khayat	Beyond NGO
Mohamed Abou Zeid	Ministry of Agriculture (MoA)
Saad Abdo	Farmer
Antonius El Khoury	Farmer
Abdel Kerim Abdel Kader	Farmer
Mohamed El Moustafa	Farmer
Walid Gabour	Farmer
Mervat Youness	Farmer
Omar El Basha	Carrefour
Loutf Karam	Spinneys

Appendix 3: Potato seeds varieties allowed to be imported for the Season 2013–2012

ملحق رقم (١)

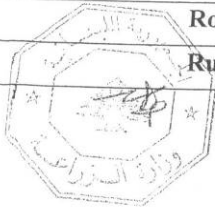
أصناف بذار البطاطا المسموح استيرادها لموسم ٢٠١٣-٢٠١٢

Variety Name	اسم الصنف
Agata	أغاتا
Agria	أغريا
Alaska	ألاسكا
Albata	ألباتا
Algeria	ألميريا
Almera	ألميرا
Arinda	أريندا
Arnova	ارنوبا
Asterix	استيريكس
Atlantic	أتلانتيك
Atlas	أطلس
Barchelona	برشلونة
Bellini	بيليني
Binella	بينلا
Burren	بورين
Cal white	كول وايت
Challenger	شالانجر
Chipody	شيبودي
Courage	كورايج
Daifla	دايفلا
Daisy	دايزي
Diamant	ديامونت
Disco	ديسكو
Draga	دراغا
Elodie	إلودي
Emma	إيما
Everest	إفرست



دفتر شروط بذار البطاطا ٢٠١٣-٢٠١٢

Fabula	فابولا
Faluka	فالوكا
Folva	فولفا
Fontane	فونتين
Fridor	فريدور
Hanna	حنا
Hermes	هرمس
Innovator	اينوفايتر
✓ Jelly	جيلي
Kennebec	كينيبك
Kentia	كنيتا
Lady Lenora	لايدي لينورا
Lady Olympia	لايدي أولمبيا
Lady-rosetta	لايدي روزيتا
Liseta	ليسيتا
Marabel	مارابيل
Marfona	مارفونا
Markies	ماركيز
Marlen	مارلين
Melody	ميلودي
Miss Bianka	مس بيانكا
Miss Malina	مس مالمينا
Mustang	موسستينغ
Nicola	نيكولا
Oceana	اوسيانا
Orchestra	أوركسترا
Orla	اورلا
Quincy	كوينسي
Remarka	ريماركا
Royal	رويال
Rubis	رويبي



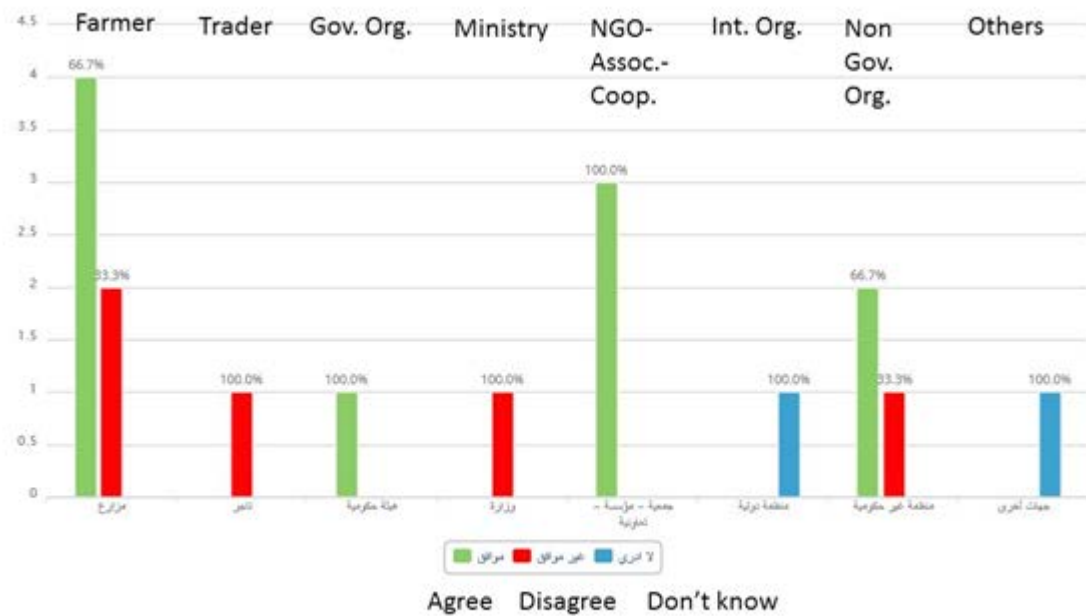
Handwritten signature

Safari	سفاري
Safrane	سفران
Sagitta	ساجيتا
Santana	سانتانا
Savanna	سافانا
Sifra	سيفرا
Slaney	سلاني
Spunta	سبونتا
Sylvana	سيلفانا
Tango	تانغو
Toros	توروس
Triplo	تريبلو
Victoria	فكتوريا
Vivaldi	فيفالدي
Vivi	فيفي
Zorba	زوريا
Brook	بروك
Snowden	سنودان
Andover	اندوفر
Diego	دييغو
Universa	اونيفرسا
Florice	فلوريس

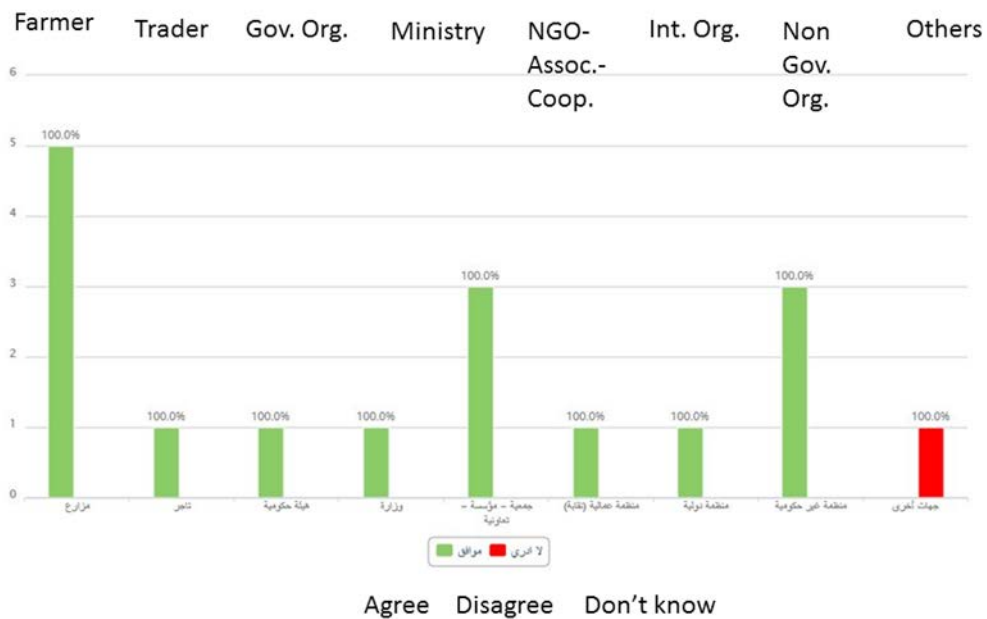
Appendix 4: Halba's validation workshop results

Potatoes value chain

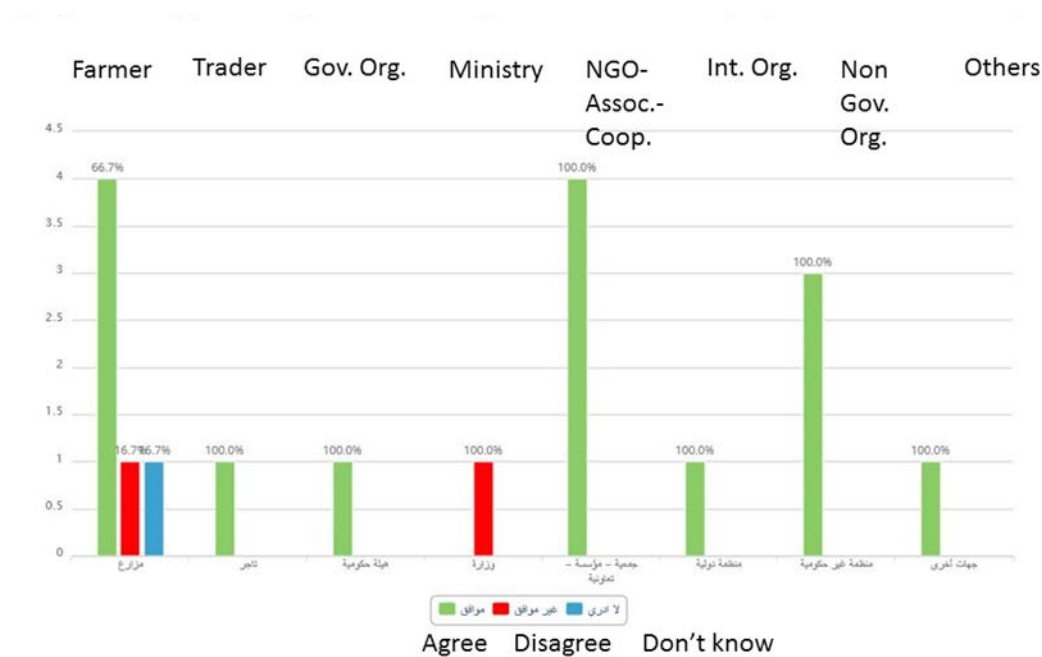
1. Oligopoly of seeds and fertilizer prices by input suppliers



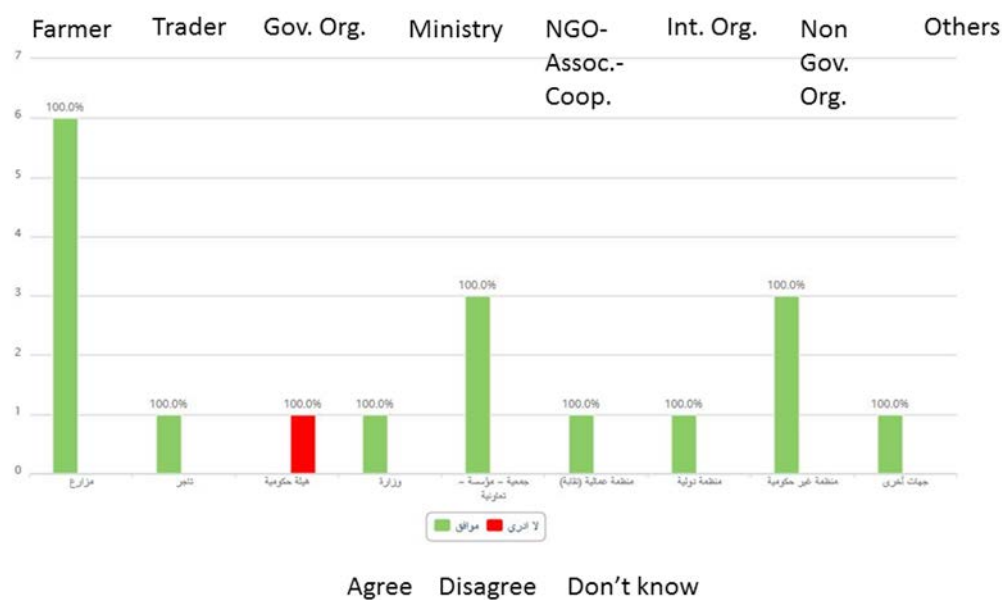
2. The high cost of production



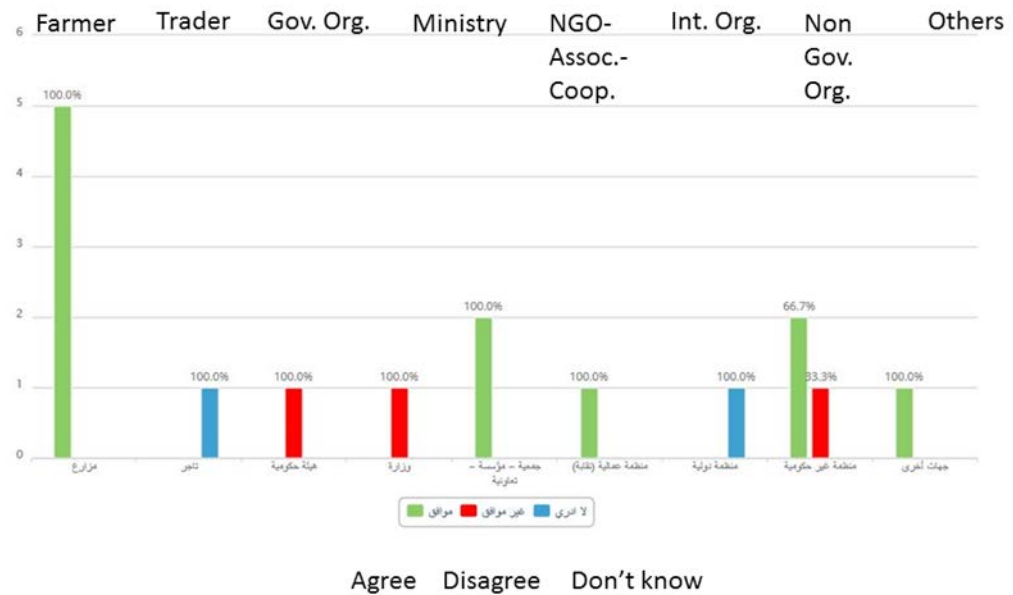
3. Improper use by farmers of medicines and fertilizers within the proposed standards and guidelines



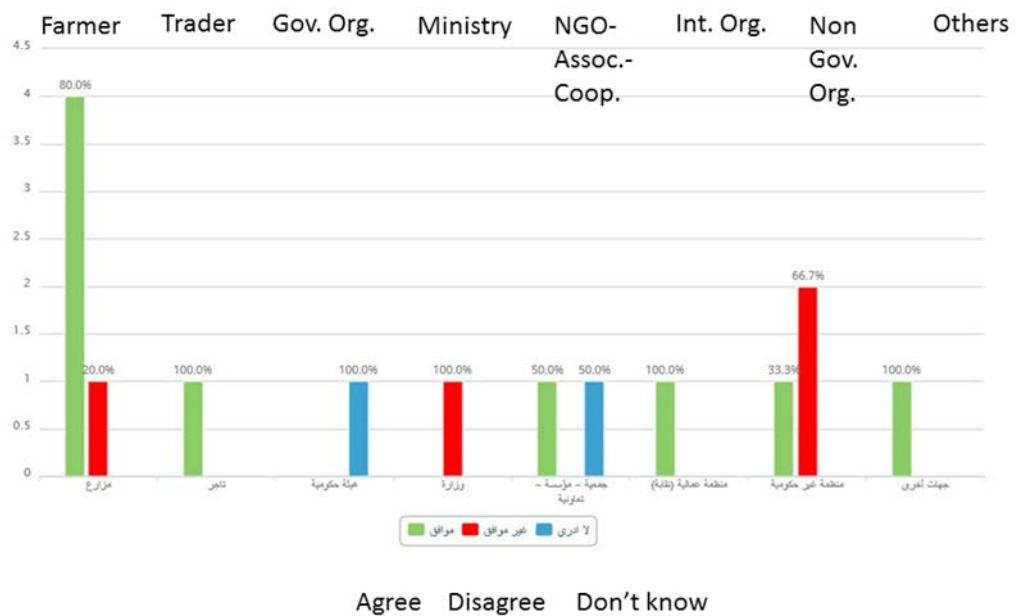
4. Excessive consumption of agricultural land and not adopting the rotation system



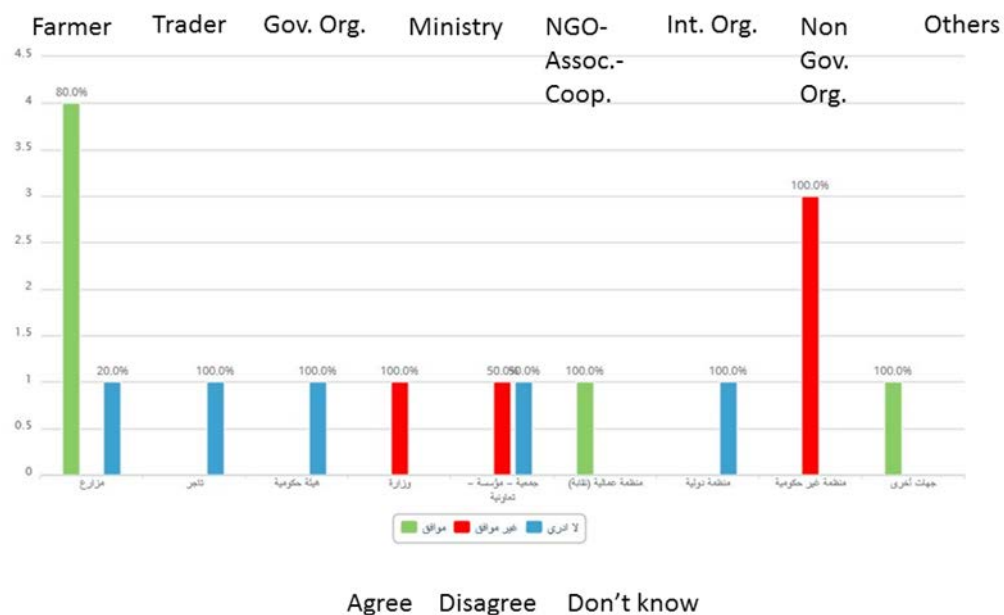
5. Control of the final product prices in the market



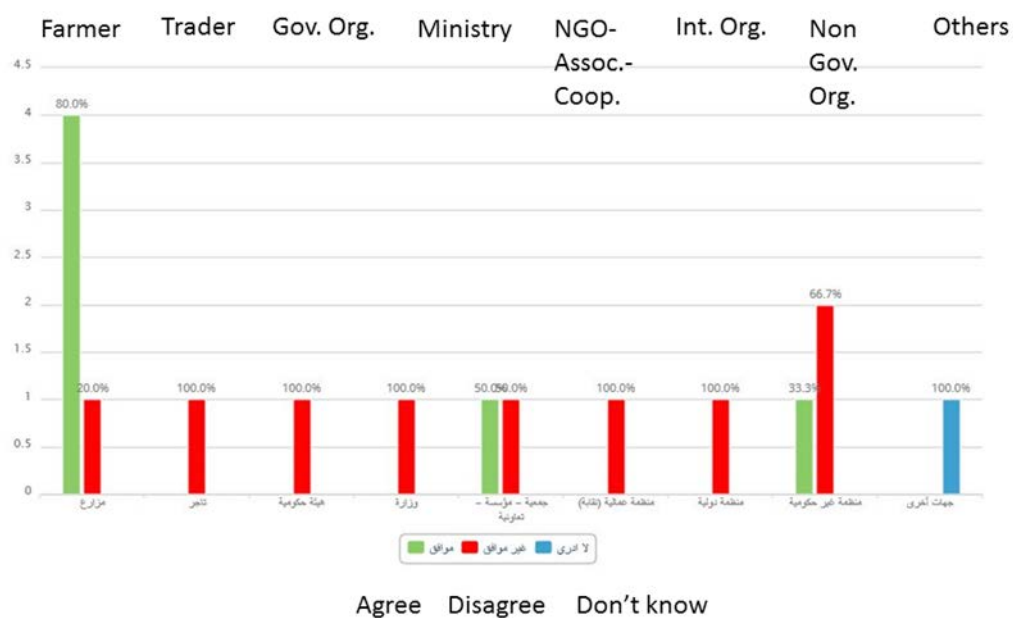
6. prevalence of child labor



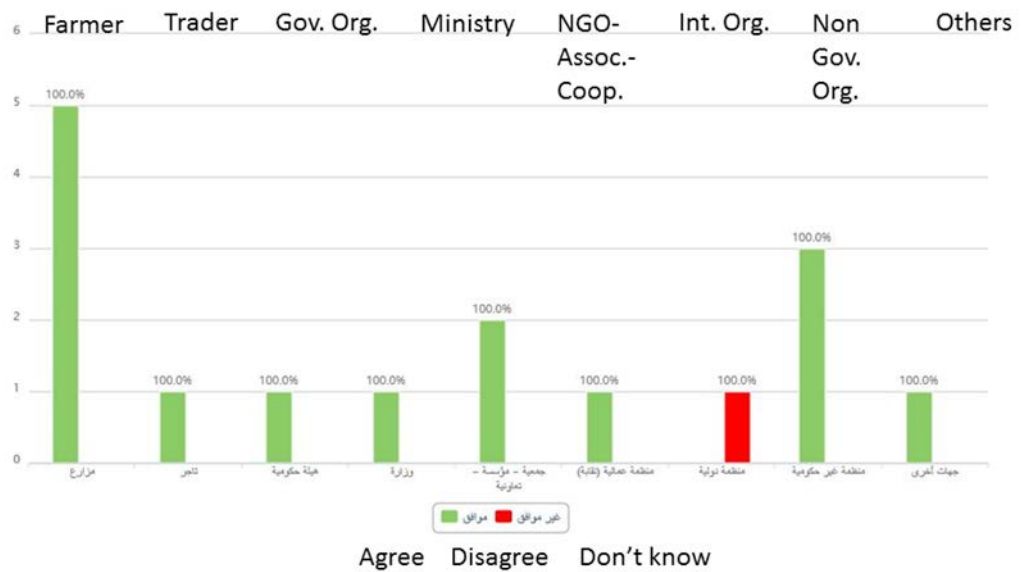
7. Low wages for agricultural workers and unequal pay and working conditions between women and men



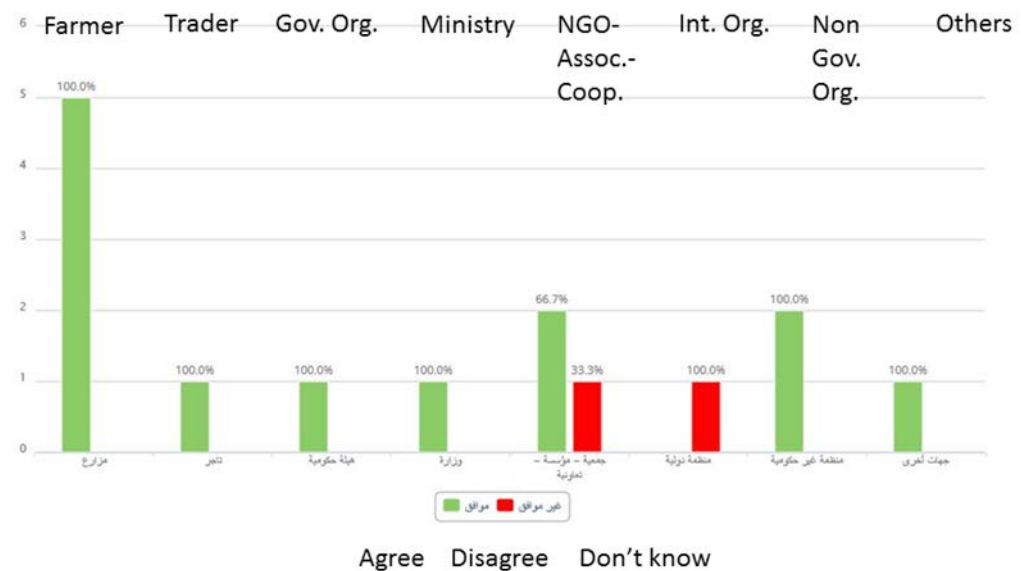
8. The difficulty of introducing new varieties of potatoes seeds



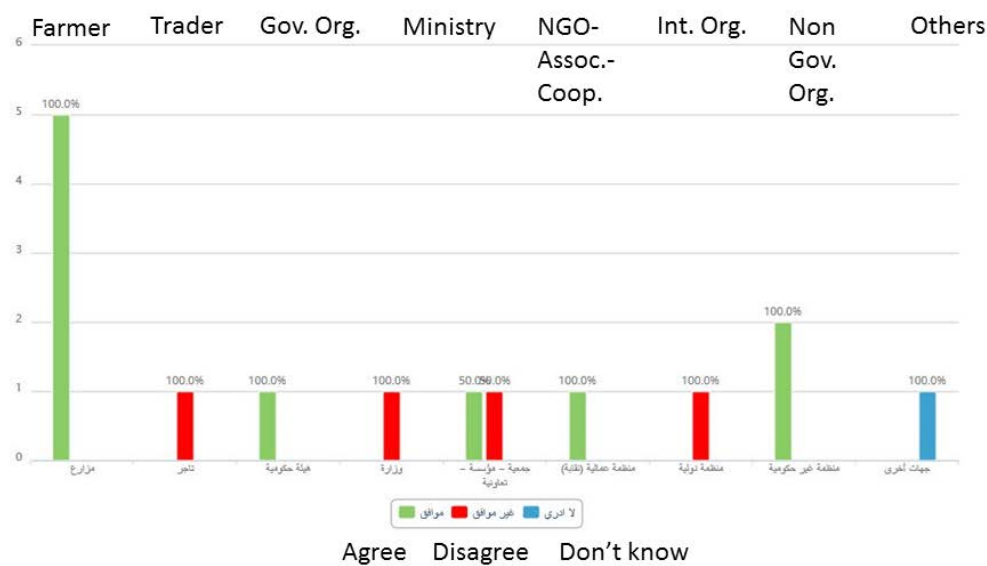
9. The weakness of the role of cooperatives



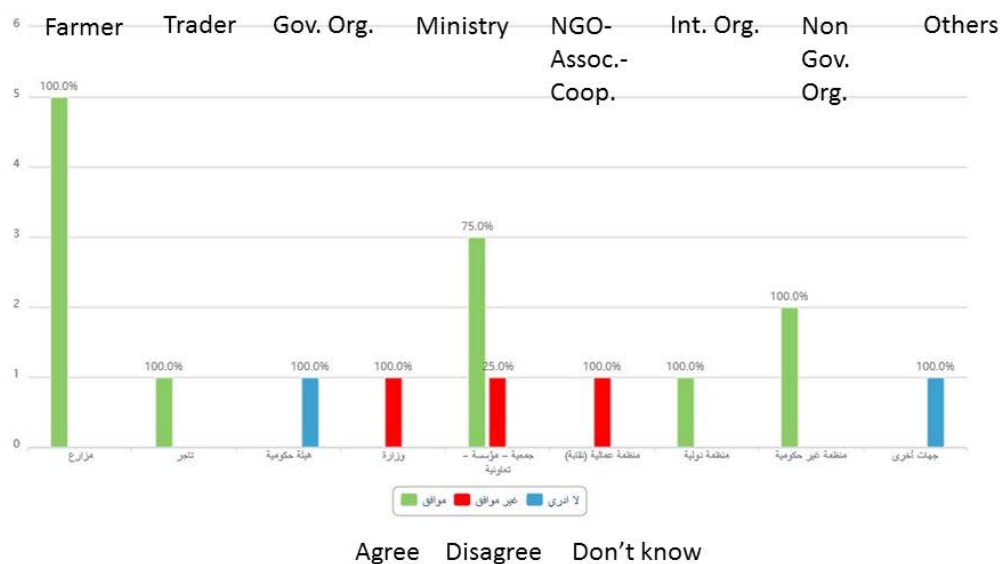
10. Unfamiliarity with the minimum standards for the quality of the product for export to Europe



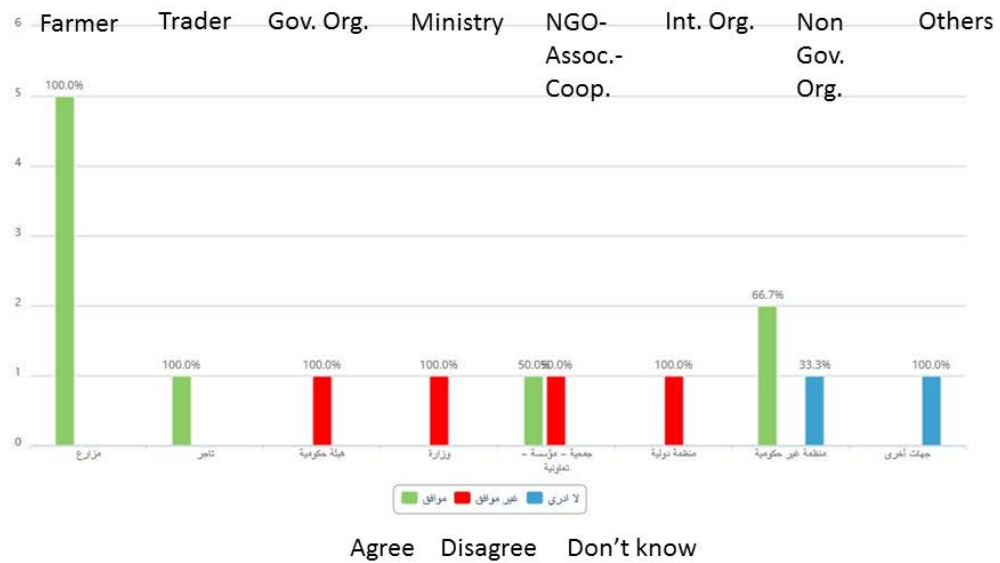
11. Lack of adequate information and statistical data for the sector (import, export, prices in the domestic and overseas market).



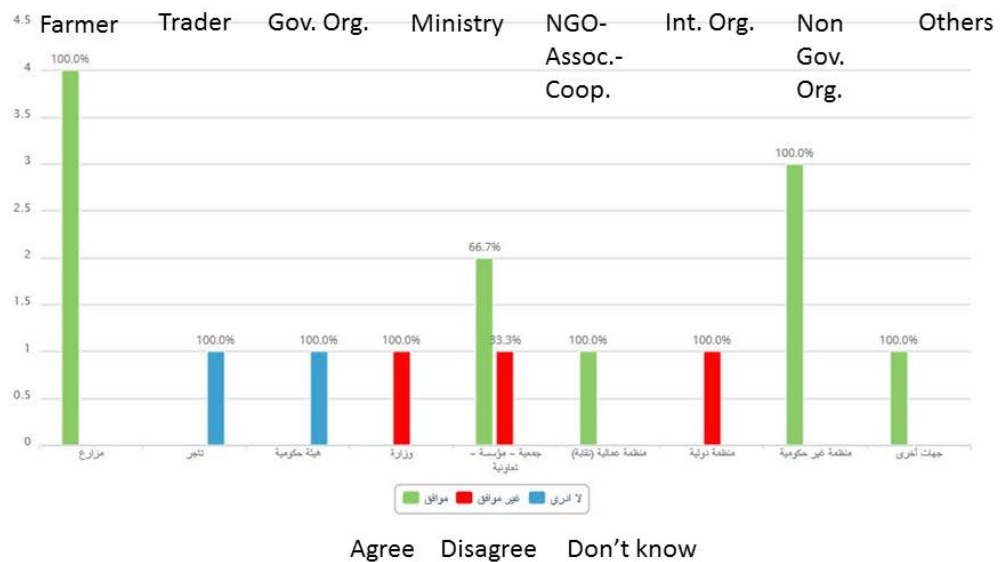
12. Inaccuracy of agricultural information provided via text messages to the farmer and not offered on a regular basis



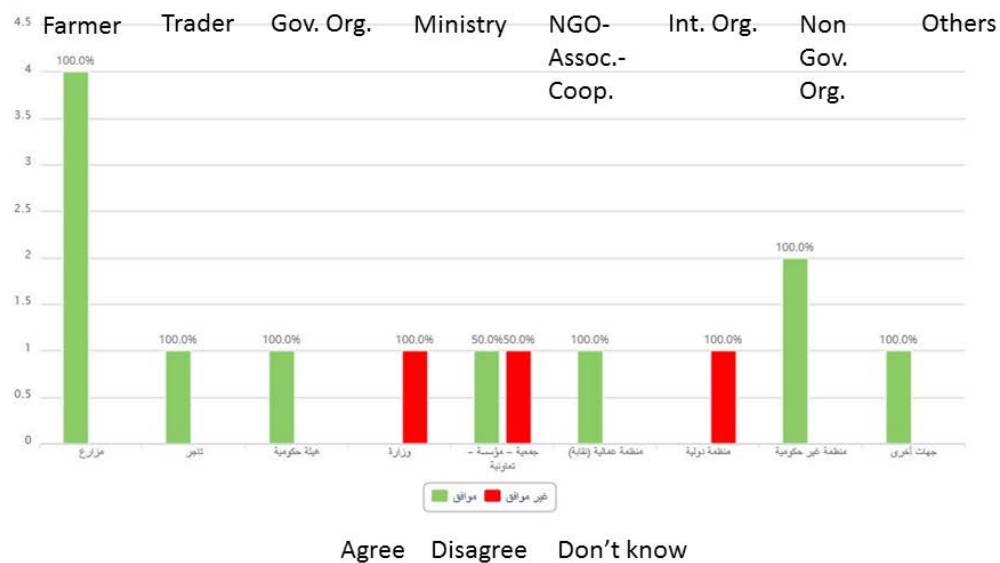
13. Lack of experience in export and shipping procedures to Europe



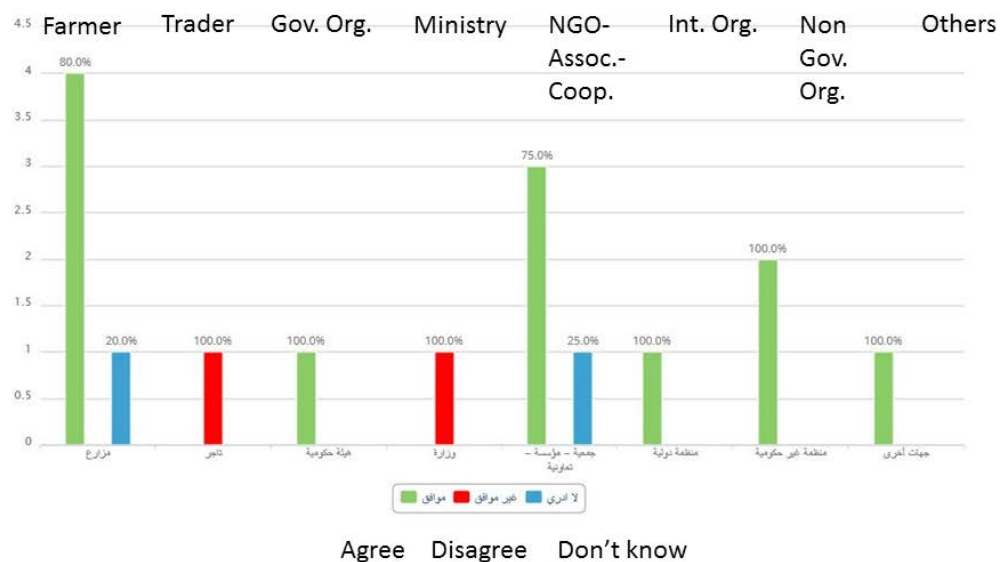
14. Lack of coordination between projects funded by foreign and Arab countries



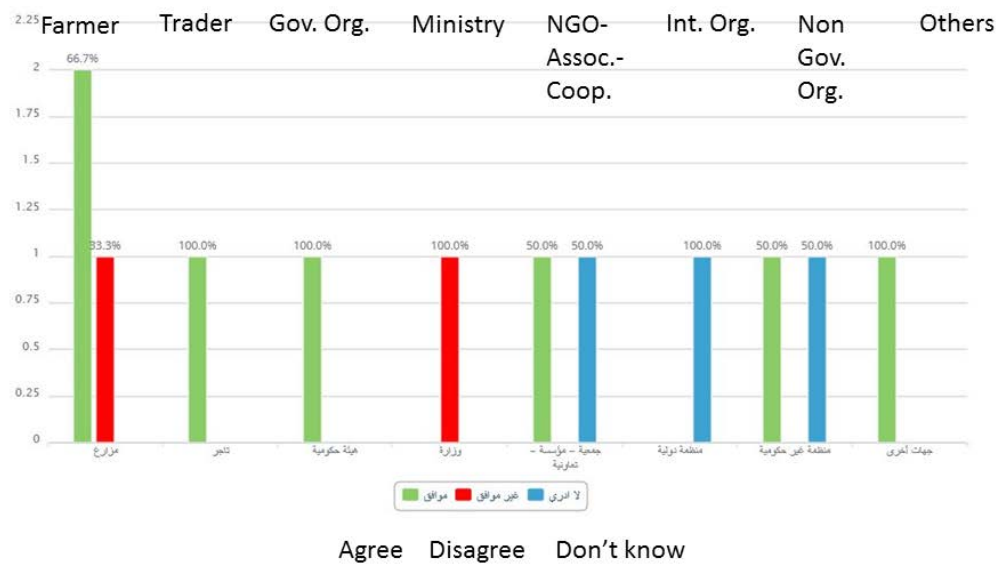
15. Lack of coordination among stakeholders



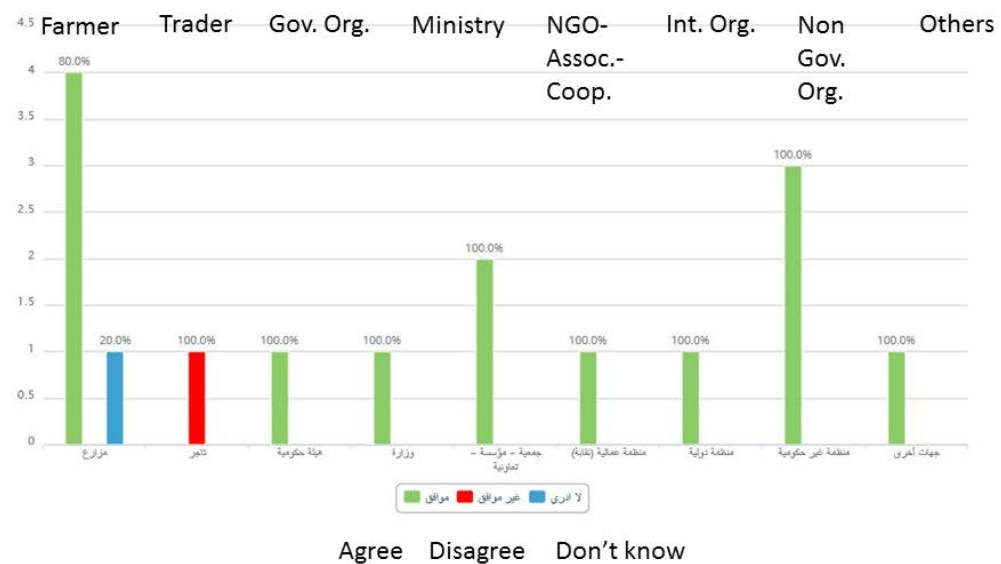
16. Lack of follow-up on the correct application of agricultural information provided during training sessions



17. The large number of small-scale cultivated lands

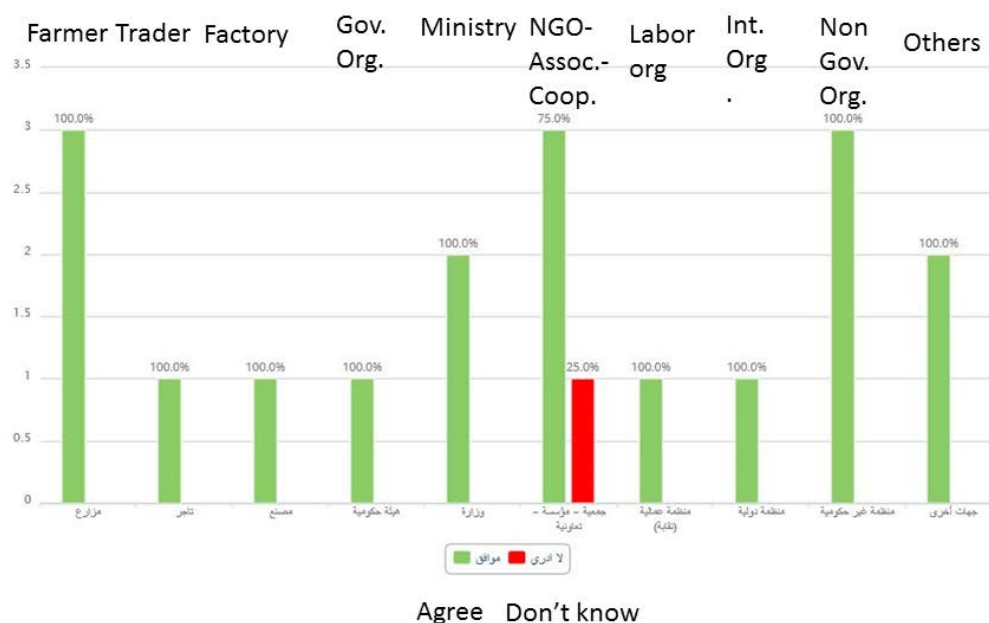


18. lack of appropriate machines to clean potato tubers from soil residue

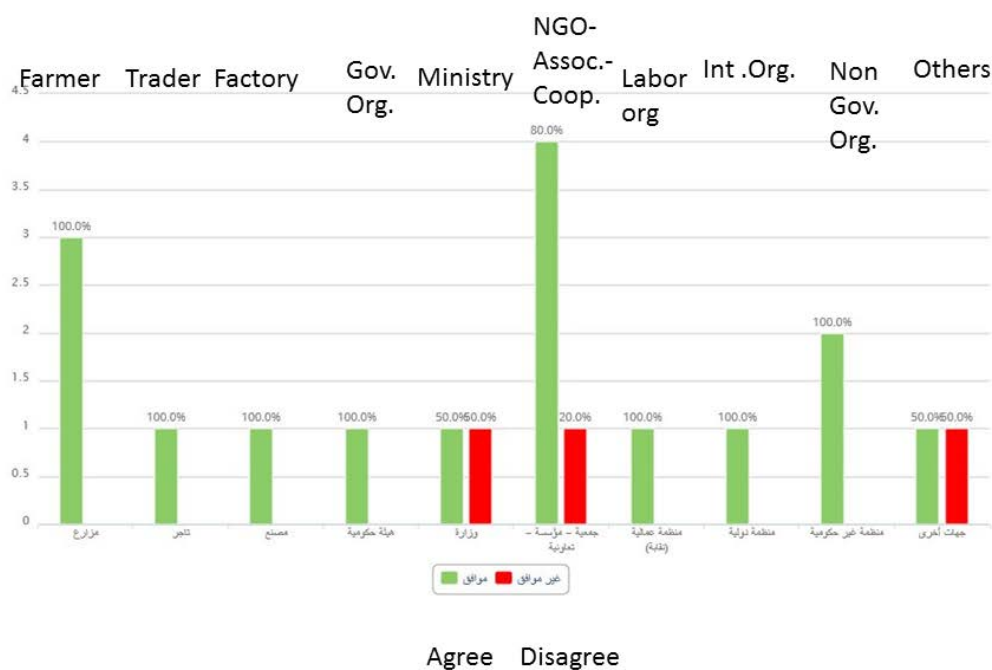


Leafy green vegetables value chain

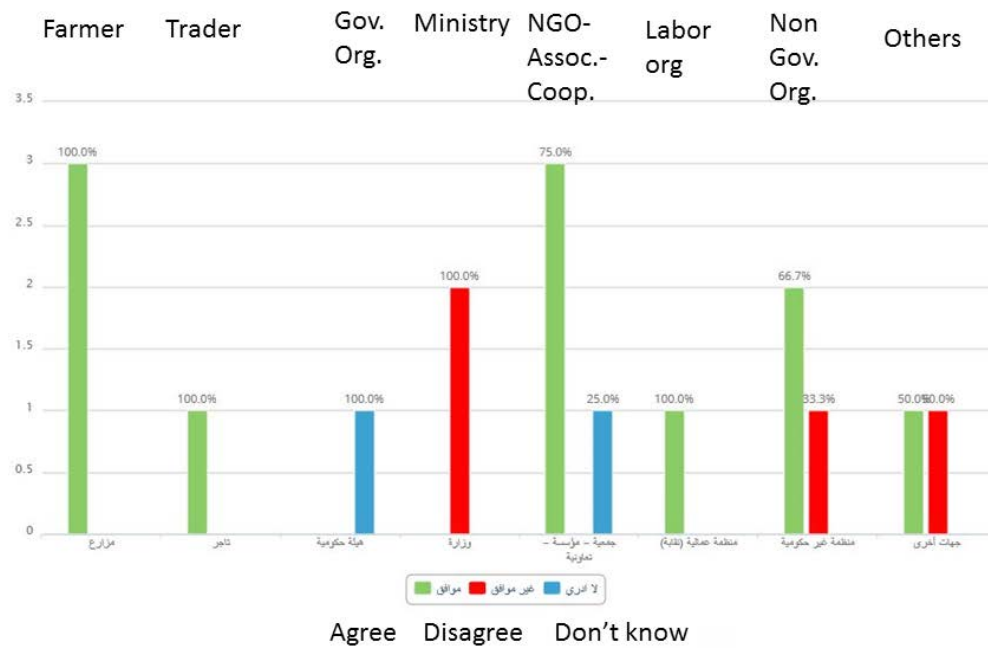
1. Very short shelf life



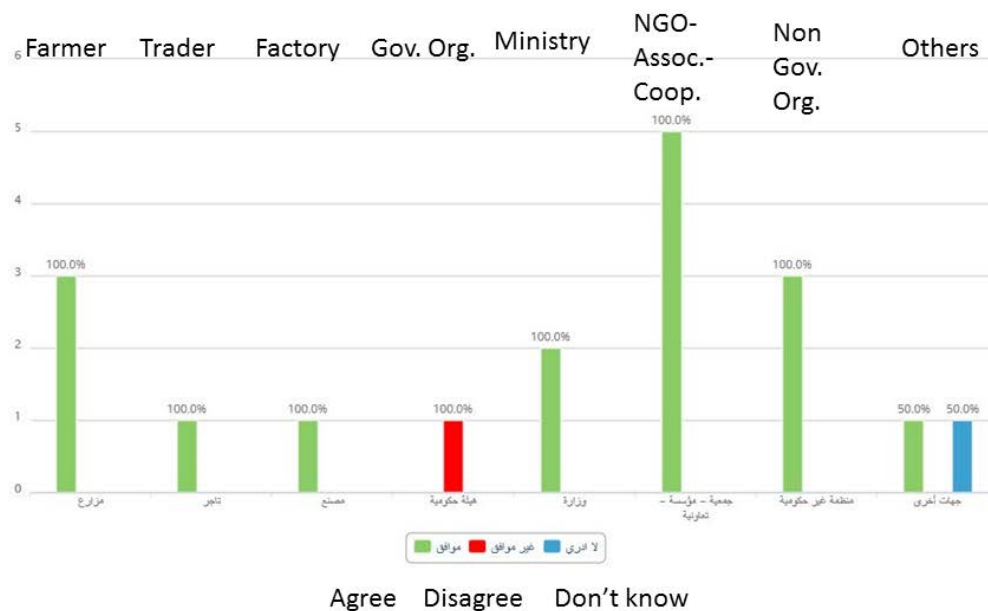
2. Limited availability of drying machines and focus on certain crops



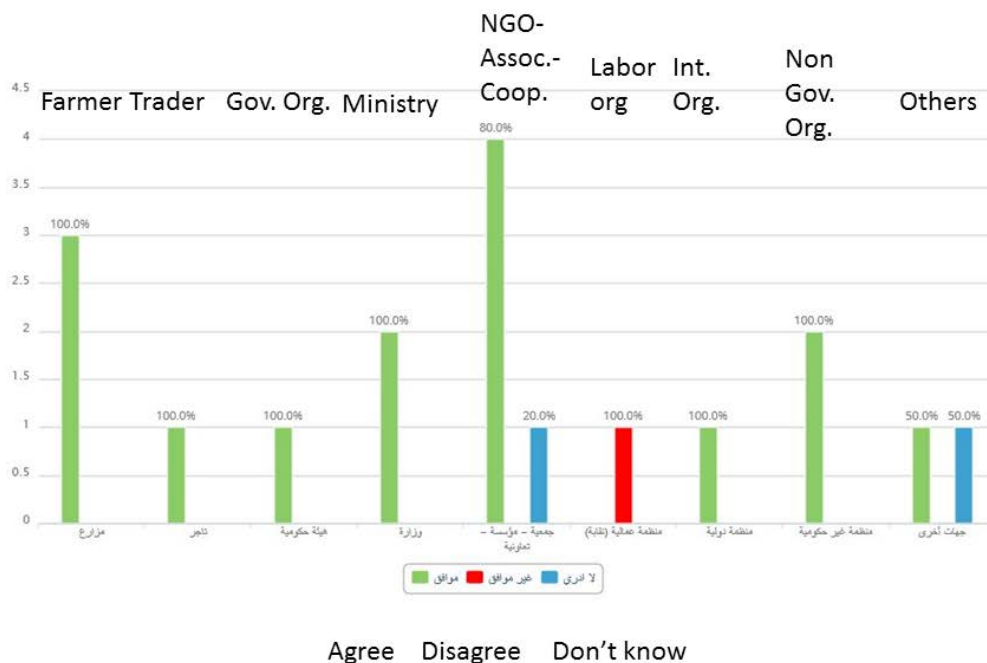
3. Difficulties of introducing new technologies in the sector (e.g. agriculture outside the soil)



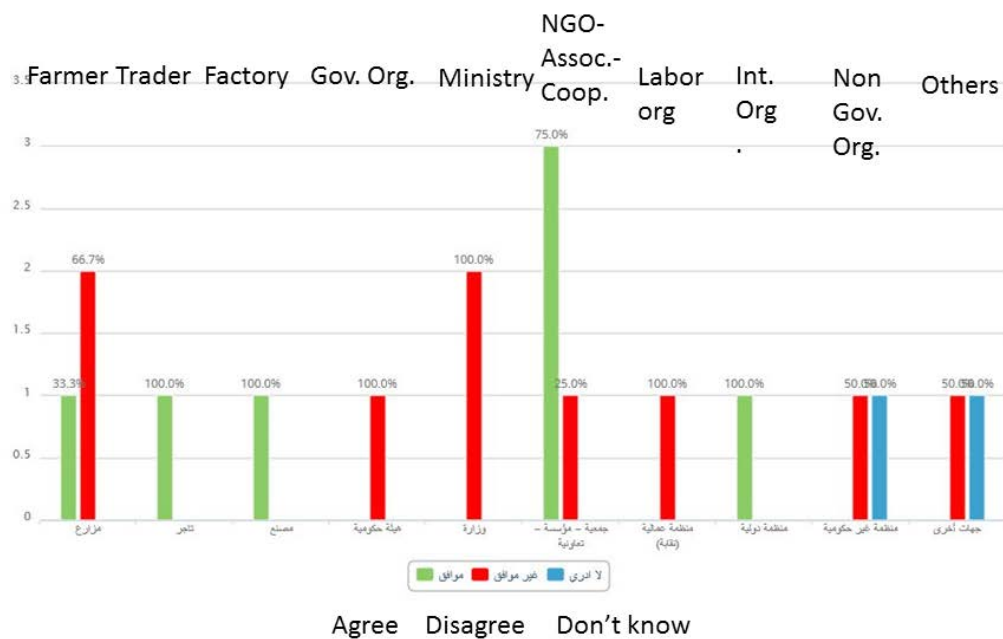
4. Difficulties of selling the crops in some instance



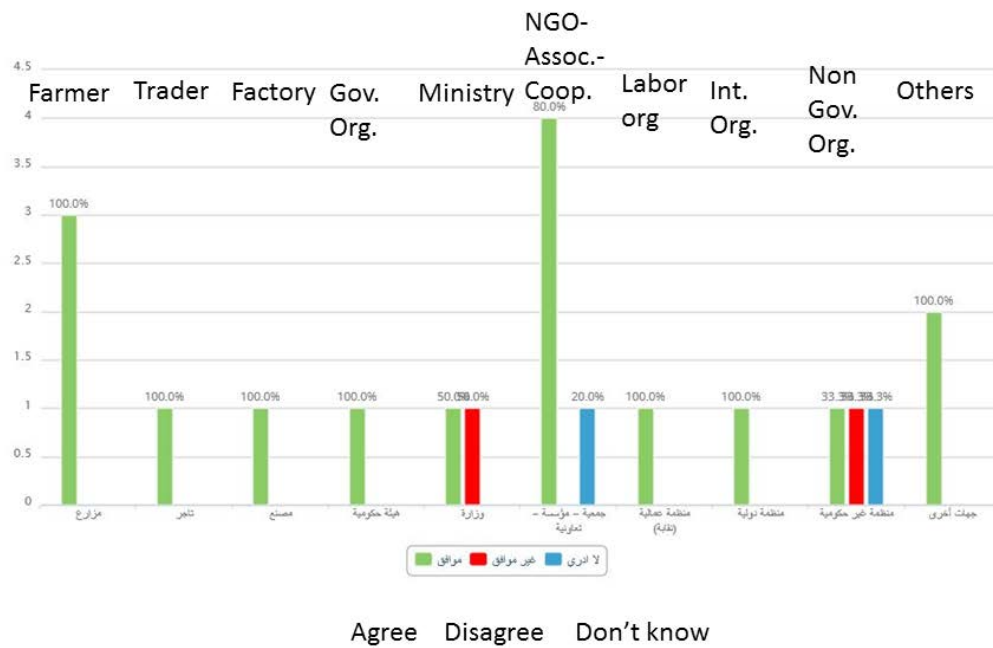
5. Depression / low prices in some instance



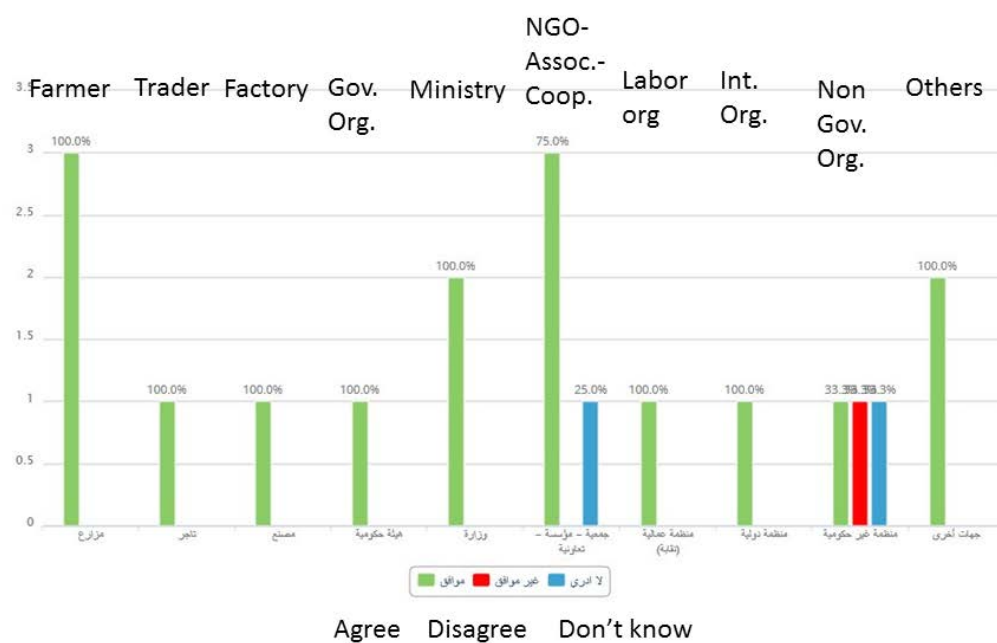
6. Non-availability of seeds and seedlings within the appropriate times



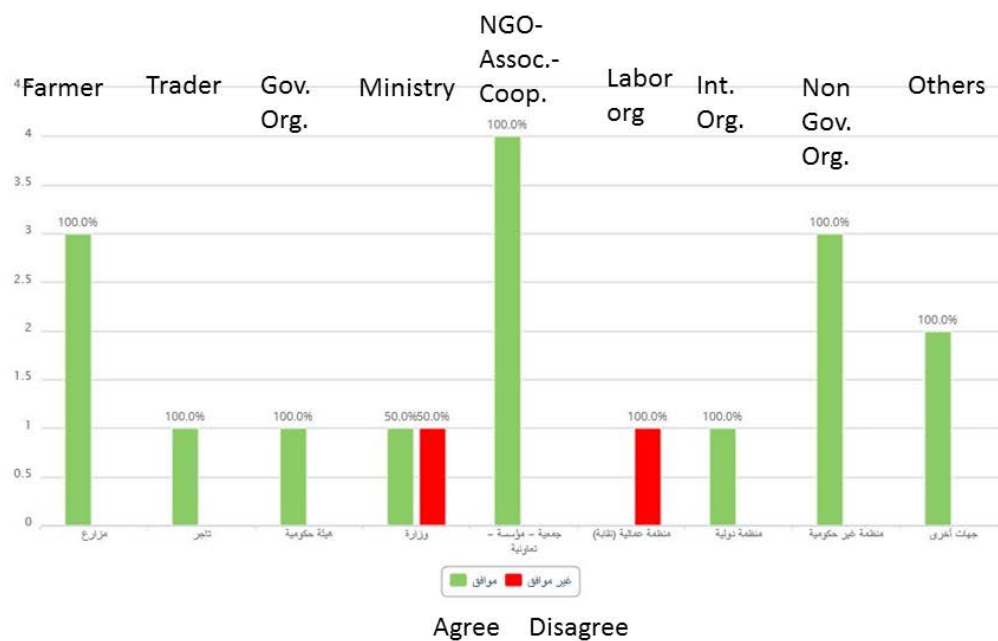
7. Unavailability of places allocated to the cooling at the airport and some local markets



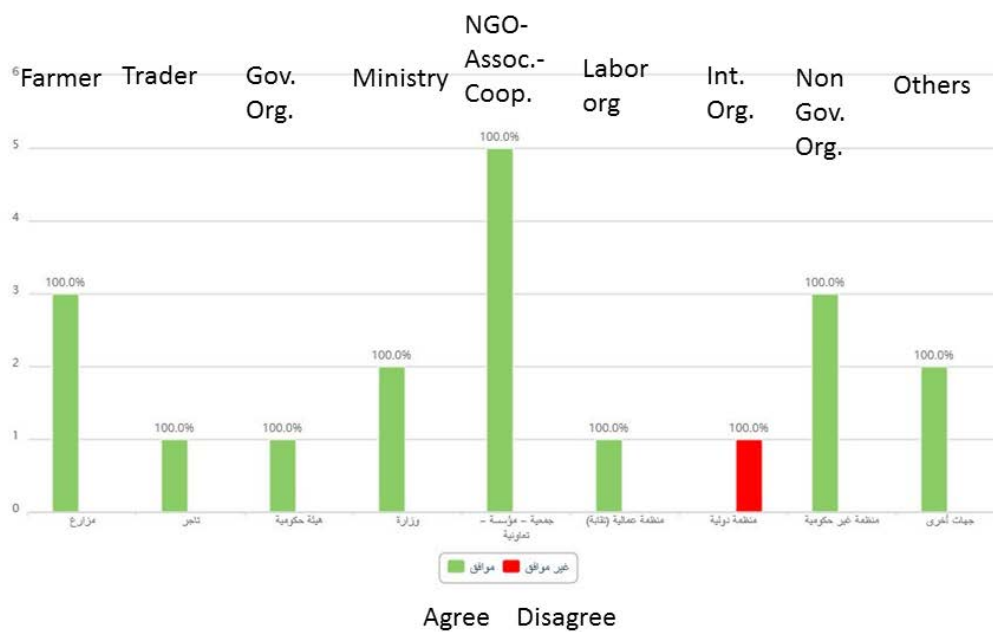
8. Improper use by farmers of medicines and fertilizers within the proposed standards and guidelines



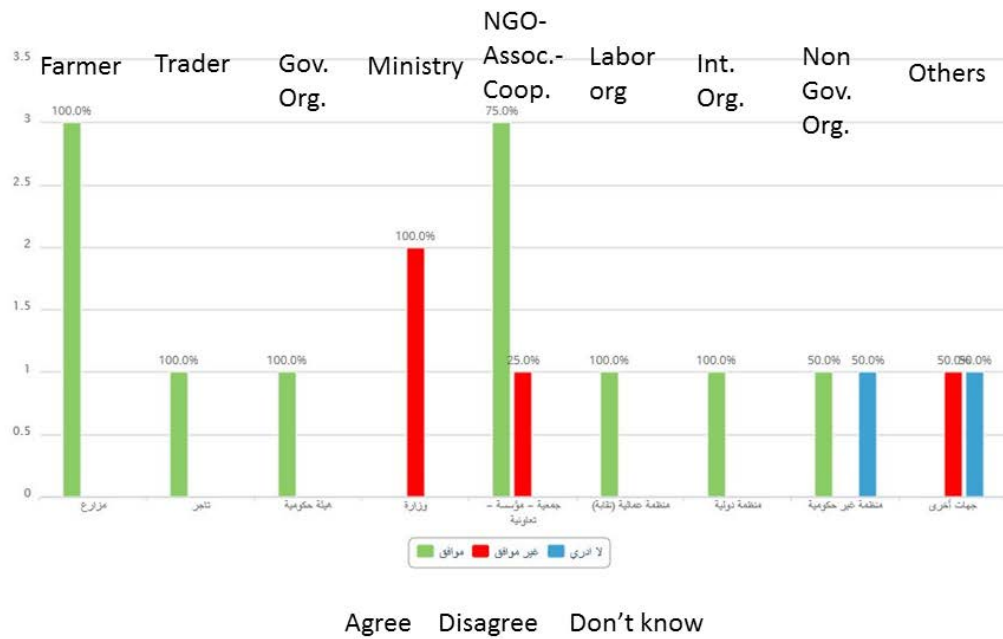
9. Pollution of irrigation water by wastewater



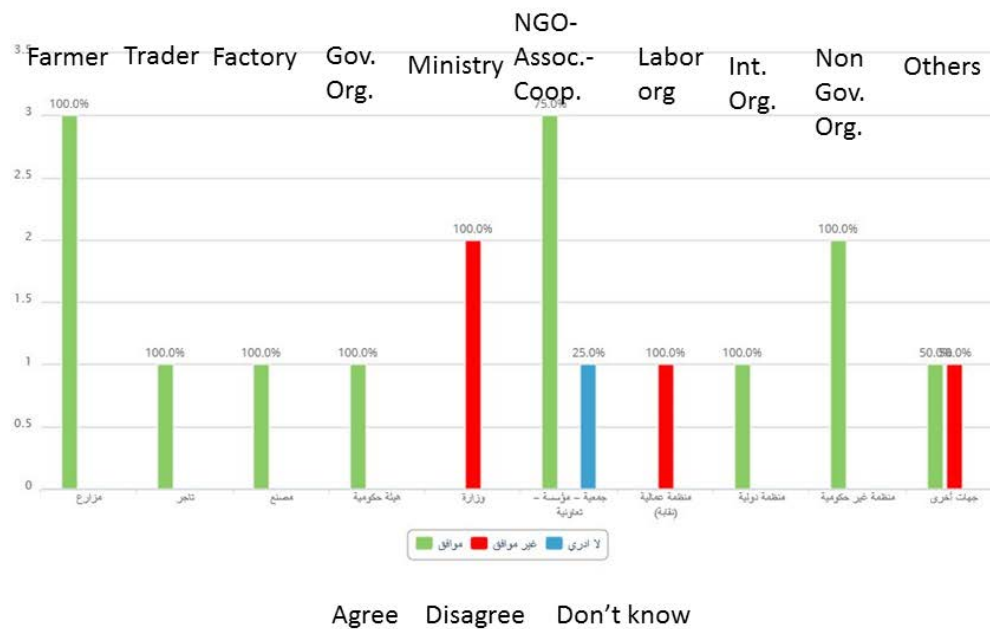
10. Weak role of cooperatives



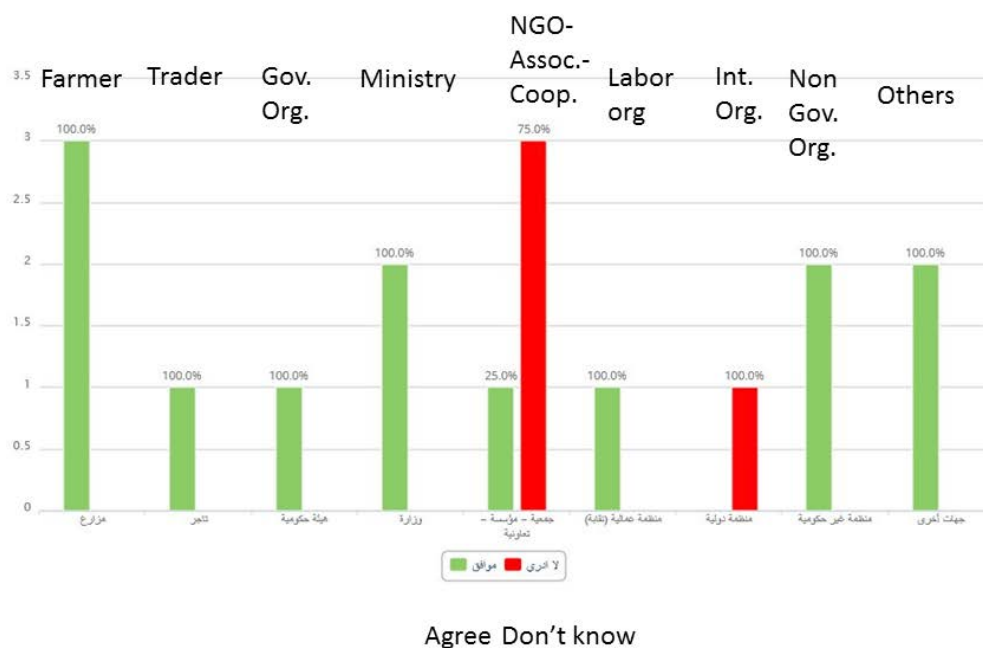
11. lack of experience in export and shipping procedures



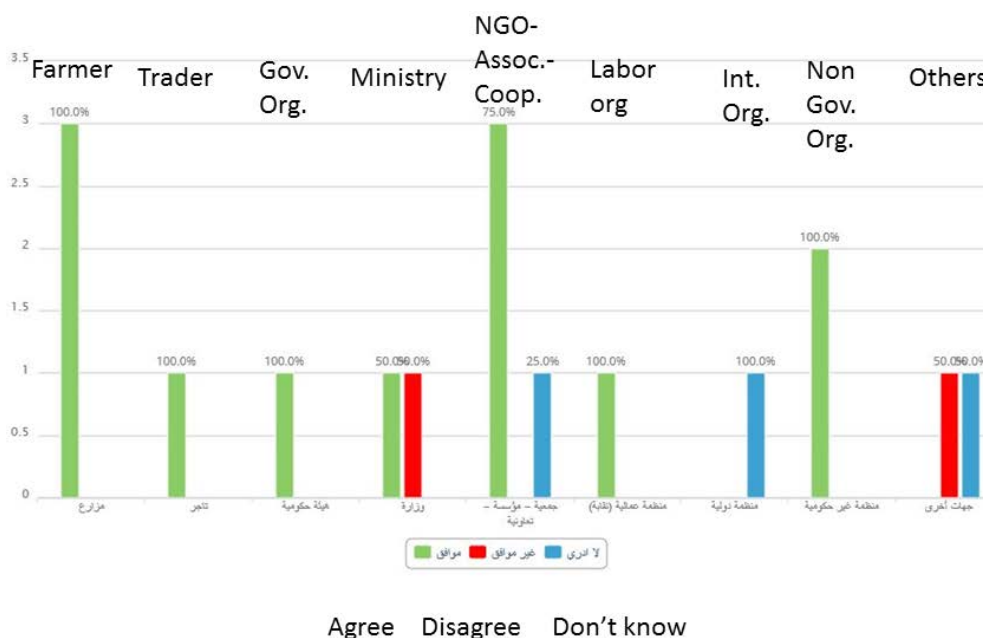
12. Unfamiliarity with the minimum standards for the quality of the product and packaging for export



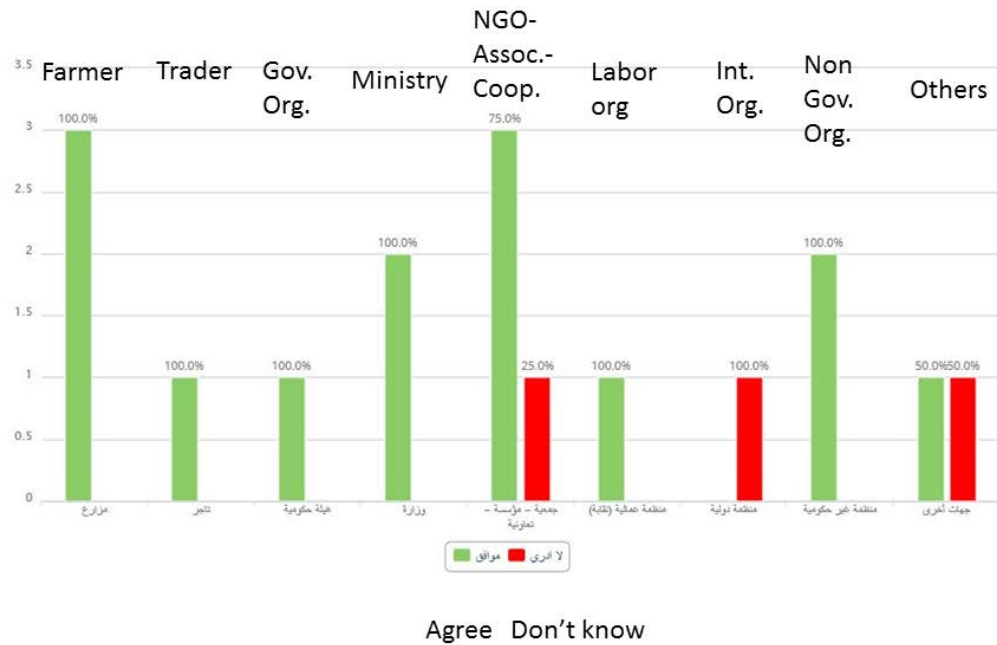
13. Lack of planning or organization, according to market needs or periods of Agriculture



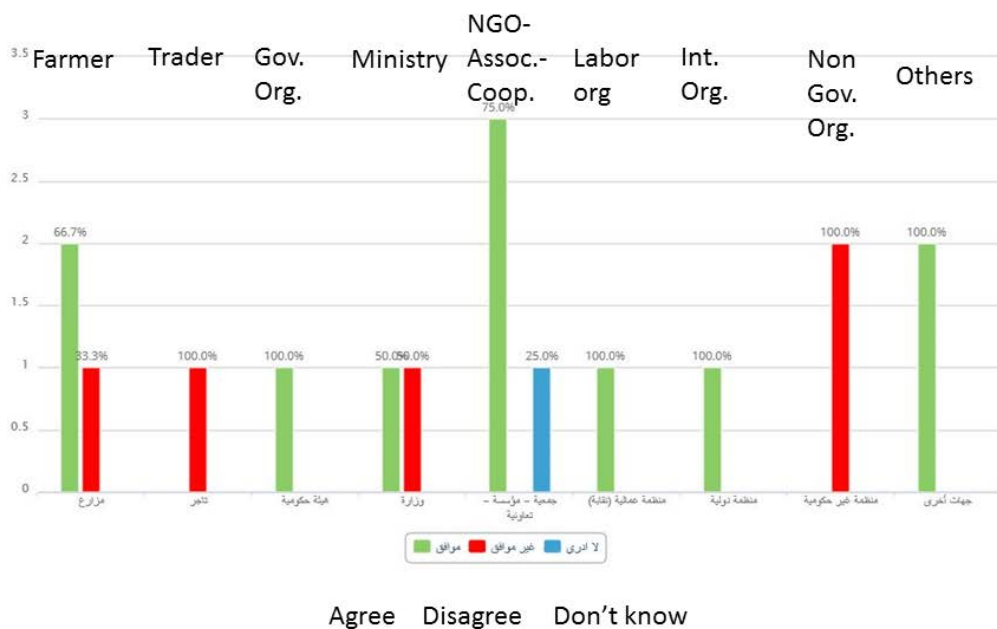
14. Lack of familiarity with the farmer for some new varieties and in demand



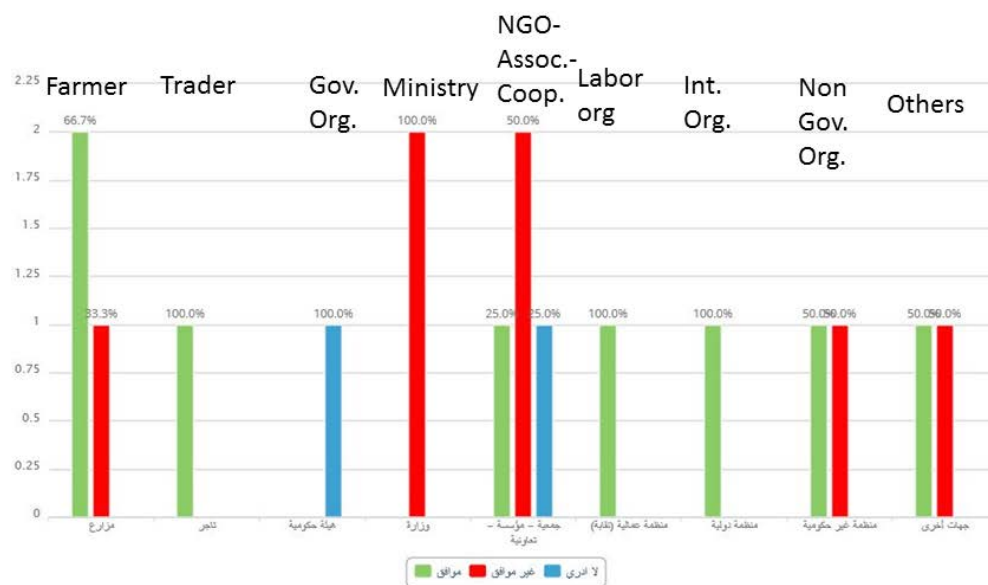
15. High cost of production



16. Low wages for agricultural worker and unequal pay and working conditions between women and men



17. Prevalence of child labor



Agree Disagree Don't know

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