

# Options to Develop Organic Agriculture in Lebanon<sup>1</sup>

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Jel classification: Q130, Q 180

## 1. Introduction

Despite being a very small country, Lebanon has a diverse agricultural production due to its varied topography and diverse climatic conditions across its land.

Most of Lebanese farmers (72%) run very small farms, with less than 1 hectare (Ministry of Agriculture/FAO Agricultural Census Project, 1998-1999) occupying 20% of the total agricultural land, while 2% of holdings are larger than 10 hectares covering about 34% of the total agricultural land (Central Bank 1997-2001 in: Hamzé and Abul-Khoudoud, 2001). This distribution reveals an exclusive concentration of power and control of the minority when considering agricultural land ownership (Haddad, A., and Hamzé, M., 2000).

The current economic situation in Lebanon is neither encouraging for inhabitants nor for foreign investments especially in the field of agriculture. In fact agriculture in Lebanon suffers from different problems that opposed its development, namely: the relatively high production cost compared to neighbouring countries; the use of primary and rudimentary means of production with low ef-

## Abstract

The Lebanese agricultural sector faces many problems that limit its growth and development. Organic agriculture aims at developing self-reliant and environment-friendly farming systems. Therefore it can be considered an alternative to the current degraded agricultural systems. In Lebanon, organic agriculture is still in its initial phases and no studies have been undertaken to describe its status or its potential. This study is based upon a survey conducted in Lebanon during March and April 2002 covering different groups involved in organic farming. The identification of strengths, weaknesses of the organic sector and the requirements for its development allow to propose solutions for its development over the short, medium and long-term. Results of this survey showed that, while public institutions were neither interested nor equipped to promote organic agriculture, a number of pioneer farmers and a few non-governmental organizations have taken leading steps in this domain. However, the lack of standards coupled with national consumers' readiness to pay premiums for what is perceived as healthy food, suggest that within the short time frame capacity-building for organic agriculture should target local markets.

## Résumé

*Le secteur agricole Libanais est confronté à plusieurs problèmes qui entravent son développement. L'agriculture biologique vise à mettre au point des systèmes agricoles autosuffisants et durables et peut être considérée comme une solution aux problèmes agricoles. Au Liban, l'agriculture biologique est à ces débuts et jusqu'à présent aucune étude n'a été menée au plein champ pour décrire l'état du secteur et son développement potentiel. Cette étude se base sur une enquête menée au Liban pendant les mois de mars à avril 2002 concernant les différents groupes d'intérêt impliqués dans ce secteur. L'identification des conditions requises, des forces et des faiblesses de la filière biologique, a permis de proposer des options pour le développement du secteur à court, moyen et long terme. Les résultats ont mis en évidence que les institutions publiques n'étaient pas équipées pour promouvoir l'agriculture biologique alors qu'un groupe d'exploitants et quelques organisations non gouvernementales étaient déjà actifs dans ce secteur. L'absence d'un règlement en la matière, tout comme l'enthousiasme des consommateurs à l'égard des produits, imposent le développement des compétences en visant principalement les marchés locaux.*

iciency by poor farmers; the insufficient income for rural producers and their migration to cities; the absence of extension services; the pollution of underground water (UNESCO/FAO/UNIDO, 1997; World Bank, 1996); the unorganized commercialization on the internal and external market (FAO: World Food Summit, 1996); and the financial incapacity of the government to budget support this sector since the end of the war (ESCWA, 1999).

Because of these problems, organic agriculture could potentially be a viable alternative (Kenny, 2002) to the current agricultural situation, especially in the initiative phase for some horticultural varieties of high added value (new varieties, better shape, better package), medicinal plants and olive.

The Lebanese people are known to be a trendy-high quality consumers (Estéphan, 2001). However, over the past decade, they have started to pay closer attention to the quality of food and water they consume and to the effect of pollution on public health.

Organic farming in Lebanon started initially in response to the demand of the local market. However, national regulation and official standards of production are still inexistent (need the government approval). Although the overall surface of organic farms in Lebanon has not been defined, the total organically cultivated area (by the time of this survey) did not exceed 200 hectares and 100 hectares in con-

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version out of the 248,000 hectares of cultivated agricultural land. The main organic products in Lebanon include: olives, olive oil, tomatoes, salads, apricots, avocado, annona squamosa, mango, cereals, legumes, melon, watermelon, grapevine and almonds (Estephan, 2001).

The development of organic farming in Lebanon has been hampered by many factors including the economic crisis, the lack of investments in the agricultural sector, the lack of the agricultural know-how and information, and the absence of organic farming regulation.

Nevertheless, many potential characteristics could encourage the growth of organic farming in Lebanon such as: the optimal climatic conditions of the country to grow diverse crops, the well-developed agro-industrial sector that is able to utilize some of the production, the accessibility of information to agricultural engineers and the possibility of importing the necessary techniques for organic production. Fortunately, knowledge transfer to interested local engineers and farmers is in existence under the umbrella of Non Governmental Organizations (NGOs), or other institutes or associations working with expert foreign organizations in organic farming.

As such organic agriculture appears to potentially provide a viable and interesting alternative to the several agricultural problems in Lebanon. It could present a new means not only to produce high quality products and eventually to collect premium prices, but also to preserve the ecological equilibrium between soil, plants, animals and the natural resources.

This report presents the results of a study that evaluated the status and conditions of the organic sector and the organic community in Lebanon. It also reports the perceptions, attitudes, knowledge, activities, and potential commitment of people involved in organic agriculture in Lebanon. Results of this report will help to propose options for strategic framework for the development of organic agriculture in Lebanon in accordance to advanced and internationally recognized norms over different time frames.

## **2. Surveying Organic Agriculture in Lebanon**

### **2.1. Research strategy and tools**

This survey has descriptive and exploratory purposes (Colin, 1993) that were chosen as research strategies. The descriptive part sought to find the accurate profile of people involved in organic farming (farmers, producers, consumers, shop owners, researchers and universities, NGO), events and facts related to the organic sector, and to make an extensive and accurate knowledge collection of the situation.

The exploratory part explored the status of the organic community in Lebanon.

Questionnaires were developed in order to collect information in the field from individuals belonging to different interest groups.

These questionnaires included two types of questions: closed and guided questions for specific knowledge collection, and open-ended questions for exploratory purposes and to further collect information on options not previously foreseen. This survey sought to answer mainly the following questions: who are the people involved in the organic sector in Lebanon? Why are they applying organic agriculture? How are they dealing with problems and difficulties? What are they doing to develop the organic sector? Where do they act or interfere? How much do they know about organic farming?

The questionnaires allowed establishing the relationships between the different groups of interest and assessing the commitment of each individual within the broader organic farming sector.

Lebanese organic farmers were my first group of interest, to detect their knowledge and involvement in the organic farming sector and taking into consideration their different agricultural practices and their different production. Conventional producers are also concerned to define their potential to convert to organic and the consumers to identify their habits through the organic shops' holders and by their own statements. The involvement of the private and institutional establishments and organizations in the organic field was also investigated.

### **2.2. Questionnaires**

Questionnaires used were constructed based mainly on different surveys conducted on organic agriculture in different countries (Santucci, 2001; Nucifora and Peri, 2001; Kalogianni, Klavdianou and Tsakiridou, 1999; Fotopoulos, Chryssoschoidis and Pantzios, 1999; FAO, 2001; Antonelli, A., Fersino, V., Scardigno, A., 2001; Fersino, V., Pugliese, P., Scardigno, A., 2001), and on literature review of the evolution of the organic sector and its demands (Willer, H., 2001; Haest, C., 2001).

All questionnaires have a common first part formed of six questions to define the personal status of the stakeholder interviewed and an end part about perspectives.

The questionnaire delivered to organic farmers is composed of 61 questions, divided in six sections: farmer status, farm characteristics, household characteristics, knowledge about organic farming system, on-farm practices and perspectives, and expectations of the farmer.

The questionnaire delivered to conventional farmers is composed of 54 questions. Sections are divided similar to the organic farmers' questionnaire, but in a conventional context.

The 39 questions addressed to consumers intend to determine the consumer profile, knowledge about organic food products, reasons to consume organic, demands and preferences, and consumption habits such as frequency of consumption, quantity consumed, type of products purchased.

The questionnaire of shop owners and/or retailers is formed of 27 questions distributed in three sections. The first

section is designed to determine the shop general characteristics (type of products available, when it started to have organic products). The second section particularly focuses on the market channels and suppliers (farmers or/and traders), the most and best-sold organic items, price differences between conventional and organic and between organic and natural products, and the import/export trade of organic food. The third section addresses the consumer's profile seen by the retailer in order to cross-reference the answers.

The questionnaire addressed to the different institutions about organic farming varies in its structure. Most of the questions are open-ended with the exception of those assigned to determine the personal profile of the interviewee who spoke in his/her personal capacities. The second section of the questionnaire intends to investigate the interviewee's knowledge of organic agriculture in Lebanon, the commitment foreseen and the role that may play this new agricultural system in the Lebanese agricultural sector. The third section is about the actions taken or to be taken by the institution to which each interviewee adheres.

### 2.3. Fieldwork phase

The identification of stakeholders involved in the organic sector was assured by the Mediterranean Organic Agriculture Network (MOAN) and the workshop at the National Centre for Scientific Research (NCSR) in Beirut.

The survey began by contacting the Ministry of the Environment (MoE), the Ministry of Agriculture (MoA), the NGOs and universities in Lebanon. Individual, in depth face-to-face interviews were carried out, with the interviewer clarifying questions and encouraging participation and involvement.

According to experts and NGOs, the total number of organic farmers in Lebanon is 30 and the total organically cultivated area is 200 ha by the time of the survey. This study covered 50% of the farms (15), and 65% of the organically cultivated area (130 ha), depending on their availability during the on-field data collection.

The 10 conventional farmers interviewed were chosen from different regions with diverse and different farm characteristics.

Seven shops that are considered leaders in organic products business in Beirut and its suburbs were visited, and 17 of their consumers were randomly interviewed.

Due to the political incidents that occurred in the region at the time of data collection (March-April 2002), the normal displacements were hampered, which made it impossible to cover all the regions first chosen. Moreover, the absence of any mandate to speak with institutions limited the interviews.

## 3. Results and Analysis

Responses of closed oriented questions are classified according to the possibilities suggested. For open questions, only more frequent answers are mentioned.

### 3.1. Organic Farmers

Results of our survey show that organic farmers are spread over different regions of Lebanon. They are distributed from the North (Tall Aabas) to the South (Sarafand), and from the coastal zone on the West (Batroun, Dammour) towards the Syrian frontiers on the East (Aarsal and Hasbaya).

Farms are rather dispersed from each other and have different agricultural conditions and characteristics, leading to a wide scope of production and crop varieties. Farmers grow various crops (legumes, tomatoes, fruit trees, cereals...) in their fields, do not have a specific record book and just have a rough estimate of the surface area for each crop.

Results also show that organic farmers constitute a precious human resource to develop the organic sector in a scientific and organized way. The relevant characteristics are their high education level (High school and university graduates), their environmental concern, and their relatively young age (ranging between 25 and 45 years). This demonstrates an interest of the educated young people in and their awareness about organic farming. Although farming is not their main source of living and they generally farm small surfaces, farmers conduct their own experiments and participate directly and closely in the farm work. Lebanese organic farmers at this phase of the organic farming expansion showed significant interest by investing their own efforts to develop the organic farming sector. They are designing and undertaking their own trials and tests on field to find out what could better fit the local conditions.

Moreover, their concern about the environment protection led organic farmers to make research and contacts with experts in organic management to collect more information. They mainly cooperate and collaborate with local NGOs dealing with organic agriculture to share knowledge, get advice and keep contact with the other operators of the sector (Table 1).

Despite the limited Lebanese market and its high prices, these were not major concerns for Lebanese farmers to "go organic". This is a feature that could boost their farming developing potential and production activities. However, the aim to secure the future of the farm, the environmental concerns and the view of organic farming as a means to cut costs are much more considered than the incentive to sell for a premium. These motivations and priorities were earlier adopted in Europe as well.

The feature of young and educated organic farmers leading the organic production also reminds us of the history of organic farming emergency and development in Europe and the United States where pioneers and first adopters were educated and aware of the impact induced by the so-called "modern agriculture".

Another problem concerning farm practices that Lebanese organic farmers are facing is the difficult access to organic inputs. Organic inputs cannot be easily found



Table 1. *Source of knowledge, motivations and perspectives of organic farmers*

Variables Farmer	Sources of knowledge about organic agriculture					Motivations to convert					Follow-up			Perspectives		
	Personal research	Out of country	Private project	Media	Other farmers	Environment	Family health	Less external inputs	New market	NGO	Private project	Personal research	On-farm processing	New crops	Farm tourism	Expand farm
Farmer 1	X			X			X	X	X		X	X	X			X
Farmer 2	X			X		X			X	X	X	X	X			X
Farmer 3	X			X		X	X	X	X		X		X			X
Farmer 4	X	X		X		X			X	X			X	X		X
Farmer 5	X					X	X	X	X			X	X	X		
Farmer 6	X					X	X	X			X	X	X		X	
Farmer 7	X					X	X	X		X		X	X			
Farmer 8		X				X	X	X		X		X	X			
Farmer 9	X					X	X				X	X	X			
Farmer 10	X	X		X		X	X			X		X	X			
Farmer 11	X	X				X	X				X					X
Farmer 12	X					X				X		X	X	X		X
Farmer 13			X			X	X		X		X	X	X			X
Farmer 14			X		X		X				X		X			X
Farmer 15			X		X	X					X		X			X
Total no. of responses	11	4	3	5	2	13	11	6	6	5	3	7	11	14	2	9
% / total cases	73	27	20	33	13	87	73	40	40	33	20	47	73	93	13	60
Most observed features	Personal research					Environmental concern				Personal research, NGOs			Introduction of new crops			

and can be costly when directly purchased by farmers. This problem forced organic farmers to momentarily use the non-organic manure for composting and manuring.

Additionally, the absence of local standards, official logo for the recognition of the products, and publicity hamper the market development and restrict the consumers' awareness of the Lebanese organic products quality and availability. Concerns about marketing that were expressed by organic farmers are justifiable and constitute a problem that could be partially resolved by the establishment of a regulation and certification for Lebanese organic products.

Finally, all farmers pointed out the lack of public sector support. However, farmers do not seem to expect much from the public sector considering the current political orientation for the rehabilitation of the country infrastructure and the lack of interest in the agricultural sector.

### 3.2. Conventional farmers

Conventional farmers interviewed are located in different regions of Lebanon and have different agricultural characteristics and production rates. Results showed that Lebanese conventional farmers could be divided into two major groups to be treated separately even though they have some common characteristics and problems.

The first group of conventional farmers includes producers with high external input agriculture system (HEIA). Those farmers manage an agricultural system that is highly dependent on external inputs and they have an intensive monoculture of vegetables or fruit trees. They consider organic farming practices as undeveloped with unwarranted yields. Such producers look after the quantity of production and the characteristics required by the market and the local traders. They are the exclusive suppliers of the local

market of fresh products in all seasons. As such, this category of farmers could not be considered for the moment as a potential for the development of the Lebanese organic sector. These conventional farmers are accustomed to continuous high yields and are not aware of the pollution they are causing by the huge amount of chemicals applied. They are also unaware of the harmful consequences of monoculture. Although they mentioned the pests resistance on chemicals and their fear of disease attack and its rapid propagation, they did not however relate it to the fact that monoculture is more susceptible to contamination and propagation of both pests and diseases that are also able to develop resistance to the frequently used pesticides.

The second group of farmers is made of producers working within low external inputs agriculture system (LEIA). They are from the poorest Lebanese villages of the north-east and southern Bekaa valley, far from cities where living conditions are harsher compared to other villages. These farmers manage their land with very low external inputs by applying small amount of chemical fertilizers, generally once a year in early spring, and by using copper and sulphur-based products to treat fungal diseases and insects. They all have animal integration, even though they do not all raise animals for production. They raise animals partially or entirely for home consumption of meat, milk and eggs. Animal droppings and green manuring are often applied for the enhancement of fertility of the cultivated areas. In the regions where this group of farmers live, labour is always available and is inexpensive. The weather is generally dry and it rarely rains, but farmers have created an archaic irrigation system or a rain-fed agriculture that is often used.

This group of farmers has indeed no dependence on ex-

Table 2. On-farm agricultural practices in the conventional farms

Practices Farms	Fertilizing			Mechanization		Pest control		Livestock health		Livestock feed		
	Cover crop	Animal manure	Chemical fertilizers	Traditional	Mechanized	Other	Chemical treatment	Vaccination	No vaccination	Grazing	Farm residues	Imported feed
Farm 1		X	X	X	X		X					
Farm 2		X	X	X	X		X					
Farm 3		X	X	X	X	X	X		X	X	X	X
Farm 4		X	X		X	X	X		X	X	X	
Farm 5	X	X	X	X			X		X	X	X	
Farm 6			X		X		X					
Farm 7		X	X	X	X		X					
Farm 8	X	X	X		X	X	X					
Farm 9			X	X	X		X					
Farm 10	X	X	X	X	X		X					
Total no. of responses % / total cases	3	8	10	8	9	3	10	0	3	3	3	1
Most observed features	30	80	100	80	90	30	100	0	30	30	30	10
	Chemical fertilizers			Mechanized		Chemical		No vaccination		Grazing and farm residues		

ternal inputs and constitute in a way an “organic by default” agricultural system. They report not having heard or knowing of organic farming. They could however be considered a potential for organic farming development once they are provided with orientation and guidance; they will thus produce organic without inducing significant changes to their habitual land management.

The general agricultural characteristics and habits that are common to all Lebanese farmers are the general features of the household and farmer status, the on-farm agricultural practices (Table 2) and economics (Table 3). In fact, conventional farmers have an advanced age (ranging between 45 and 65 years and above 65 years), and not much educated (under graduates or primary school level), which limit their personal access to agricultural knowledge and to their on-field experiences. Unfortunately, this has allowed the private agricultural enterprises to orient and control their practices according to their marketing perspectives and interests.

The farmers’ main problems in Lebanon are of economic nature due to the high inputs costs that lead to market competition of neighbouring countries with lower agricultural costs (e.g. Jordan and Syria), and to the absence of on-farm processing. Besides, the absence of the Lebanese government’s protection and help led them to feel helpless and unable to react.

### 3.3. Consumers

Lebanese consumers can be classified as high-class consumers who know how to search for authentic and novel items on the market. Despite the economic hardships, Lebanese consumers still search for product quality.

The sample of consumers interviewed in this survey is heterogeneous and includes different types of consumers. Results of this survey interestingly show that even with the difference of tastes and consuming habits, there are some shared characteristics by consumers that allow us to have an idea about the needs and demands of the Lebanese organic consumer.

Our sample has a high variability and includes diverse consumers’ profiles with distinct consumption habits. Of note, our survey shows that women in Lebanon usually do the shopping for food products for their family. The quasi totality of consumers interviewed live in the cities. Since

Table 3. Conventional farms economics

Variables Farms	Income from farming (10 <sup>3</sup> \$/year)					Income from other household activities		Share of the other household activities			Income from on-farm activities		Labour costs (% of total farm income)			Costs of inputs (% of total farm income)		
	< 2.4	2.4 - 6	6 - 12	12 - 24	> 24	Family	Farmer	10 - 20	20 - 50	> 50	Processing	Farm tourism	< 10	10 - 20	> 20	< 10	10 - 20	> 20
Farm 1				X		X	X	X					X					X
Farm 2				X		X	X	X					X					X
Farm 3					X								X		X			
Farm 4					X	X		X			X		X				X	
Farm 5	X												Not determined					X
Farm 6					X	X		X					X				X	
Farm 7			X										X				X	
Farm 8					X						X		X		X			
Farm 9				X							X		X					X
Farm 10				X									Not determined					
Total no. of responses % / total cases	1	0	1	4	4	4	2	0	4	0	3	0	2	6	0	3	3	4
Most observed features	10	0	10	40	40	40	20	0	40	0	30	0	20	60	0	30	30	40
	High income					Family participation		20% to 50%			No income from on-farm activities		Medium incidence			High incidence		

organic and health shops are located in the cities, people in rural areas tend to generally consume their own production and are unlikely to go to cities to purchase organic products. Commonly, urban people always seem to look for new products on the market and go for healthy ones in order to possibly compensate for their "industrialized way of life in the city".

Interviewees in this survey either had an age range between 45 and 65 years or were younger adults with an age range between 25 to 45 years. Both groups of people had a high education level (university students or university graduates). The middle age consumers are people caring about eating healthy and safely, while the young adults follow their beliefs and consume food according to their ideologies (Figure 1). This is a characteristic to identify the potential consumers status and possible products requested. In fact, young people go much more to new products while old people prefer to generally consume products they have been used to consume throughout their life.

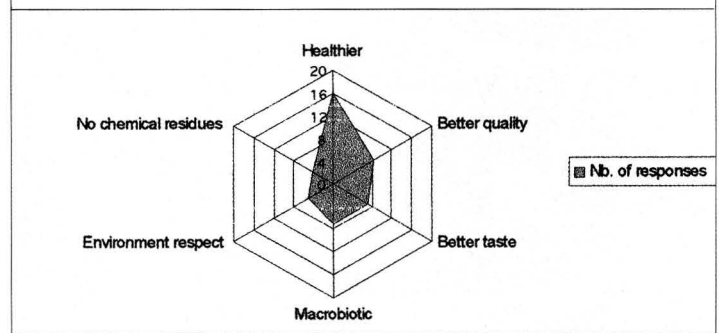
It was noted that organic food consumers are relatively wealthy people (yearly income between 12,000\$ to 24,000\$ and more than 24,000 \$ per year) who are ready to pay up to 20% more to consume regularly organic products. These types of well-to-do consumers have encouraged retailers to develop the organic market with diverse products and incite farmers to develop and expand their work in search to optimise organic production and make it better to meet the needs of the consumer's demands.

Babies' food was not mentioned at all by interviewees. Lebanese parents even though consuming organic products themselves, prefer to prepare their babies food on their own. In case they purchase ready babies food, they go for the products that are recommended by their paediatrician or other trademarks usually found in pharmacies.

In contrast with babies food, all consumers purchase various home-made cookies with added value for special diet or made without any additives or conservatives. They reported that the taste of these products reminds them of the old vigorous days when everything was natural and healthy. This phenomenon of traditional food processing could also be a good opportunity for developing both the organic sector and help in the rural development.

The survey also found that most consumers are not capable to decipher labels of organic products. Instead, they rely on the advice of the shop owner. That is why it is clear to observe that people prefer consuming or purchasing products from specialized shops rather than supermarkets. Another explanation could be drawn from the reason why people prefer to purchase from specialized shop: they see more authenticity in the products and a natural way of buying. It is noteworthy to mention that some consumers of local organic products are conscious of the absence of a guarantee logo and certification, but still do it because they want to encourage the Lebanese farmers who are undertaking this new agriculture management alone (Figure 2).

Fig. 1. Reasons for consuming organic food



### 3.4. Shop owners

Organic shops are relatively small in size and are placed in strategic locations such as the main roads or in big surfaces' assortments. The exact number of organic shops in Lebanon is unknown. At the time of the survey, a few supermarkets had fresh organic products, while macrobiotic products of specific marks are always present on the big surfaces' shelves.

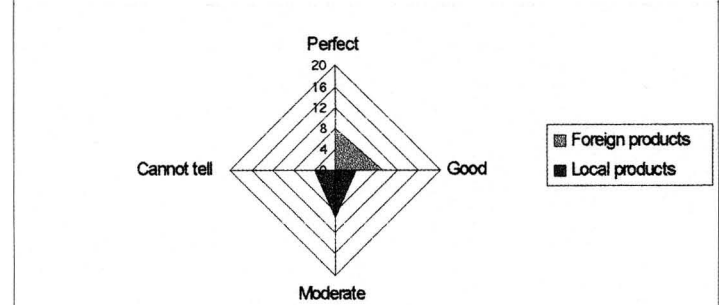
The survey shows that all meat and animal organic products are imported and there is no local production. There is no export of Lebanese organic products, except for some medicinal herbs. Supply of local products is not continuous and varieties are very limited. Fresh horticultural products, cereals, cosmetics and home-made food are the most sold ones, after the herbs and medicinal plants.

50% to 75% of the local market is supplied by products imported from European countries, the United States and cereals from Japan.

Quantitatively organic cereals are the most consumed products, even though shop owners affirm that fresh vegetables and fruits are the best sold ones. This feature is not surprising because fresh products are rare on the Lebanese market so they are sold immediately, while cereals are imported products and are always present on the shelves (Figure 3).

Although regular, conscious and highly educated customers are more common than the occasional ones, an awareness campaign is still needed to introduce people to organic products. In fact, shop owners mentioned that many consumers still confuse between health products and organ-

Fig. 2. Consumers evaluation of local and foreign products



ic ones instead of understanding that organic food is healthy and free from chemical residues, but is not a healing medicine.

### 3.5. Institutions

Seventeen representatives from different institutions were interviewed. Some spoke about the projects or actions taken by their institutions and some others gave their own opinion because within their institutions nothing is done concerning organic agriculture. Results allowed the identification of roles played, involvement of different institutions concerned with the organic movement in Lebanon and their relation between each other.

The Lebanese Ministry of Agriculture (MoA) was not involved directly in the organic sector at the time of the survey. It has plans for agricultural development but they do not include organic farming.

The Ministry of the Environment (MoE) mentioned organic agriculture in some of its projects as one of the suggested solutions for promoting sustainable agriculture and rural development.

The NGOs dealing with organic agriculture are not only specialized in this field. They are either environmental organisations or rural development ones, established and developed after the war aiming mainly to sociological and local resources preservation and development. They included the organic farming as a part of their environmental and development projects.

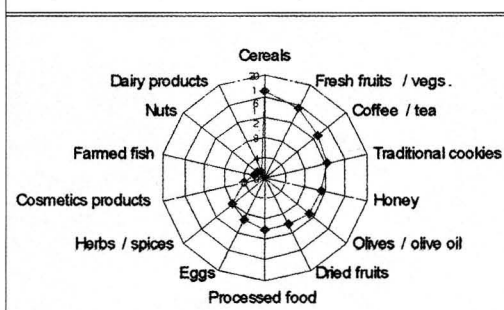
The NGOs dealing with organic farming in Lebanon are "GreenLine", "MECTAT", "World Vision Lebanon" and very recently "Association for Rural Development" (ADR), in addition to the first cooperative of organic producers.

The National Council for Scientific Research (NCSR) is the umbrella public research institution, with the environment as a priority research area. Its effort in the development of the organic farming is notable, but many constraints are slowing the process from which the unqualified human resource in organic farming and the absence of sufficient financing.

The Lebanese Agriculture Research Institute (LARI) is a governmental organisation under agricultural minister provision. It is collaborating with the IAM of Bari and with the NCSR and has started experiments and research on organic production.

LIBNOR is the national body responsible for the establishment and elaboration of law in all fields. It is a body adhering to the Ministry of Trade (MoT) with independent

Fig. 3. Most purchased organic products



management board and projects. It is working together with GreenLine, BioCoop Lubnan, the Ministry of Trade, LARI and WV, to establish a legislation for organic practices and production norms.

Universities in Lebanon do not include organic farming within their academic programs. The American University of Beirut (AUB), Université Saint Joseph (USJ), Université Saint Esprit-Kaslik (USEK) and the Lebanese University (UL) have an agricultural department. Only the AUB has seriously and practically started on-field organic farming projects.

The first Lebanese cooperative for organic farmers, Bio-Coop- Lubnan, was established in June 2001 in Beirut by the common effort and under the request of GreenLine, World Vision Lebanon, LIBNOR, Ministry of Trades and the interested farmers and individuals.

## 4. Options to develop organic agriculture in Lebanon

Results are processed and classified in tables of weaknesses and strengths for each stakeholder. Needs are defined according to opportunities and challenges of each stakeholder concerned.

The analysis in both tables allows the drawing of the different options over time for the development of the Lebanese organic sector based on feasibility, often economic.

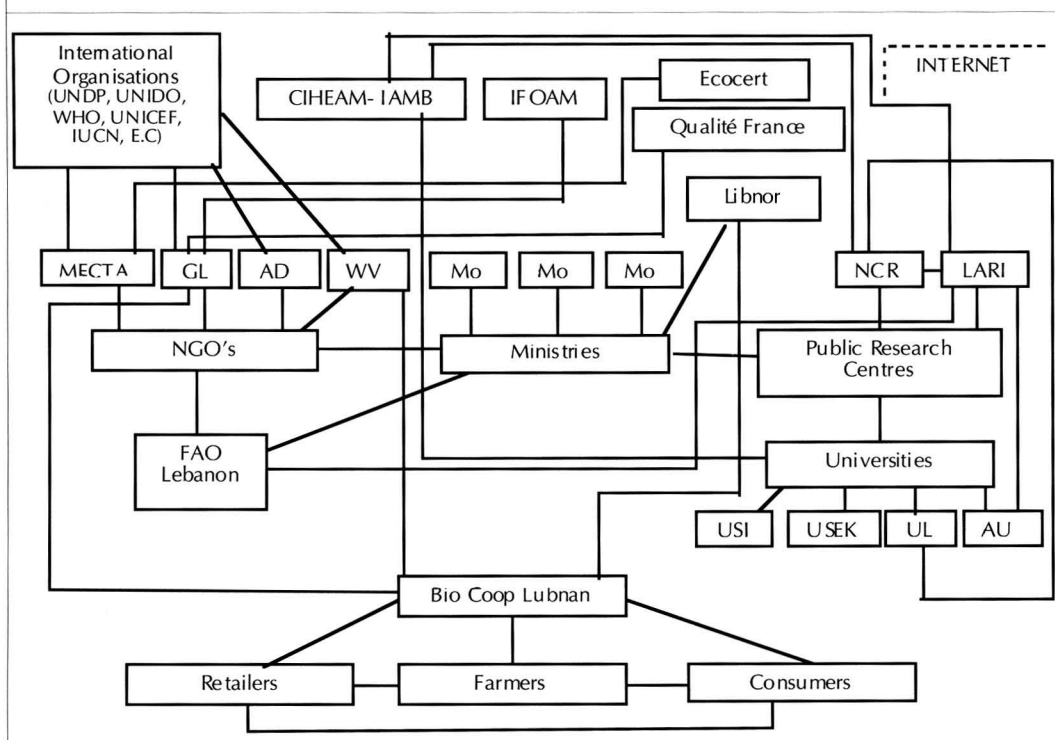
Options are given over the short, medium, and long-terms to develop the organic agriculture in Lebanon.

There is one major factor that distinguishes organic farming from other approaches to sustainable agriculture. Part of this factor is the existence of both legislated and voluntary standards. The other part of this factor is the certification procedures that are implemented in order to define a clear divide between organic and other farming systems. These certification procedures are primarily used for marketing purposes and aim at protecting consumers and producers (Lampkin and Padel, 1994). That is why, within the short time, public policies should be developed to encourage organic agriculture in Lebanon by establishing national standards for organic production and facilitate the dialogue between public and private interest groups. As to the market development, it is preferable to work on local - rather than export - markets. Standards for inspection and certification should be installed with the help of foreign experimented companies. Future research should focus on the local conditions and potentialities. Extension, education and training should start in the present time to be effective and helpful to farmers.

Within the medium term, it is recommended to follow up these initial activities in the different fields to assure the continuous development of the organic sector. Policies should establish an organic compliance system and train extension officers to assist farmers, while production should be scaled up and new market outlets created. The partner-



Fig. 4. Institutional relations in the Lebanese organic community



ship should be consolidated with the foreign certification bodies and local inspectors should be trained. Researchers should work on developing the relations between farmers and the organic scientists and on strengthening the research exchange with other countries. Extension services, education and training should work on orienting farmers and integrating the organic agriculture curricula within the agricultural studies.

Some European countries (Denmark, Finland, Netherlands, Norway, France, Germany and Wales) have developed integrated "Action Plans" to achieve a better policy mix. There is a combination of specific measures that include direct support through the agri-environmental/rural development programmes as well as marketing and processing support (Lamkin et al, 1999). In the long term, organic agriculture could possibly be integrated within the overall agriculture development program in Lebanon, and a plan could be developed with targeted objectives for external market development. Also, the establishment of one or more certification bodies is recommended as well as the development of a unified national organic label. More agricultural studies are still needed and agricultural education and training curricula should be included in the main agriculture teaching and training institutions.

The different options proposed over time are summarized in Table 4.

## 5. Conclusions

The aim of this work was to report the current situation of the Lebanese organic agriculture, to identify activities and interactions of the different interest groups within this sector, to assess the demands, strengths and weaknesses of each of them, and to propose options for the development of the organic agriculture in Lebanon over different time frames.

Results of this survey show that, despite the multiple problems Lebanese organic farmers face, they are dynamic entrepreneurs, environmentally conscious, willing to experiment and innovate, and are building their organic farming system and making their own field experiments.

Although the conventional farmers are totally unaware of what organic agriculture is, they are however highly influenced by private enterprises policies and suffer of high costs of synthetic agricultural inputs. The interest in organic agriculture however, as a new field with less inputs costs was clearly underlined. In addition, the Low External Inputs Systems (LEIA) in some areas offer a potential for conversion to organic agriculture (De Haen, 1999). In fact, properly managed organic agriculture system in LEIA can increase agricultural productivity and restore the natural resources

base (Scialabba, 2000).

Regardless of the consumers' poor information about organic agriculture products and their lack of environmental concern, they show high concerns about farming and its effects on health and they are regular consumers of organic products though willing to pay higher prices in order to eat healthy food.

Nonetheless a large proportion of organic products is still being imported and the local organic products supply is lacking. However, irregular consumers prefer buying local organic food in order to promote national production, especially fresh fruits and vegetables and the specialty of each shop (home-made cookies). A high demand of locally produced organic food is reported and shop owners benefit from a good business from regular and loyal customers, which opens opportunities to develop the local market.

Unfortunately, public institutions and ministries in Lebanon do not have a qualified staff nor funds to broach organic agriculture. However, interest has been shown among managers of the research centers to eventually work on developing, supporting and improving this area. Also, a few local NGOs are working on promoting the organic agriculture in Lebanon and are facing many problems resulting from the absence of coordinated cooperation with the public and private sector.

Of all the Lebanese universities, only AUB has launched an on-field experimental project on organic agriculture, but the subject is not included in their academic curricula.

This study, as a first medium-scale survey shows that if the different stakeholders invest their capacity in the strengths they have, organic agriculture could then develop within the coming years and could offer solutions to the multiple problems the agricultural sector is facing in Lebanon. However, more work still need to be done on field to determine the most adapted techniques needed to maximize



Table 4. *Options to develop organic farming in Lebanon over different time frame*

	SHORT TERM OPTIONS	MEDIUM TERM OPTIONS	LONG TERM OPTIONS
MARKET DEVELOPMENT	<ul style="list-style-type: none"> <li>- Support local market development by removing disincentives to organic farmers</li> <li>- Source organic inputs to Lebanese farmers</li> <li>- Organise multi-media awareness campaign on organic agriculture (radio, TV, posters, publicity in shops, etc.)</li> <li>- Undertake surveys to determine domestic consumers demands and needs</li> </ul>	<ul style="list-style-type: none"> <li>- Scale-up production</li> <li>- New market outlets (shops, supermarkets, retailers)</li> </ul>	<ul style="list-style-type: none"> <li>- Feasibility study of supplying export markets</li> <li>- Strategy to compete on international markets with speciality products</li> <li>- Establishment of an internationally trusted organic production-processing chain</li> </ul>
STANDARDS INSPECTION & CERTIFICATION	<ul style="list-style-type: none"> <li>- Establish local standards for organic production by adopting or adapting existing international ones (Codex Alimentarius, IFOAM)</li> <li>- Collaborate with external certification bodies to certify local farmers</li> </ul>	<ul style="list-style-type: none"> <li>- Train local inspectors</li> <li>- Consolidate partnership with foreign certification bodies</li> </ul>	<ul style="list-style-type: none"> <li>- Establish one or more certification body</li> <li>- Develop a unified national organic label</li> </ul>
RESEARCH & DEVELOPMENT	<ul style="list-style-type: none"> <li>- Develop research within universities and national scientific research centres on species and varieties adapted to local agro-ecological conditions</li> <li>- Develop research on organic agriculture inputs needs (e.g., biological pest control, organic fertilization and organic seeds)</li> </ul>	<ul style="list-style-type: none"> <li>- Develop participatory research and learning approaches between scientists and organic farmers</li> <li>- Strengthen research network / exchange with countries with similar agro-ecological conditions</li> </ul>	<ul style="list-style-type: none"> <li>- Support an organic agriculture research programme (based on local needs)</li> </ul>
EXTENSION, EDUCATION & TRAINING	<ol style="list-style-type: none"> <li>1. Train extension staff to assist farmers in the future</li> <li>2. NGOs could assist people by providing information and training through specialized projects, associations and cooperatives</li> </ol>	<ol style="list-style-type: none"> <li>3. Create appropriate organic extension programmes to orient and assist farmers</li> <li>4. Integrate organic agriculture classes within agricultural studies</li> </ol>	<ol style="list-style-type: none"> <li>5. - Establish organic agriculture education and training curricula in the main institutions</li> </ol>

and diversify production, guide farmers toward the right way to switch to organic production.

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### References

- Antonelli, A., Fersino, V., Scardigno, A., 2001. Il consumo di prodotti da agricoltura biologica in Puglia, CIHEAM-IAMB Progetto Biopuglia, Regione Puglia, Unione Europea, Bari.
- Colin, R., 1993. A Resource for Social Scientists and Practitioner-Researchers. Real World Research, Blackwell, Oxford UK and Cambridge USA.
- De Haen, H., 1999. Producing and marketing quality organic products: opportunities and challenges. Six IFOAM trade conference, quality and communication for the organic market, Florence, 23 October 1999, Food and Agriculture Organization of the United Nations.
- Economic and Social Commission for Western Asia, 13 January 1999. National Farm Data Handbook for Lebanon. United Nations, New York. p. 15.
- Estephan, J., 2001. Organic farming in Lebanon. Report prepared for the IAM-B, available on: [www.medobs.org/themes/agri-org/part2.pdf](http://www.medobs.org/themes/agri-org/part2.pdf).

Fersino V., Pugliese P., Scardigno A., 2001. I produttori biologici pugliesi: tipologie, problemi e prospettive, CIHEAM-IAMB Progetto Biopuglia, Regione Puglia, Unione Europea, Bari.

Food and Agriculture Organization of the United Nations: World Food Summit, Rome (Italy), 13-17 November 1996. World Food Summit Follow-up, Draft Strategy for National Agricultural Development Horizon 2010, Lebanon. Food and Agriculture Organization of the United Nations. p. 9.

Food and Agriculture Organization of the United Nations Rome (Italy), March 2001. Testing of questionnaire in selected countries, Questionnaire on organic agriculture.

Fotopoulos C., Chryssochoidis G.M. and Pantzios C., 1999. Critical factors affecting the future of the Greek market of organic produce. In: *Medit (CIHEAM-IAMB)*. ISSN 1120-6403. (June 1999). v. 10(2) p. 30-35.

Haddad A. and Hamzé M., 2000. Policies and development within the agricultural agri-food industrial sectors in the Mediterranean region. Lebanon country report 2000. Unpublished manuscript prepared for CIHEAM.

Hamzé M. and Abul-Khoudoud A. 2001. Development and agri-food policies in the

Mediterranean region. Lebanon Country Report, July, 2001, prepared for the Annual Report of CIHEAM.

Kalogianni I., Papadaki-Klavdianou A. and Tsakiridou E., 1999. Consumer behaviour and information on organic and hygiene products. *MEDIT*, 10(2), 10-15.

Kenny, L., 2002. Workshop on organic agriculture. 17-18 June 2002. Beirut (Lebanon). Development of organic agriculture in Lebanon.

Lampkin, N., Foster, S., Padel, S. and Peter, M., 1999. The policy and regulatory environment for organic farming in Europe. *Organic farming in Europe economics and policy*, volume 1, 166 pagg.

Lampkin, N., Padel, S., 1994. The economics of organic farming, an international perspective, CBA International; University of Wales. Aberystwyth, UK, ISBN 085198911x, 468 pagg.

Ministry of Agriculture / Food and Agriculture Organization of the United Nations, 1998-1999. Agricultural Census Project. Ministry of Agriculture. p.37

Nucifora, A.M.D. and Peri, Iuri, 2001. The demand for organic fruit and vegetable products in EU countries: a survey of the expectations of market agents. *MEDIT*, 12(3), 19-23.

Santucci, F.M., 2001. Marketing behavior of organic farmers. *MEDIT*, 12(3), 14-18.

Scialabba Nadia, 2000. Factors influencing organic agriculture policies with a focus on developing countries. IFOAM 2000, Scientific Conference, Basel, Switzerland, 28-31 August 2000. Food and Agriculture Organization of the United Nations. Rome, Italy.

UNESCO / FAO / UNIDO Project on support to policy formulation for sustainable development and environment preservation – Lebanon, 1997. Environmental information system for natural resources conservation and use. TSS-1 technical services at program level.