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Review

Olive cultivation in Algeria's arid areas, a strategic sector to stimulate

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Abstract: This study evaluates the olive-growing sector in Algeria's arid areas, which covers 16 500 hectares with 4 501 397 olive trees, including 3 963 844 massed and 537 553 isolated trees. Biskra province leads with 30% of the southern olive-growing area, followed by El Oued (21%) and Laghouat (15%). Although the Saharan olive orchard represents only 3.66% of the national olive-growing area, it contributes significantly to production, accounting for 6% of total trees, 7% of massed trees, and 37% of olive oil and 63% of canning production. Olive groves in the south are often intercropped with date palms. A vast program has been launched with the aim not only of satisfying national needs in terms of oil consumption and canned olive production, but also of extending olive-growing areas in order to increase yields, demonstrating significant efforts to develop the sector.

Keywords: olive growing; arid areas; promotion; constraints; prospects

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1. Introduction

The olive tree is a quintessential Mediterranean species. It can be found throughout the country where conditions are favorable. Olive-based products are diverse, and have provided an essential basis for the economic activities of rural populations. As a result of these socio-economic considerations, olive cultivation has grown steadily throughout the world, with the conquests and commercial expansion of olive oil right up to the present day.

In 2024, olive growing in Algeria will occupy an area of 450,000 ha, with a total of 70 000 000 trees across the country. The number of olive trees is 39 900 075, a rate of 57% [1].

Algeria is a key player on the world table olive market, ranking fourth worldwide for production and seventh for the size of its olive groves [2]. The development of the olive industry is a major preoccupation in terms of its contribution to food security and the diversification of the country's economy [3].

The Ministry of Agriculture, Rural Development and Fisheries has drawn up an ambitious program for the development of olive-growing, with the aim of reaching a potential olive-growing area of 1 million hectares by 2030. This program aims to: increase production and productivity; organize and coordinate the various segments and integrate the sector and the inter-profession; and obtain quality olive products.

In the Saharan region, olive groves account for just 4% or 16 500 ha of the total olive-cultivation area. The southern territories offer potential for transformation through agricultural production systems such as olive cultivation, which adapts to different types of soil and resists harsh climatic conditions. The olive tree, in particular, is one of the few crops capable of thriving in regions with low water availability, as demonstrated by experience in the far south of Tunisia, where annual rainfall does not exceed 120 mm [4].

Even in arid zones, the olive tree represents a sustainable and viable agricultural alternative.
The aim of this article is to present the olive-cultivation sector in Algeria's arid areas. It is based on available statistical data.

2. Olive cultivation in Algeria

2.1. Olive-growing potential

In 2024, olive growing in Algeria will cover an area of 450 000 ha, with a total of 70 000 000 olive trees, including 62 002 604 massed trees and 6 911 873 isolated trees. The number of related olive trees represents 57% of the total.

Olive-growing is concentrated exclusively in 07 main states, including the central region, accounting for over 75% of the total. Béjaia, Tizi-ouzou, Bouira, BBA, Jijel, Mascara and Setif alone account for over 2/3 of the total olive-growing area.

2.2. Dominant varieties

The dominant varieties are

- Chemlal: Tizi Ouzou region and part of Béjaia.
- Azeradj - Bouchouk and Limli: regions from Béjaia to Jijel.
- Blanquette and Roussette de Guelma: regions from Guelma, Annaba to Souk Ahras.
- Boughenfas, Neb Djemel: concentrated on the mountains of the pre-Saharan zones in the north-east of the country.
- Sigoise: for the western region.

3. Olive cultivation in arid areas

Through the Saharan regions, for 2024, the olive area extends over 16 500 ha, with a total of 4 501 397 olive trees, including 3 963 844 massed trees and 537 553 isolated trees. The number of interconnected olive trees is 2 619 200, a percentage of 58%.

In the Saharan region, the olive orchard represents 3.66% of the total olive-growing area, 6% of the total number of trees, 7% of the massed number, 6% of the isolated number and 6% of the number of related olive trees. In the Saharan regions, the distribution by state is as follows:

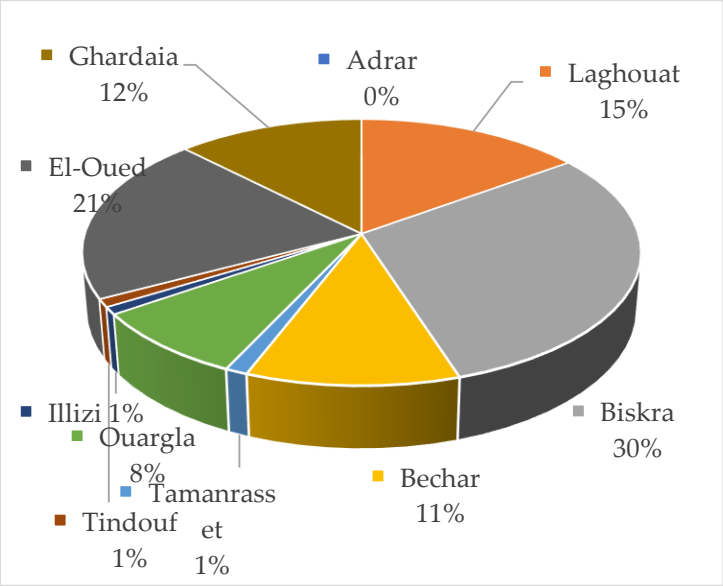


Figure 1. Distribution of olive groves in Saharan regions

According to Figure 1, it appears that Biskra state occupies the first row with an area with an area of 4 569 ha or 30 % of the total southern area, El Oued state in second position with an area of 3100 ha (21 %) and the state of Laghouat in third position with an area of 2 277 ha (15 %).

3.1. Evolution of olive-growing area (1998-2019)

According to statistical data highlighting the evolution of olive cultivation over the 22-year period from 1998 to 2019, we note the following:

- From 1998 to 2000, the olive-growing area was insignificant for all states;
- Following the implementation of the National Plan for Agricultural Development (PNDA) in 2000, the olive-growing area expanded steadily.
- The various reforms implemented in the sector led to a surface area of 12 973 ha in 2015.
- This area has grown considerably in recent years, rising to 15 030 ha in 2019, resulting in increased olive oil production and the establishment of new plantations [5].

This major expansion in area, of the order of 115% (2015/2019), raises the question of the role that Saharan olive growing will display in the very near future.

3.2. Situation of olive production

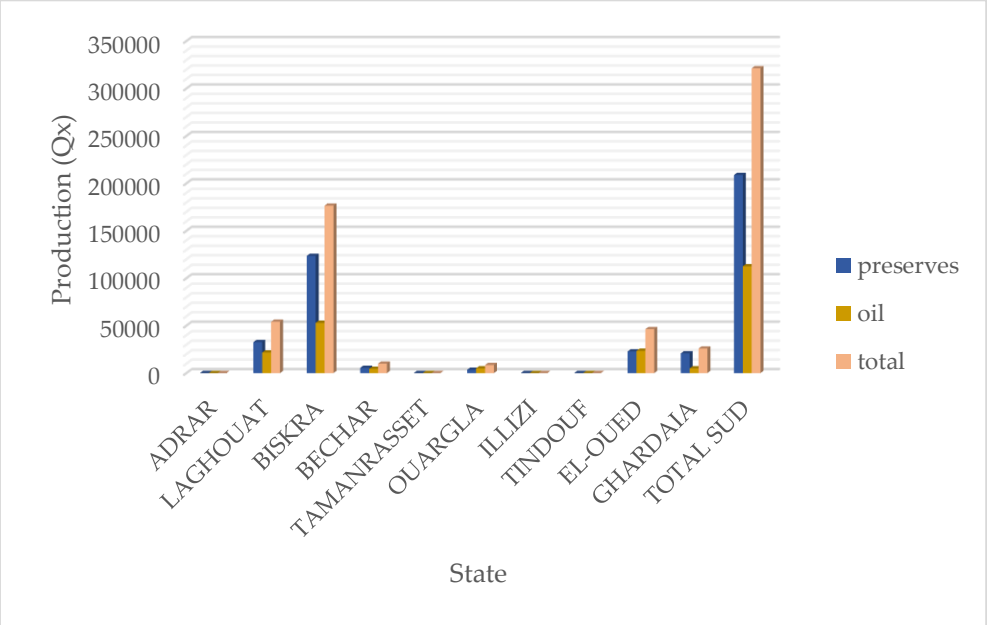


Figure 2. Olive production in Saharan areas

In 2019, olive production (Olive oil) in Saharan areas is 112 556 Qx. (i.e. 35% of total production in the south). National production is 5 690 100 Qx. Production for canning is 208 630 Qx, or 65% of total production in the Sahara (figure2). Table olives are mainly produced in the Wilayates of Biskra, Laghouat, Ghardaïa and El Oued. The national total is 2 997 441 Qx.

For 2019, the average olive yield across the Saharan zones is 13 kg/tree, while the national average is 20 kg per tree. It varies considerably according to edaphic conditions, climate, age of plantations and olive tree management [6]. Furthermore, [7] highlights the importance of the varietal factor, which remains one of the key elements in obtaining good yields.

- In arid areas, olive groves are typically planted in rows;

- It has been shown that olive trees grown under environmental stress in arid and semi-arid regions have been found to produce high-quality oil;

- The low yields recorded in the Saharan regions can be explained by the new introduction of the olive tree in these regions and the lack of technical skills and varietal adaptation.

4. National olive-growing development program

The national olive-cultivation development program focuses on enhancing the olive oil sector through various initiatives aimed at improving production techniques, technology, and environmental sustainability.

The main thrusts of the olive-growing development program are as follows:

-Extension of the olive orchard (identification of new sites, intensification);

-Use of water-saving irrigation systems;

-Intervention on existing potential (good olive-growing practices);

-Modernization of the olive industry (best practice guide for the treating process).

For the components of the national olive-growing development program, it consists of the following components:

-Support for existing potential;

-Support for young plantations (coming into production);

-Orchard extension;

-Supervision of plant material production;

-Olive industry and storage and packaging capacity.

Constraints

The olive sector faces several challenges, including Figure 3

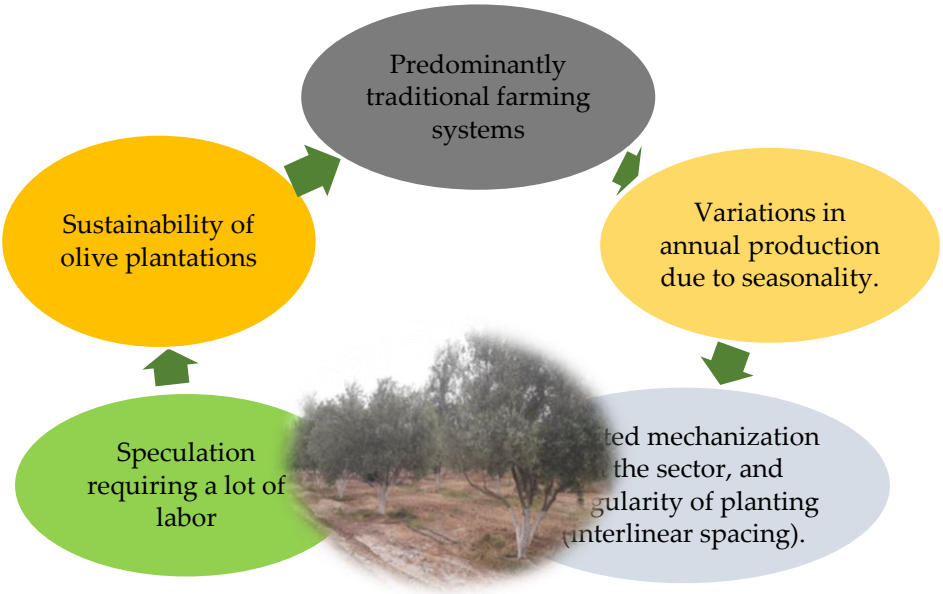


Figure 3. Diagram of olive-cultivation constraints

5. SWOT analysis of the olive sector

The analysis of the olive industry has highlighted the problems and obstacles that handicap all its links, from the choice of olive seedlings to the marketing of products, not forgetting research, supervision and the provision of inputs and planting material. These obstacles prevent the development of the investments needed to improve the sector's competitiveness and efficiency. The sector's development and potential, and its economic, social and environmental importance, call for the urgent implementation of a number of measures.

Strengths

- Hardy Mediterranean species with low water and soil requirements.

- Age-old tree resistant to pedo-climatic hazards such as drought and cold or hot winds.
- High processing capacity.
- Ease of marketing for quality products.
- Government incentives for both cultivation and processing (acquisition of oil mills).
- Existence of a semi-arid and Saharan intensification and extension program.

Weaknesses

- Lack of mastery of cultivation techniques.
- Manual harvesting in small quantities, with long storage periods.
- Unchecked harvested products in unsuitable packaging.
- Lack of product labeling.
- Insufficient research and extension work in the olive sector.
- Insufficient awareness among olive growers of the quality of olive products (olives, oil).
- Disorganization of the olive-growing sector, resulting in recourse to imports.

Opportunities

- Shift in consumer behavior away from vegetable oils due to their organoleptic qualities;
- A booming and lucrative local market, opening up new prospects thanks to the increasing integration of olive oil in national gastronomy;
- The government's desire to promote non-hydrocarbon exports;
- Low levels of domestic competition.

Threats

- Insufficient control of new plantings due to a lack of professionalism in cultivation practices, leading inevitably to a drop in yields and quality.

- Product quality affected by high acidity.

- Abundant presence of pests negatively affecting yields.

- Loss of farmland to urban development.

- Disorganized and non-operational cooperative and associative movement.

- Irregularity of olive production.

6. Actions & prospects

◎ Create synergy among the various stakeholders and their actions (e.g., research, development, extension, training, cooperatives and professional structures, quality and quality control, packaging, processing, marketing, export, etc.).

◎ Strengthen and support professional structures.

◎ Encourage the creation of olive-growing cooperatives.

◎ Development of research activities focusing on the following aspects: - Pruning and mechanization of harvesting - Olive disease treatment and monitoring - Integrated pest management and multiplication of natural enemies - Organic olive growing (protocols, standards and certification).

◎ Development and harmonization of extension activities to cover the entire depth of the olive-growing chain, from cultivar selection to marketing.

Conclusion

In the south, the olive grove represents only 3% of the national total, generally intercropped with date palms.

Agricultural support programs initiated by the public authorities have enabled olive growing to spread throughout the south. The government has made great efforts to develop the olive industry. A vast program has been launched with the aim not only of satisfying national needs in terms of oil consumption and canned olive production, but also of extending olive-growing areas in order to increase yields, which vary between 13 and 16 quintals per hectare, to 24 quintals per hectare for olive oil and 27 quintals per hectare for table olives; This will lead to an increase in production of around 1 700 tons per year, without forgetting the need to strengthen the level of organization and commitment of the various players in the sector, who must master the process from production to the final product, which must be of high quality, bearing in mind that farmers in these Saharan areas need training in pruning, grafting, crop maintenance, phytosanitary treatment and olive processing.

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