Lebanon

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INTRODUCTION

Located in the Middle East (Mediterranean Coast), Lebanon has a total area of 10 452 km^2 of diverse ecosystems. Agricultural lands are not very large and farmers depend on small holdings to earn a living. Thus, organic produce, being high value crops, can substitute conventional cropping systems. Having the necessary infrastructure and the framework, Lebanon could have the chance of contributing efficiently to the evolution of the organic farming process. In 2004, the area used for organic production represented approximately 0.31 % of the total agricultural areas of the country, estimated at 248 000 ha (Résultats Globaux du Recencement Agricole, Juin 2000).

The first documentation on organic farming in Lebanon (Estephan, 2002) showed that organic farming was initiated with lots of possibilities for expansion. Individuals and non-governmental organizations were involved in this activity, but without the presence of any legislation and certification. In addition to this situation, the lack of adequate market organization led to the withdrawal of some farmers. Currently, several projects are being established with the aid of foreign organizations and the number of organic farmers is continually increasing.

GENERAL ASPECTS

In the early nineties, conventional agriculture was prevalent and the excessive use of agrochemical products induced great losses in soil and biodiversity, causing water pollution and ecosystem disturbances. The seriousness of the situation led to an important concern at different levels, both political and administrative. Decision makers and most of the civil society became increasingly conscious of the importance of food quality. Of recent, a national agricultural strategy has been developed with a specific component for "biological agriculture". Organic farming started with farmers' initiatives and the dynamism of organizations and cooperatives. In terms of commercialization, specialized food stores for the marketing of natural products were opened, and some restaurants started to serve "whole-food". But this development, as noted over the last few years, was accompanied by problems related to: (i) lack of organization of market (local and International); (ii) lack of information and adaptive research on Organic Farming; (iii) absence of coordination between the various participants concerned; (iv) absence of adequate extension means and services and (v) limitation in training.

Therefore, this situation necessitates a well-developed national strategy, which must take into consideration the major issues faced, and accordingly seek to find adequate and applicable solutions.

Under the present circumstances, it is the younger generation that is scientifically aware of Organic Farming and who could contribute highly to the development of Organic Farming in Lebanon. However, it is also worth noting that many farmers still appreciate the old traditional methods of farming and do not apply modern agricultural practices, thereby making minimal or no use of pesticides.

In fact, Organic Farming is in progress in Lebanon and this statement is relevant for two different types of farmers. The first type comprises farmers who have knowledge of the principles of Organic Farming and are committed towards reaching its goal, which implies using methods that respect life, plants, soil, animals and people and the interaction between them. The second type is composed of farmers who can afford the luxury and scientific background of Organic Farming. These farmers are able to follow the trend of lifestyle of modern societies.

Furthermore, Organic Farming concepts are mainly applied to the production of vegetables, and to a lesser extent to other crops, and they are limited to the exertion of only few techniques which need

to be developed in order to reach the main goal of the establishment of complete biological farms. Techniques used are mainly limited to the local composting of agricultural residues, or the purchase of organic compost and biological fertilizers, as well as reliance on crop rotation for the enhancement of soil fertility, whereas, traps and biological pesticides are commonly used for pest control.

currently, many projects on Organic Farming are under way in Lebanon:

- The “Healthy Basket” (HB) program was founded by the rural development team of the Faculty of Agricultural and Food Sciences at the American University of Beirut as a non-profit partnership. It is a fair trade agricultural program dedicated to the support of sustainable rural development by encouraging organic agricultural practices and linking organic growers to consumers;

- The “Sustainable Agriculture and Rural Development (SARD)” project is being implemented by World Vision Lebanon (WVL) and supported by the United States Agency for International Development (USAID). It was initiated in 2002 to provide technical assistance to the farmers to help them become certified “organic” by an internationally recognized certifying body, and to find markets (both locally and internationally) for organic produce. This program covers the rural areas of the North (Bsharri region), the South (East Sidon, Marjeyoun and Bent Jbeil regions) and central Lebanon (Bekaa region). The beneficiaries will be 200 pilot farmers and their families covering a total of 450 ha in 39 villages;

- Green Line Association started in the year 2000, with the support of the German Technical Cooperation Agency (GTZ), to establish national standards and a certification system for Organic Farming.

It is important to note that a large number of farmers who lease their lands cannot fit within the Organic Farming system, since they are after high yields over a short period of time.

REGULATORY ASPECTS

A local regulation had already been prepared in the form of “Lebanese standards” in March 2004, and is currently passing through a three-month trial period. The standards for “Organic Production” are constituted of four parts:

Part I: NL 724-1:2003. Plants and plant products, livestock and livestock products, food and processing and beekeeping (based on European Council Regulation EEC);
Part II: NL 724-2:2003. Aquaculture (based on IFOAM Basic Standards);
Part III: NL 724-3:2003. Forest Management (based on IFOAM Basic Standards);
Part IV: NL 724-4:2003. Accreditation criteria for bodies certifying organic production and processing (based on IFOAM accreditation criteria).

These standards were prepared by the Lebanese Standards Institution (LIBNOR), a public organization linked to the Ministry of Industry, assisted by a technical committee formed by representatives of the Ministry of Agriculture (MoA), Ministry of Industry, Ministry of Environment, Ministry of Defense, Ministry of Public Health, Lebanese Agricultural Research Institute (LARI), Industrial Research Institute, Universities, Healthy Basket, World Vision Lebanon and Green Line Association.

Legislation to enforce these published standards is required from the Lebanese government.

For the time being, farmers mainly follow EU regulations. Some farmers also follow the IFOAM standards as a reference. For the future, the competent authorities will be the Ministry of Agriculture, the Consumer Protection Service and the Ministry of Commerce and Trade. Organisms implied in data collection are the Ministry of Agriculture, FAO, UNDP, local and international NGOs (e.g. World Vision Lebanon, Green Line and Stanford Research Institute), public and private universities, research centers such as LARI and National Council for Scientific Research (CNRS) and the Ministry of Commerce and Trade.

Currently three private foreign companies are conducting inspections as follows:

(i) IMC, inspection is being done by Italian inspectors (120 farmers). Address in Italy: Instituto Mediterraneo di certificazione, Via C. Pisacane, 53 - 60019 Seniguallia (AN) Tel + 39 717928725, + 39 717930179, Fax + 39 717910043;

(ii) Skal International is doing co-certification (36 farmers), the inspection is partially performed by local personnel. Address in Netherlands: Dr. Klinkertweg 28b 8025 BS Zwolle Tel + 31 38 4260100, Fax + 31 38 4237040;

(iii) Qualité France SA is carrying out inspection through French inspectors (8 farmers). Address in France: Immeuble “Le Guillaumet” 60, avenue du Général De Gaule 92046 Paris La Défense Cedex Tel + 33 141970074, Fax + 33 1 41970832.

There are three possibilities for inspection and certification of organic products to envisage in Lebanon:

(i) Direct or Foreign Certification: Farms, processors and exporters of organic products are inspected by the staff of foreign inspection bodies accredited in the EU , the U.S.A. or Japan;

(ii) Co-certification: An international certification body accredited by the EU, the USA or Japan confirms that a locally operating inspection body is checking that the organic process in Lebanon is fulfilling all the requirements;

(iii) Local certification (under preparation): Inspection and certification of agricultural production as well as processing and export are independently implemented on the basis of any adopted production rules and inspection measures. At the moment, The Environmental Core Laboratory (ECL) of the American University of Beirut (AUB) has shown interest in establishing the local certification body (Libancert).

Many policies support the development of Organic Agriculture in Lebanon in different ways:

- World Vision Lebanon provides support to the farmers through its programs: mainly extension, demonstration and training services (capacity building for farmers and agricultural specialists), supply of inputs, certification (facilitating the process working as a link between the farmers and the certifying body and cost sharing for the certification of the products), packaging and processing services, transportation services and marketing services;

- Healthy Basket, through its programs, aims at promoting agriculture as a viable livelihood strategy. Its mission is to support, expand and enhance rural livelihood. HB also provides technical support that consists of the routine visits of the team to the participating farms to ensure compliance with Organic Farming practices. Produce is regularly tested for chemical residues at AUB's ECL. Logbooks are kept for every farm, and farmers comply with strict crop protocols;

- LARI support through training, information and research;

- Green line support through information and research, SRI through marketing of products, MECTAT through information and Jihad Binaa by demonstration of some trials such as composting, intercropping, etc…

There is also the Lebanese regulation for export of fruit and vegetables through Export Plus (IDAL).

STRUCTURAL ASPECTS

Number of farms:

- Organic farms: 55
- Under conversion: 109

Overall surface (Organic, conversion and total):

“Masri Etudes et Expertises Sarl” (study conducted under SARD project WV/USAID project) estimates that the area cultivated under Organic Agriculture, in 2003 in Lebanon, also referred to as the size of organic exploitations was approximately 185 ha. In 2004, the area increased significantly (Table 1).

Table 1. The overall surface culture organically in Lebanon (2004)

Farmer	Area (ha)	Type of products
Under the SARD project	- Organic: 30 ha certified by IMC - Under conversion: 225 ha - Total: 255 ha And the expected overall area in 2005 is 499 ha	Vegetables, greenery, fruits, cereals, legumes, olive, olive oil, grapes, roses and animal products (detailed in table 2)
Under the Healthy Basket project	- Organic: 115 ha certified by SKAL International - Under conversion: 20 ha - Total: 135 ha	Fruit trees and vegetables
Michel Ghorra, Consultant: Eng. Fadi Daw	- Under conversion: 3 ha, controlled by IMC - Total: 13 ha	Vegetables (in Teenayel - Bekaa)
Rafik Boustani, Consultant: Ing Fadi Daw	- Organic: 15 ha certified by Qualité France - Under conversion: 70 ha - Total: 85 ha	Vegetables (in Debbiyeh - Chouf)
Hussein Hamieh	- 120 ha without certification	Vegetables and winter crops (in Taraya - Bekaa)
C. Nekho	- Under conversion: 50 ha, controlled by Qualité France	Grapevine, vegetables and fruit trees (Hammana – Mount Lebanon)
Elie Ayub	- 100 ha without certification	Grapevine, vegetables and animal production (Kfarmeshki - Bekaa)

The distribution of organic farming activities in Lebanon is illustrated in Fig.1.

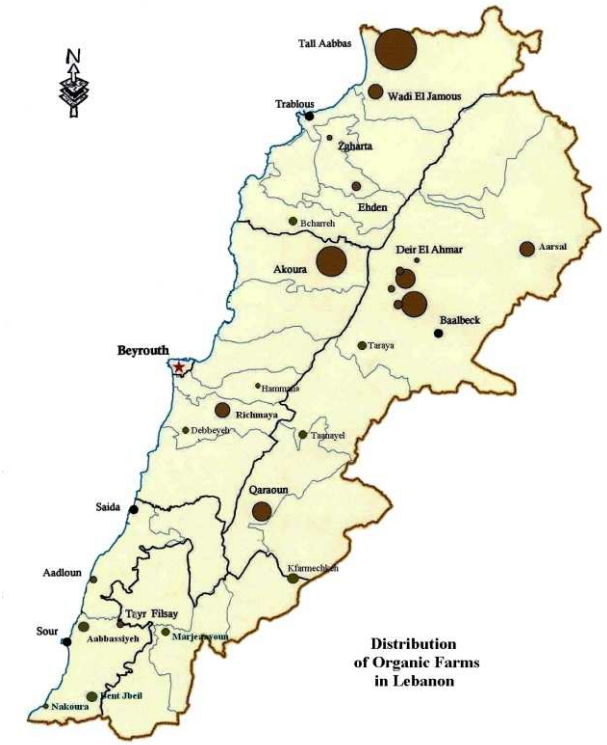

Figure 1. Distribution of organic farms in Lebanon

Production

In 2003, production mainly concerned the vegetables and fruit crops. For example, under the SARD project about 76% of the total organic production were the below-mentioned crops (Table 2).

Table 2. Production only under the SARD project for the year 2003 (last updated may 2004)

Type of product	Surface (ha) (Including under conversion)	Quantity (kg)
Vegetables and Greenery	51 ha	538 000
Fruits	74 ha	500 000 (low figure due to the presence of non-productive fruit trees yet)
Cereals & Legumes	23.5 ha	40 000
Olive / Olive oil	15 ha	17 000
Grapes	1.3 ha	Not productive yet
Roses	0.15 ha	Production just started
Animal production	65 heads of ruminants	6-7 months old

The expected production area in 2005 (table 3) will be about 499 ha as compared to 125 ha in 2003.

Table 3. Expected productions under the SARD project until June 2005

Type of product	Surface (ha) (Including under conversion)	Quantity (kg)
Vegetables and Greenery	145 ha	1 580 000
Fruits	250 ha	1 500 000
Cereals & Legumes	60 ha	102 000
Olive / Olive oil	40 ha	50 000
Grapes	3.5 ha	-
Roses	1 ha Bent Jbeil	-

Commercially, table 4 shows the prices of the main crops as sold by farmers.

Healthy Basket provides a wide variety of traditional and innovative fresh organic products. Fresh produce includes traditional seasonal fruits, vegetables, herbs and baladi eggs, as well as new varieties that include baby corn, baby carrots, eggplants, and cherry tomatoes.

Table 4. Prices from 28 June to the 4th of July

Crop	Organic farmers' price (USD)	Wholesaler's conventional price (USD)
Green herbs		
Parsley	0.13	0.04
Mint	0.13	0.06
Thyme	0.17	0.13
Perslane	0.17	0.08
Rocca	0.2	0.17
Radish	0.27	0.11
Onion	1	0.5
Mouloukhie	1.3	0.5
Vegetables		
Tomato	0.3	0.03
Cherry tomato	1.3	1
Cucumber	0.5	0.13
Wild cucumber	0.7	0.4
Squash	0.5	0.08
Beans	1	0.7
Pepper sweet	0.7	0.23
Okra	1.3	1
Eggplant	1	0.27
Fruits		
Watermelon	0.3	0.1
Melon	0.83	0.2
Apples	1	0.7
Grapes	1.3	1
Plums	1	0.5
Peach	1	0.7
Cherry	1.7	0.7
Corn	0.17	0.08

Processing units

There are four processing units located in: Merjayoun; Bent Jbeil; Chouf and Bsharri. The average area is 0.06 ha per facility. The main type of processed products are: Jams (all kind); essential oils; fresh and pasteurized juices; rose water; honey; flour; dried fruits and vegetables; apple juices (18,500 Liters). Reference regarding the quantities produced is not available for all products.

Healthy Basket also provides processed organic products which includes honey, olive oil, tomato sauce, tomato paste, pasta sauce, jams, dips, assorted pickles and Tannour bread (traditional village bread).

Producers' associations

In Lebanon, there are very few producers' associations, the main one being "BioCoop Lubnan" (89 current members; and 200 members expected by January 2005). They are located in Spears Beirut (Zicco Building) and the product destination is the local market, as well as neighboring and regional markets (Gulf countries, Jordan). The activities carried out by this association are marketing of organic products, raising awareness, lobbying and advocacy for Organic Agriculture, as well as social work.

AGRONOMIC ASPECTS

The main problems related to the management of soil fertility are:
- Insufficient organic matter content in the soil;
- Insufficient sources of compost;
- Calcareous soils;
- Clay soil;
- Fast mineralization in the soil due to climatic conditions.

As for problems related to adopted techniques, these result from insufficient research experience on intercropping technique in Lebanon's context.

The main issues in the control of pests and weeds and the adopted techniques are:
- Unavailability of some inputs and need to initiate direct contact with international suppliers;
- Lack of expertise (experts) on organic management practices in Lebanon;
- Difficulty to control pests and diseases due to small scale plots and neighboring conventional farms;
- Difficulty to find isolated plots;
- Climatic conditions in favor of the diseases spread.

Very few companies are producing technical means locally (mainly compost). However these products are not yet certified and their composition is not identified. World Vision through its SARD project is establishing 5 medium size composting units in the different program areas covering the needs of 200 farmers. Compost is being incorporated into the soil of the plots as a one step application in the soil fertility strategy. This is being done according to the need shown after conducting the soil analysis of the plot. (Average rate of 10 Tons compost/hectare without exceeding the permitted quantity as per the regulations/standards). Green manure is also included in the fertilization strategy. Leguminous plants are used as intercrops or under trees and as part of the rotation plan for the plots. (Trifolium, Alfalfa). Healthy Basket is using farm compost (35 t per ha) or certified on-market compost through its project.

Concerning imports and availability of technical means, the following constraints exist:
- Since the organic products hold a small market value, investment in this sector is still limited especially when it comes to importing organic inputs;
- Organic inputs undergo the same process for the EIA (Environmental Impact Assessment) as for the inputs used for conventional MoA is not differentiating between the two types of inputs.

The main authorized materials for soil fertilization and protection are listed in annexes 1,2,3,4 and 5.

Propagating materials used are organic whenever possible, exclusive of foreign origin. The material is certified by international certifying bodies.

MARKET ASPECTS

Export is being done by BioCoop and by local businessmen mainly to the Gulf area.

“Masri Etudes et Expertises Sarl” (study conducted under SARD project WV/USAID project) estimated the value of the Lebanese production of fresh organic produce (vegetables and fruits) for the year 2003, and on the basis of wholesale prices, at $ 875,000.

World Vision estimates BioCoop production for the year 2004 at $ 650,000. The expected volume of production is 1,300 Tons for the year 2004.

The selling points under SARD are 23 between Health shops, hypermarkets and restaurants (Table 5) and the distribution of the market by type of outlet/place sold (2003) was reported by “Masri Etudes et Expertises Sarl” (study conducted under SARD project WV/USAID project) (Table 6).

Table 5. Selling points under SARD

Clients	Address
Naturalia	Faubourg St.Jean / Baabda
Naturalis	Mtayleb
Via Natura	Sodeco
Terre Liban	Baabda/next red cross
Beirut health store	Hamra
Health Food Center	Aramoun / Al bassatin/ Aley
Coin Dietetique	Mar Elias St./ Beirut
Schtroumpf Rest	Ghazir / jounieh
Spinneys	Dbayeh
Beit Al Sohat	Hotel-Dieu
Coin Du Regime	Jal el dib
Macrobiotic food	Aley
Herbatica	Ghazir
Salam center	Tayouneh
Super sante	Zahle/Bekaa
Marche Royale	Marjeyoun/South
Macrodette	Achrafieh
Nader	El mathaf
Nature gifts	Jal El Dib
Garderie cocoon	Mkalles
Espace vert	Zouk Michael
Hypermarket Abou khalil 3	Sahab/ kouraytem
branches	Baabda & Mkalless
Mini market Charbel	kfarchima

Table 6. Distribution of the market by type of outlet/place sold (2003)

Type	Value (USD)	%
Supermarket/hypermarket	341,250	39%
Mini market/grocery	52,500	6%
Specialized stores	192,500	22%
Other (direct sales, own consumption…)	288,750	33%
Total	875,000	100%

Until now, there is no data available on organic produce in terms of quantity or value on Import/Export.

The Healthy Basket program's main sales go through its Community-Supported Agriculture program (CSA). Customers who subscribe to the CSA program receive a weekly basket of organic fruit and vegetables of the season which are called shares. Today HB provides weekly baskets for 130 shares in Beirut. The basket contains a minimum of eight different fruits and vegetables and processed produce such as bread, jams, tomato paste, pickles and olive oil. It comes in two sizes: small (8-10 kg) and large (10-12 kg). For individual or family subscribers, a monthly subscription to HB is currently 58 $ for 4 baskets for small share, 92 $ for 4 baskets for large share and 8 $ for delivery of 4 baskets. The marketing department also takes orders for restaurants and hotels depending on availability of products.

Additionally, HB's products are available in the HB shops located in Sodeco, Hamra, Souk El Tayeb, and a weekly farmers' market located in Achrafieh. Thus, product destination of the HB program is local.

Annex 1. List of authorized products against insects

Product	Supplier
Able, ULV	Unifert
Agrumine	Robinson
Baturad (BT)	Antagro
Bemistop	Unifert
Bio - 175 G Biomasa	Agromed
Bio - 175 Neem Oil	Agromed
Bio – 2000 (Liquid Soluble)	Agromed
Bio – 4000 (Rotenone)	Agromed
Bio 125 garlic extract	Agromed
Bird Shield	AgriNatura & SAHL
Caknoil	Antagro
Citrole (TotalFinaElf)	Unifert
Dazitol	
DC Tron	Caltex
Delfin (Agrisense)	Unifert
Dipel	Debaneh Brothers
F 14 Mg	Agromed
F 20	Agromed
F 5	Agromed
Foray ULV	Unifert
GF-120 (Spinosad)	Debaneh Brothers
Mimic	Unifert
M-Pede (Mycogen)	Unifert
MPV	Akl Brothers
MVPII (Mycogen)	Unifert
Paraffin oil	Najjar
Pyrethre	Debaneh Brothers
Sicol	Debaneh Brothers
Spring oil	Unifert
Sunspray	Najar
Ultrafine	Najar
Virus de la granulose	
Winter oil	Najjar, Debaneh Brothers

Annex 2. List of authorized products against fungal diseases

Product	Supplier
Champion Copper Hydroxide	Robinson Group
Cobox (BASF Agro)	Unifert
Copper Sulfate	
Cupro caffaro	Debaneh Brothers
Cuproxat	Unifert
Demildex	Agripest
Dusting Sulfur (Adonis)	Unifert
F-K Fungifoska (liquid soluble)	Agromed
Fluide Soufre	Comptoir Agricole
jinzara/copper oxychloride	Antagro,Jbeily
Kendal (Liquid)	Antagro
Kocide 101	Bassatine
Kumulus DF (BASF Agro)	Unifert
Microlux	Debaneh Brothers
Microthiol special	Comptoir Agricole
Olisal /80% WP	Antagro
Promot (JH Biotech)	Unifert
Speed/copper hydroxide	Antagro
Sulfolac/80%DF	Antagro
Sulfur	Robinson Group
Thiovit	Agrimatco
Vitigran	Amalia

Annex 3. List of authorized products as bio-fertilizers

Product	Supplier
A.2 Antocarp Biostimulates (Liquid Soluble)	Agromed
Actosol	Unifert
Amino acide	Debaneh Brothers
Biomax	Debaneh Brothers
Booster	Debaneh Brothers
Ecostar (Liquid)	Antagro
Etisso	IMACO
Golden Agro	Unifert
Guanamus	Debaneh Brothers
H.1 Humicrom Humiacid (Liquid Soluble)	Agromed
Humasol	Unifert
Humic acid	Debaneh Brothers
Jolly Flor	Unifert
Kelpak	Unifert
Magnesium Sulfate	Unifert
Melfert	Agripest
Monterra	Antagro
Orgamide	Antagro
Patent kali	Comptoir Agricole
Peat Moss	Debaneh Brothers
Phospal	Debaneh Brothers / Unifert
Potasol	Unifert
Potting Soil	Unifert
Siapton	Debaneh Brothers
Siforga	Robinson Group
Unicrop	IMACO

Annex 4. List of authorized products as pheromones and others

Product	Supplier
Blue Traps	
Ceratitis capitata / DT	Unifert
Dacus Olease VYST	Unifert
Dome Mc phail Trap Wasp V inegar	Unifert
Grapholytha molesta	Unifert
Laspeyresia pomonella / DT	Unifert
Lobesia botrana/DT	Unifert
Potassuim Sulfate Physically extracted	
Prays oleae, Prays Olease string 500	Unifert
Protein Hydrolysate	Unifert
Rhyacionia buoliana	Unifert
Rock Phosphate	
Thaumetopoea pityocampa	Unifert
Traps for Carpocapse	
Yellow traps	Unifert
Zeuzera pyrina / FT	Unifert

Annex 5. Table 5e. List of Natural enemies (imported on order to)

Product	Supplier
Trichogramma spp.	Debaneh Brothers
Dacnusa sibirica *Diglyphus isaea*	Debaneh Brothers
Phytoseiulus persimilis *Amblyseius californicus* *Therodiplosis persicae*	Debaneh Brothers
Amblyseius cucumeris *Amblyseius degenerans* *Orius insidiosus* *Orius laevigatus* *Orius majusculus*	Debaneh Brothers
Aphidius colemani *Aphelinus abdominalis* *Aphidius ervi* *Aphidoletes phidimyza* *Harmonia axyridis* *Hippodamia convergens* *Chrysopa carnea*	Debaneh Brothers
Encarsia formosa *Eretmocerus californicus* *Macrolophus caliginosus* *Paecilomyces fumosoroseus*	Debaneh Brothers
Leptomastix dactylopii *Cryptolaemus montrouzieri*	Debaneh Brothers
Hypoaspis spp. *Steinernema feltiae*	Debaneh Brothers
Heterorhabditis megidisd	Debaneh Brothers
Phasmrhabditis hermaphroditor	Debaneh Brothers