Morocco

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INTRODUCTION

Morocco is one of the first African and Mediterranean countries that launched a program in Organic Agriculture back in 1992. The 12 year-experience has been undertaken exclusively by some pioneer farmers in the field of Horticulture with a little help from the government. The present report addresses the situation of organic plant production based on a survey undertaken in July 2004.

REGULATORY ASPECTS

Attempts to issue a national regulation on Organic Agriculture were launched in 1992. The Official body in charge of preparing the national regulation is the DPVCTRF (*Direction de la Production des Végétaux du Control et de la Répression des Fraudes*). After several meetings with representatives of the Ministry of trade, the Ministry of Health and several other research institutions involved in the quality control of agricultural products, the DPVCTRF issued the final draft of the national regulation in march 2003 which is now waiting for final approval by the Government. The national regulation will be enforced by the DPVCTRF with the help of the National Commission for Organic Agriculture which was given a consultative authority in the following areas:

- making suggestions for the promotion of organic production through technical assistance;
- undertaking the evaluation of submitted organic agricultural projects prior to the approval;
- providing advice and recommendations regarding the accreditation of the certification bodies.

As for certification, "Ecocert" and "quality France" are the two major certifying bodies operating in Morocco. Two other companies, one from Germany and the other from Switzerland, have had a small share of the market only for a short period of time.

STRUCTURAL ASPECTS

Organic enterprises in Morocco

The experience launched in 1992 by a few organic vegetable and citrus growers in the Agadir and Marrakech areas has been progressively extended to other crops in other regions all over the country. Today, 59 small and medium enterprises have been awarded certificates for organic production, processing and labelling of agricultural products. Some of these enterprises are owned by simple farmers with limited land resources and financial capability and no technical background on Organic Farming; others are more organized with a vertically integrated structure and great financial capability. The various types of operators involved in Organic Agricultural activities can be classified in five categories as presented in table 1.

Table 1. Categories of operators working in the field of Organic Agriculture in Morocco

Category of operators	Number	Type of Activity	Localisation
Farmers	53	Exclusively farming	Agadir, Marrakech, Azemour, Taza, Fes, Beni Mellal, Skhirat
Packing house owners	10	Packaging, labelling	Marrakech, Agadir, Azzemour
Vertically Integrated Enterprises	2	Farming, packaging and marketing	Agadir
Certifying bodies	3	Certification	All over the country
Sellers, negotiators, processors	6	Processing and marketing	Marrakech, Agadir, Casablanca, Beni Mellal

Farmers represent 70% of the total number of operators. They are located in seven regions representing four main agricultural areas: the Souss Massa, the Haouz, the North and the Central part of the country. By farmers, we mean two types of operators: Horticulturists specializing in fruits, vegetables and aromatic plants, and collectors of non-wood forest products (argan and essential oils). Horticulturists are applying up-to-date technologies (greenhouses, fertigation etc.) and have access to foreign markets. Collectors are traditional farmers with little financial capabilities and small agricultural areas; they rely on local knowledge and few modern techniques. These farmers are generally organized in cooperative-like systems where women play a major role. Argan cooperatives are managed exclusively by women.

Foreign and multinational companies are present as producers, but also as processors and sellers in almost all activities related to organic horticulture and non-wood forest products as presented in table 2. Some of these companies are working exclusively on marketing, others on certification and some are vertically integrated with professional activities all along the chain from farm to market.

Table 2. Activities where foreign and multinational companies are present in the sector of Organic Agriculture in Morocco

Area of activity	Production	Packaging & Processing	Marketing	Certification
Argan oil		X	X	x
Essential oil		X	X	x
Vegetable	X	X	X	x
Citrus	X		X	x
Aromatic and medicinal plants	X	X	X	x

Land use for organic production

The main organic products (table 3) are vegetables, fruits, oils and medicinal and aromatic plants. Eight to ten vegetable commodities are produced annually during the winter (table 6). Most of these crops are grown under plastic houses in the south of Morocco from November to April. A few other crops, such as strawberry and melon, are produced either in Marrakech or the Azzemour area. As for citrus, among the 17 different cultivars grown under subtropical conditions in Morocco, only six are grown organically with a predominance of two varieties: Navel and Maroc late. Almost all organic citrus growers are located in Marrakech, with only one located in the Taroudant area.

Table 3. Organic sub-sectors and land use in Morocco

	Land area (Ha)	Percentage to subtotals	Percentage to grand total
Subsector 1. Non wood-forest products			
• Argan oil	13 228	70	66
• Essential oils	5673	30	28
Sub-Total1	18 901	100	95
Sub-sector 2. Horticultural crops			
• Vegetables	301	27	1.50
• Fruits	334	29	1.67
• Aromatic herbs	504	44	2.51
Sub-total 2	1139	100	5
Grand Total	20 040		100

[1]Argan is a multi-purpose tree endemic to the south of morocco and is known mostly for its oil which is widely used for cosmetic purposes.
[2]Several plant species are involved but the most common is armory.

The average size of an organic farm is about 23 ha for horticultural crops (table 4). Organic horticulturists are generally well educated with a solid technical background and more than ten years experience in conventional horticulture. The majority are located in arid and semi arid areas (e.g. Agadir and Marrakech) which offer a suitable climate for offseason production of fruits and vegetables. From a technical point of view, organic horticulturists in the south of Morocco, as in many other southern Mediterranean countries, are among the leaders in integrating modern horticultural technologies (drip irrigation, fertigation, and greenhouse) in Organic Farming.

Table 4. Organic agricultural land use, farm size and location

Commodities	Land area (ha)	Number of farmers	Average size of the farm and/or production site (ha)	Area of Production
Non wood forest production				
Argan oil	13 228	12 000	11	Agadir, Essaouira, Taroudant
Essential oil	5 673	1	-	Kallate Magouna
Subtotal 1	18 901	12 001		
Horticulture				
Vegetables	301	13	23	Agadir, Marrakech, Azzemour
Fruits	334	23	15	Marrakech, Agadir
Aromatic and medicinal plants	504	14	36	Marrakech, Azrou, Fes, Taza, Agadir
Subtotal 2	1131	50	23	
Grand total	20 040	12 051		

For non-wood forest products, land use in Morocco obeys a complicated social structure. For instance, the argan forest is owned by the Government, and farmers that are living in (or around) this forest have a legitimate right to exploit it for fuel, forage or oil production, but have no right to sell it. The forest can be exploited directly by the community (country district) as in the case of medicinal and aromatic plants or by individuals and families as in the case of the argan forest. Small and medium enterprises specialized in processing, marketing and export are associated with farmers and local communities in different ways (figure 1).

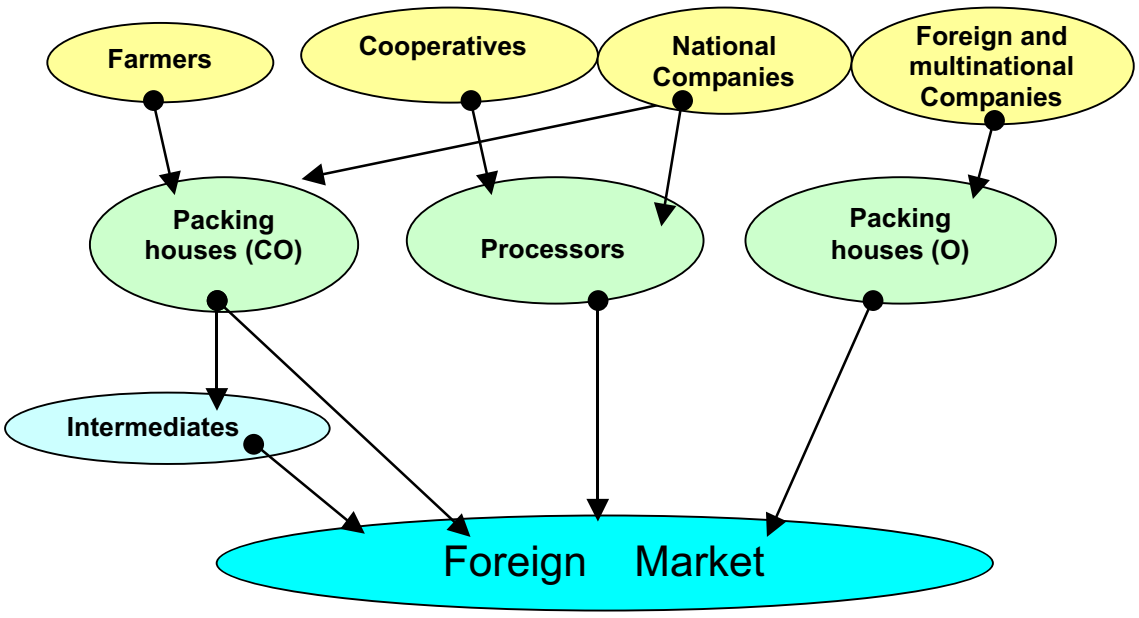

Figure 1. General scheme of the relationship between the main operators in the sector of Organic Agriculture in Morocco. CO: Conventional & Organic; O: Organic.

Depending on the size of the farm and the type of product, farmers may deal with one or several private companies specialized in packaging, processing and sometimes even marketing. The main socio-economic characteristics of organic producers are presented in table 5 and the type of business relationship they can develop with the other enterprises is illustrated in figure 1. This partnership falls into one of the four types of relationships described below:

1. A producer may sell his produce to a packing house and/or processing unit and has no control of subsequent activities (packaging, processing, marketing); this is the case of small citrus and vegetable producers;
2. A producer may pay for the packaging services and keep control of export and marketing activities which is the case of medium-sized companies;
3. A producer may pay for the packaging services and sell his produce to an intermediary who specializes in export and marketing; this is the case of some medium sized citrus and vegetable producers.
4. A producer may be a member of a Vertically Integrated Enterprise which controls all the steps: from farm to market.

Table 5. Main socio-economics and technical characteristics of organic producers in Morocco

	Farmers	Cooperatives	National companies	Multinational companies
State of the land	Private land Ownership and renting	State land	Renting	Renting
Size of the farm and/or production site	> 15 ha	> 10 ha	15 – 100 ha	30 – 100 ha
Technical skill	Medium	Low	High	High
Financial capabilities	Medium	Low	Medium	High
Marketing	Via intermediaries	No intermediaries	Intermediaries and direct	Direct

SOCIO-ECONOMICS & MARKETING

In the absence of local market and national labelling systems, organic food produced in Morocco is oriented primarily towards exports. For fruits and vegetables, 20-30% of the national production is excluded from export and is sold in local markets as conventional products. There is, however, an exception for this regarding argan oil which is sold as organic even in local markets. Fruits, vegetables and other horticultural commodities are exported exclusively to the European markets while essential and argan oils are exported to Europe and northern American markets (Canada and USA).

The main trend of citrus and vegetable exports is presented in figure 2. Compared to total exports, data presented in table 6 show that export of organic horticultural products never exceed 1% of the total export of fruits and vegetables (conventional + organic). There are many reasons behind such a slow share of organic production, but the salient points raised by farmers and entrepreneurs are the lack of support from the Government, the absence of national regulation and the technical difficulties encountered in dealing with crop nutrition and protection against pest and diseases under organic systems.

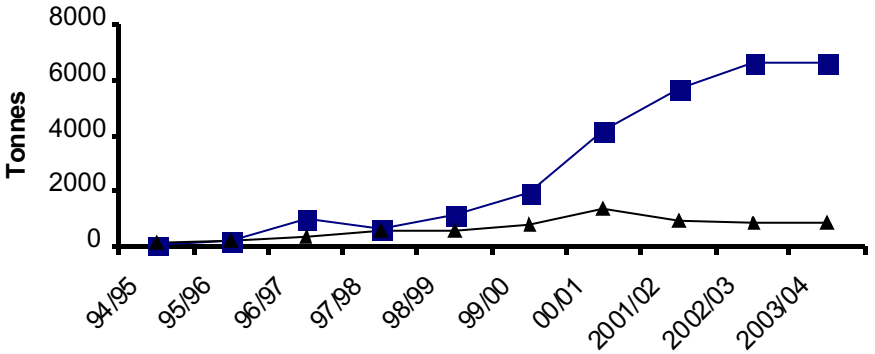

Figure 2. Export of citrus (triangles) and vegetables (squares) in the last ten years

Data presented in figure 2 show a 100 fold increase in the volume of vegetables exported between 1994 and 2004. In the same period, the volume of citrus exported increased only 5 fold. A qualitative improvement was also observed in terms of product diversity, for vegetables ten different products were exported in 2004 against five in 1994, while for citrus only six cultivars among 17 produced in Morocco were exported as organic. Export of processed fruits and vegetables represents a slim proportion of total organic exports. This constitutes, however, emerging activities in some area such as Kenitra for processed vegetables (bean, cucumber) and orange juice in Tanger.

The main vegetables exported, as reported in figure 3 & table 6, are tomato and zuchinni. These two products represent more than 70% of total organic exports in all years stated. As for citrus, Maroc late and navel are the two types of oranges sold and exported as organic (figure 4). The demand for small fruits such as Clementine is increasing but most farmers are not willing to convert the existing conventional orchards to organic due to technical difficulties in managing pest and disease-related problems of small fruit varieties, and the absence of incentives from the Government.

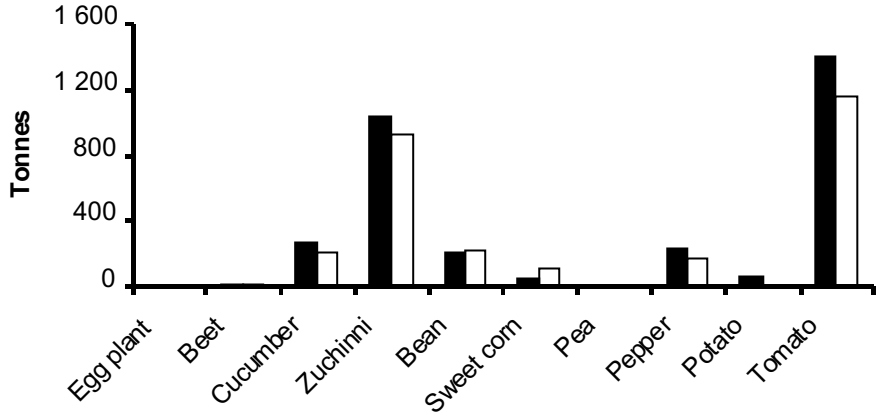

Figure 3. Export of organic vegetables in 2002/2003 (black) and 2003/2004 (open)

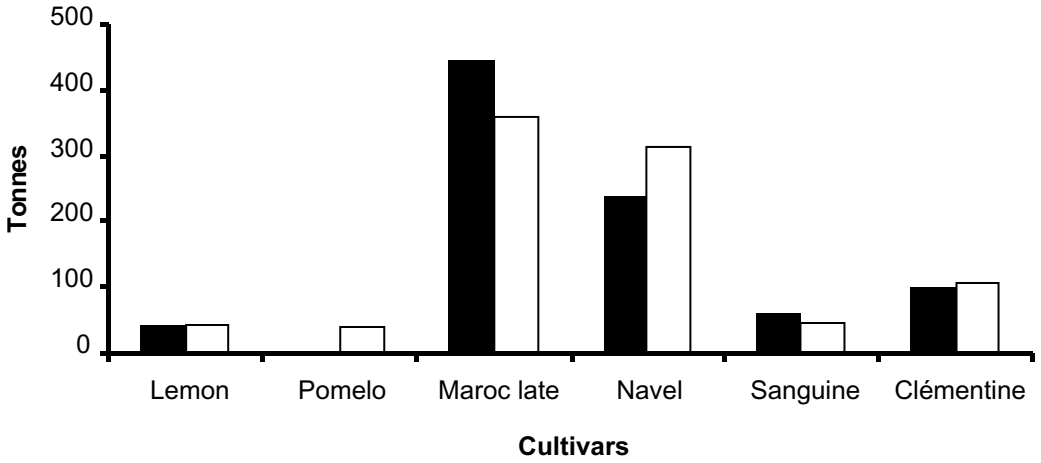

Figure 4. Export of Organic Citrus in 2002/2003 (Black) and 2003/2004 (white)

For fruit and vegetables the premium prices vary from 20 to 100% compared to conventional products. For instance, during winter 2003, organic tomato exported from Agadir was sold in Europe at 1.10 - 1.70 euro/kg while for conventional tomato, the price didn't exceed 1 euro. The premium was even higher for zucchini and melon for which the prices per kilogram varied from 2 to 4 euro/kg (H. Liz. Personal communication).

Data regarding the exports of medicinal and aromatic plant products are difficult to extract from the national data system. Premium prices paid for organic plant products are also difficult to gather as these prices are considered to be confidential by many operators. For essential and argan oils, the

organic label is becoming a pre-requisite for selling the products abroad even though the premium is not as high as for fruits and vegetables.

Table 6. Organic citrus and vegetable exports as a share of total exports (tons)

	Vegetables[1]		Citrus[1]		
Species	2002/2003	2003/2004	Cultivars	2002/2003	2003/2004
Eggplants	3	0	Lemon	42	42
Beet	7	8	Pomelo	4	41
Cucumber	267	202	Maroc late	447 (50%)	358 (39%)
Zuchinni	1043 (31%)	932 (32%)	Navel	238 (27%)	315 (35%)
Bean	210	215	Sanguine	60	46
Sweet corn	52	113	Clementine	99	107
Pea	2	1			
Pepper	232	175			
Potato	62	1			
Tomato	1405 (42%)	1154 (40%)			
Melon	52	85			
Total organic[2]	3335 (0,068%)	2886 (0,07%)	Total organic	890 (0,2%)	909 (0,18%)
Total exports	484 503	392 031	Total exports	433 843	481 878

[1]percentage to total organic exports
[2]Percentage to total exports (conventional + organic)

From a socio-economic point of view, the organic certification and labelling of non-wood forest products, particularly argan oil which is a unique product of Morocco, has had a profound impact on the life of hundreds of small farmers in remote areas in the south - west of Morocco. Argan oil is normally sold at 8 euro/litre in the local market, and only a slim portion of the local production used to be exported. With the organic labelling, the price per litre jumped to 20 euros and higher volumes were exported to Europe and elsewhere. The annual revenue of rural women working in the field of argan oil production has increased from 600 euro with non certified oil to more than 3000 euro with certified oil (Kenny, 2004, data not published).

RESEARCH, TRAINING & EXTENSION

Research in Organic Farming and related aspects is currently undertaken by farmers themselves as well as at some public institutes. At the academic level, two programs of applied research are currently undertaken at the Hassan II Institute of Agronomy and Veterinary Medicine (IAV) and the National Institute of Agronomic Research (INRA). The main research themes investigated either by public or private companies are listed in table 7.

Table 7. Research themes in organic farming and related aspects

Research themes	Academic research (MSC. & PhD)	On farm research
1. Soil fertility management	X	X
2. Organic fertilizers	X	X
3. Biological control of vegetable pests (insects, aphids…)	X -	X -
4. Biological control of nematodes	X	X
5. Biological control of citrus pests	X	-
6. Compost and composting	X	X
7. Effect of compost tea in controlling vegetable fungal diseases	X	-
8. Varietals performance in organic vegetable production	-	x

A training program exists at IAV for post-graduate students in Horticulture and Agronomy. The only academic courses are taught at the Complex of Horticulture in Agadir which is an offshoot of IAV. Training session were organized by the IAV for the engineers and technicians at the "Office Regional de la Mise en Valeur Agricole" in Marrakech. Conferences on specific topics related to Organic Agriculture were conducted by some IAV faculty members in different regions of Morocco to promote Organic Agriculture in the mountain areas. Private companies are also seeking advicesand technical assistance from national and international experts, particularly in organic horticulture.

CONCLUSION

The sector of Organic Agriculture in Morocco has been growing slowly but steadily in the last ten years. Much of the progress was achieved in horticulture and some non-wood forest products with export oriented commodities. New export driven products such as organic orange juices and aromatic herbs are emerging. The country also presents great potentials in some other fields such as organic goat and camel production, organic chicken using local races, and organic honey, but these commodities need a national strategy which aims at the development of local markets. A national program for subsidies and technical assistance is also badly needed for remote areas where farmers are willing to convert their traditional farming systems to organic systems. The successful case of implementing the organic certification on natural resources such as argan oil showed that organic production may have a tremendous socio-economic impact on the lives of small farmers.

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