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Environment and Organic Farming in Consumer Preferences and Agricultural Strategy in Morocco

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ABSTARCT

The development of organic farming in Morocco is still low compared to countries with a similar development structure such as Tunisia, but it has gained interest from both agricultural producers and urban consumers. It now counts as an important axis of Morocco's new agricultural policy (Generation Green). However, if the preservation of a threatened environment is crucial for the country, this issue does not count either in the consumers' motivations or in the priorities of the agricultural strategy. The demand for organic food is essentially motivated by health and nutrition issues. As for the Moroccan agricultural policy, it suffers from contradictions: concern for developing organic farming and encouragement of farmers to intensify the use of phytosanitary products and pesticides. The country would benefit greatly from encouraging the adoption of organic and conservation agriculture practices in all of its diverse ecological systems (including oases, mountains, arid and semi-arid regions, and sub-humid regions), such as zero or minimum tillage. Moroccan farmers would gain in efficiency and net margins.

Keywords: Organic farming; Soil fertility; Pesticides; Agriculture

INTRODUCTION

Organic farming is developing rapidly in several northern countries. The demand for organic products is growing and opening up significant prospects for several countries in the South. The potential of Morocco and other Maghreb countries such as Tunisia is not negligible: land and climate adapted to the production of fresh off-season products, persistence of traditional agriculture preserving the prerequisites for organic production, legislative framework, products with a low additional cost for the transition to organic, export markets increasingly demanding organic products for which these countries have a high production.

However, the development of organic farming is contrasted: more timid in Morocco in comparison with Tunisia or Egypt. These last two countries have further developed their organic sectors and are supported by intelligent measures from their respective governments.

The stakes of organic development in the Maghreb countries are important both in economic and social terms, even in terms of sustainability and preservation of threatened ecosystems.

This research proposes to identify the potentialities, the actors concerned, the assets and constraints to be overcome at the level of the entire value chain and the necessary institutional measures to be put in place to support the development of an agriculture whose prospects at the export are substantial [1].

MATERIALS AND METHODS

We will successively examine the following points:

- The conditions for the development of organic agriculture taking into account environmental and climatic considerations:
- Consumers and national and international markets;
- Some conclusions and strategic proposal.

The conditions for the development of organic agriculture taking into account environmental and climatic considerations

It has been well demonstrated, in different countries, that Organic Agriculture (OA) is a production system that permits to enhance soil fertility, with several farming practices simulating natural and ecological cycles. OA also pursues the efficient use of local resources and depends less on nonrenewable sources of energy. Morocco would gain much by encouraging the adoption of OA practices and conservation agriculture practices, in all its diversified ecological systems (including oasis, mountainous, arid and semi-arid and sub humid regions) such as zero or minimum tillage. Moroccan farmers would gain in efficiency and net margins. Biodiversity would be enhanced and climate resilient practices would preserve soil and water and would improve environment quality.

In case more Moroccan farmers converted to organic production, we could reduce unnecessary persistent and harmful pesticides from entering the environment annually. Indeed, pesticide use results in several negative environmental issues such as: (a) pesticides encourage disease resistance in crops, weeds, plant eating insects, and even bacteria and fungi; (b) Pesticides and chemicals sprayed contaminate the soil, water supply, and air; (c) Synthetic chemicals also discourage natural and innovative agricultural practices such as crop rotation, cover crops, manure and compost.

In order to ensure the rapid development of organic farming while preserving the environment, it is suggested to carry out large-scale concrete actions in four main directions [2,3].

- The national organic farming observatory (number of farmers, areas cultivated organically, market developments and market studies).
- The promotion of organic products and organic farming to consumers (radio and TV media campaigns, social networks and holding trade fairs).
- The resolution of problems related to access to organic seeds, the preservation of old seeds and bio-fertilizers.
- Direct support for major projects for the collection and processing of organic products, submitted by companies and involving farmers and distributors.

Countries that do not yet use all-out chemicals have certain advantages and can take shortcuts to move towards organic practices, closer to local traditional knowledge and more rooted in the earth. From this point of view, Morocco presents several assets and opportunities to be seized to develop its internal market and to take a significant place on the international level. It is still necessary to take appropriate and timely measures.

RESULTS AND DISCUSSION

If we analyze the evolution of organic areas by region in Morocco, we obtain the following table.

This table is important because it shows that organic production is far from being concentrated in regions that use few pesticides. The Souss Massa region is the most intensive region in the use of pesticides; it suffered a decline from 2019 to 2021. Other pesticide-using regions have been able to increase their share/Fez-Meknes and Rabat-Sale-Kenitra and Marrakesh. The region of the great south of Morocco of Draa-Tafilalet has seen its share increase sharply as it is a region where the use of pesticides is forbidden by the state in order to preserve the oasis ecological system. This observation invites the State to rethink its policy vis-à-vis the national coverage of Organic. In other countries, it is the preserved ecosystems that have developed their organic production as a priority (Tables 1 and 2).

Table 1. Evolution of organic areas in Morocco by region (ha).

Projection/year	Achievements 2019	Achievements 2020	Achievements 2021
Region			
Marrakech-Safi	2526	2221	3060
Fès-Meknès	2304	1408	5000
Rabat-Salé-Kénitra	1684	1760	3815
Drâa-Tafilalet	514	408	1745
Casablanca-Settat	1394	1074	1120
Souss-Massa	2047	1541	1960
Beni Mellal-Khénifra	176	176	195
Tanger-Tétouan-Al Hoceima	906	1358	1575
l'Oriental	570	355	456

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Laâyoune-Saguia al Hamra	0	0	0
Guelmim-Oued Noun	15	0	0
Dakhla-Oued Ed-Dahab	2	2	2
Total	12138	10303	18944

The Souss-Massa-Draâ region is probably the only one known for the existence of off-season products intended for export. It benefits from favorable pedoclimatic conditions. It is the leading production and export area for off-season early vegetables in Morocco, with 53% of market gardening SAU, 71% of national production, and 75% of Moroccan exports in value. One of the reasons is the establishment of foreign farms which represent 60% of FDI (Foreign Direct Investments) in the region. The origin of these FDIs is largely French and Spanish. The market for organic products is highly developed in these two countries, particularly France, which has contributed to the development of organic farming in the region and made France the leading importer of Moroccan organic products [4-6].

The region of Marrakech is the first area of production of organic citrus fruits, and the majority of the production is intended for export *via* the company ProNatura (According to the Chamber of Agriculture of Marrakech). In 1996, the French company (ProNatura) specializing in the production and marketing of organic fruits and vegetables in France, established its subsidiary in Marrakech (the company under Moroccan law), it leads a dozen local citrus producers for the export of all the production of the region. This is due to the pedoclimatic conditions of the region which allow the harvest to be extended over a long period given the diversity of the varieties used.

These companies from the destination countries seek to maintain a regular supply and are therefore looking for complementary or off-season products [5].

Export markets present opportunities for Moroccan exports, particularly in the category of fresh products, which is the most consumed by all markets and the most exported by Morocco.

Consumer and national and international markets

A number of findings from our field surveys can be put forward to further characterize the consumption of bio products in Morocco:

- Consumption that is growing for all CSPs (Socio-professional category), especially senior executives and the liberal professions.
- A relationship between consumption frequency and monthly income.
- In addition to their daily consumption, certain products are purchased and offered (eg fruit baskets, cosmetics), or used as a remedy.
- The reasons for consumption are above all the importance of health in the act of purchase. Environmental protection is the last marginal price factor taken into account.
- With regard to places of purchase of organic products: important role of supermarkets in the supply of organic products in the absence of MS (specialty stores) (Case of Marrakesh).
- The typical profiles of the buyer classes: First class: Married women, senior executives with an average age of 48, with at least one child and a monthly income of between 1,000 and 2,000 Euros. Typical profile of the second class: Married women, senior executives. Typical profile of the third class: Single women, members of a liberal professions, average age of 30 and a monthly income of between 1000 and 2000 Euros, with an average age of 47, two children and a monthly income above 2000 Euros;

- The need to develop local production, obtain economies of scale, introduce technical progress, and in order to obtain lower prices and therefore a favorable differential for organic consumption!!! Indeed, the price of Moroccan organic remains dissuasive. If we compare the price differential between Moroccan organic product and conventional product, the differential can range from 100 to 700%. By way of comparison, this differential in France can range from 100% to 300%.
- With regard to information, consumers who are not sufficiently informed about organic products and non-consumers even less.
- The average and popular Moroccan consumer is increasingly aware of food health issues through the existence of very fashionable consumer gurus on radio stations.
- Three important factors would encourage an increase in the consumption of organic products: lower prices, availability of products, and diversity of products.

Export markets, on the other hand, present opportunities for Moroccan exports, particularly in the category of fresh products, which is the most consumed by all markets and the most exported by Morocco.

In France, fruit and vegetable juices, vegetable drinks and fresh products are the products that are experiencing the strongest growth in consumption and whose internal supply is still low [7,8].

Germany mainly imports fresh products; however processed products are widely consumed by a large proportion of organic consumers (hot drinks, canned foods, spreads and bread). Morocco can further develop its exports for the following products: cherry tomatoes, peppers, argan oil, PAM, potatoes and carrots.

The United States is the largest market worldwide, absorbing all Moroccan organic olive oil exports, a product of which Morocco can still increase its production. Bananas, apples, nuts, almonds and vinaigrettes are also very popular with American consumers (Morocco can produce vinaigrettes which are experiencing strong growth in the American market, because it has the three types of organic products that make up this sauce).

Italy, the United Kingdom and Japan are modest markets but represent enormous opportunities in the coming years for Moroccan exports. With regard to Italy, the lack of consumer information represents the main obstacle to the growth of demand for organic products, since many consumers believe that organic products are produced only in Italy. The promotion of organic products in the media for this market will boost the consumption of organic products in the coming years. Products that can be exported to this market are argan oil, nuts, and fruits and vegetables.

Morocco can also export to the United Kingdom the range of fruits and vegetables (Onion, broccoli, lettuce, strawberries, apples and grapes), fruit juice and oils. It should be noted that baby food, including milk, is experiencing the strongest growth among all the products consumed by this market [8].

Japan is characterized by its very strict measures on the import of organic products and requires equivalence to its standards regulated by the JAS law, which has a negative impact on Moroccan exports to this market (0.4 tons only exported), since it does not yet have regulations recognized by the major markets. Fresh products, their juices and condiments and dressings are products widely consumed by the Japanese. Morocco can export them, not to mention the opportunities offered by gifts consisting mainly of organic coffees, teas, soaps, vegetable oils and cotton products. In this case, he can export gifts consisting of oils (cosmetic or food argan oil, cosmetic prickly pear seed oil or olive oil), argan-based soaps, and why not other organic local products, such as honey and cactus-based products (jam and racket fillet).

Insofar as in these countries, the demand for organic products is expressed through environmental concerns (which is not the case in southern countries such as Morocco where health considerations are determinants of demand), it

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is important that Morocco offers a range of organic products while showing the impact on its environment in terms of ecosystem preservation.

Regarding the most popular logos among consumers in order to guarantee the penetration of Moroccan products, national logos (specific to the country) benefit from a strong reputation among consumers who place their trust in these logos, except Italians who recognize more the German Bio-SIEGEL logo. Indeed, obtaining the AB, Bio-SIEGEL, USDA, Soil Association and JAS certifications (in addition to Ecocert) constitutes a form of insurance respectively for the French, German/Italian, American, English and Japanese markets.

Thus, information on organic products (origin, mode of production and controls carried out by certification bodies) is of great interest to consumers. In this respect, a multilingual website could be very useful for exporters to allow the consumer to access the desired information and build their confidence. These sites would also promote the new Moroccan organic logo and its regulations.

Regarding the Moroccan offer in organic products, we note that it is dominated by fresh products, especially vegetables, followed by certain processed products of vegetable origin, the main types of which are orange juice, oils, PAM and the olives. Generally, Morocco exports only a very limited range of fresh and processed products concentrated in two markets (Germany and France). In return, the markets studied are increasingly demanding fresh and dry products that are not exported by Morocco such as potatoes, carrots, apples, bananas, nuts or even almonds, and processed products. Which are excluded from the biological dynamics of Morocco, in particular animal production (meat, milk and derivatives and eggs), beverages, cereal products or even grocery stores?

In the following matrix, we have represented the strengths, weaknesses, opportunities and threats to Moroccan organic.

Table 2. Moroccan organic SWOT matrix.

Strengths	Weaknesses
- Geographical location and climate adapted to the production of off-season fresh produce - Presence of certification bodies with a strong reputation in the main organic markets of Morocco; - Position of world leader for Argan oil;	- A low-price differential in certain sectors (argan oil, prickly pear seed oil and its derivatives, spontaneous PAM and saffron); - Few producers still interested and competent in organic production (problem of training); - Organic cultivated surfaces limited in front of those which are spontaneous; - Range of products very little diversified; - Agricultural potential of several untapped regions; - Strong dependence on two markets: France and Germany; - Delay in the application of Moroccan regulations; - Absence of rigorous controls on Moroccan organic products, hampering their development on other potential and very strict markets (Japan). - More localized organic production in regions with intensive use of pesticides

Opportunities	Threats
- Continued growth in European organic markets, the American market and certain Asian markets; - Growth in demand for organic products for which Morocco has enormous potential (WFP, Argan Oil, Prickly Pear Seed Oil, Walnuts, Almonds, Dates and Honey); - Increasing demand for fruit, vegetable juices and vegetable drinks; - Opportunity to take advantage of Ecocert's reputation in Japan to export organic products (food and cosmetics) labeled by this organization to Japan; - Possibility of exporting organic food and cosmetic products packaged as gifts to the Japanese market; - Existence of a large number of international exhibitions and fairs	- Strong international price competition: the aid granted to players in the organic sector in Europe and the United States makes the prices of their products very competitive; - A growing production of organic olive oil in Spain, Italy and Tunisia; - Israeli investments in research and development on the argan tree ; - Trend of the French supply towards the self-satisfaction of internal demand for fresh products, the main products exported by Morocco; - Important environmental considerations in Western consumer demand, which Morocco can hardly show in its current organic offer.

In the light of the results obtained at the level of the analysis of the demand of the target markets in the world and the situation of Moroccan organic, we find that some products in high demand on these markets and produced by Morocco, are not yet among our exports (bananas, avocado, almonds, nuts, dates, condiments and other fruits). The potential for organic production in many regions of the kingdom is not exploited.

Coordination between institutional players in the organic sector and these producers is necessary to identify the various export constraints (production, processing and marketing constraints). In addition, the establishment of an organic development program in regions more or less excluded from the organic dynamic is necessary. It will also be necessary to take into consideration the environmental impact and not only the profit prospects for the producer. This concern could better serve the targeting of the Bio supply in export markets.

Current exporters, in turn, must take advantage of incentive measures to make their prices more competitive, as well as to compensate for the differences in sorting sold on the local market at the conventional price (the case of organic citrus fruits, where the difference can reach up to 40% of production, according to the Chamber of Agriculture in Marrakech) and which constitute a shortfall for them [7,8].

Proposals to promote organic in conditions of respect for environmental considerations

To promote the organic sector in the target markets, we suggest the following recommendations; Enrichment of information on the packaging and via a multilingual site.

- German and French consumers from two main markets in Morocco want to indicate on the packaging the country of origin or the regional designation and the address of the producers. An information system on all labeled products guaranteeing their authenticity by publishing the list of labeled products, specifying the specifications associated with the labels and detailing the latest checks carried out on a multilingual website, is important to gain consumer confidence in different markets;

- Raise awareness among Moroccan consumers of major environmental issues in their country and develop among producers an environmental culture in the conduct of their organic production;
- Strengthen participation in international exhibitions and fairs;
- Focus on the export of organic local products: argan oil, cactus seed oil, PAM and saffron.
- Specific strategies for each market.

In France

Develop fruit and vegetable processing (juice) and focus on organic dates. Export products with packaging bearing the AB label; Targets the circuit of specialized stores and even supermarkets.

In Germany

Bet on fresh products (peppers, bananas, cherry tomatoes, apples) and on dried fruits (organic dates, walnuts and almonds). BIO-SIEGEL or Bioland certification and Products sold at a price premium between 10 to 15%. Target supermarkets and specialized stores.

In Italy

Focus on expanding the range of processed products (biscuits and sweets, as well as those of animal origin such as butter and eggs). Betting on the German BIO-SIEGEL label because it is more popular with Italian consumers than the national logos. Target supermarkets and hard discount stores.

In United Kingdom

Focus on exports of fresh products: Onion, Broccoli, Lettuce, Strawberries and prepared foods. Target supermarkets and especially specialty stores because the most loyal consumers prefer the specialty chain. Soil Association certification or at least that of the European Union.

In USA

Bet on olive oil, bananas, apples, pears, and nuts. USDA certified; vs. Target specialty stores.

In Japan

Bet on high quality cosmetic products such as argan and cactus oil; given the constraints related to obtaining the "JAS" certification, bet on the certification of the Ecocert organization because it is very well known by the Japanese, or the USDA label, since the United States has established its equivalence with Japan. Products well packaged and sold at price premiums of between 20%-30%. Target super-hypermarket circuits; Take advantage of summer holiday (July) and birthday (late December) occasions to sell well-wrapped gifts.

On the domestic market

The location of production areas in regions highly intensive in pesticides should encourage reflection in terms of rebalancing. The Ministry of Agriculture should encourage and provide the means to develop production in areas with low pesticide intensity. The credibility of Moroccan organic food at national and international level depends on it. The State should also be able to have a credible discourse. What is the point of developing organic through an ambitious program contract and the creation of AMABIO and then FIMABIO, and on the other hand continuing to advertise on television the advantages of intensive use of phytosanitary products and pesticides? At the level of marketing, it would be necessary to diversify distribution circuits and encourage all short organic circuits as well as long circuits. The development of production and productivity could contribute to a reduction in the prices necessary if one wishes to develop Moroccan organic products. The example of Germany is there to show us that a substantial drop in the price of Moroccan organic is possible.

CONCLUSION

Biodiversity would be enhanced, and climate-resilient practices would conserve soil and water and improve environmental quality. Consumer education campaigns, starting in schools and ending in the media, should raise consumer awareness of the importance of the environment and the need to develop eco-organic agriculture. This education could also educate the consumer to be interested in organic products because of their public health benefits. It is under these conditions that we can hope to leave the prehistory of organic to move towards modern organic which is experiencing spectacular development in the advanced countries.

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