



Analysis of the competitiveness of the agricultural sector in Algeria 2000-2024

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Abstract ;

This article aims to analyze the competitiveness of the agricultural sector in Algeria during the period 2000-2024, by presenting the available agricultural potential and the various government policies implemented, as well as the evaluation of the performance and competitiveness of this sector using a set of internationally recognized indicators. The analysis showed that Algeria has significant and diversified natural resources (agricultural areas, climatic diversity, water resources), but their exploitation has not yet reached the required level.

The paper concludes with a set of conclusions and recommendations, including improving the effectiveness of public support, promoting private investment, developing logistics infrastructure, and stimulating innovation and digitalization in agriculture, thus improving the competitiveness of the sector in the medium and long term.

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1. Introduction:

The agricultural sector is considered as one of the main pillars of the Algerian economy, through its key role in achieving food security and contributing to the improvement of a set of performance indicators of the national economy, including its contribution in the GDP, providing of job opportunities and reducing unemployment rates, as well as contributing in the success of import substitution, and then contributing to the diversification of the export structure at a later stage. However, this sector faces many challenges that limit raising its competitiveness, both at the local and international levels.

Since the beginning of the third millennium, and in view of the improvement in the financial situation of Algeria due to the increase in oil prices, the country has embarked on adopting a set of new agricultural programs and policies related to material, financial and human aspects, with the aim of improving the performance of the agricultural sector, developing its productivity, enhancing the quality of agricultural products and the competitiveness of this sector, both within the national economy and the international markets.

The research problem: The problem of this research revolves around analyzing the role of agricultural policies adopted in Algeria during the period 2000-2024 in enhancing the competitiveness of the agricultural sector through various indicators, where we ask our main question as following:

What is the reality of the competitiveness of the agricultural sector in Algeria during the period 2000-2024?

The main hypothesis of the research:

The agricultural policies followed in Algeria during the period 2000-2024 have improved the competitiveness of the agricultural sector.

Research Objectives: The main objectives of this research are:

- Presenting the main determinants of the competitiveness of the agricultural sector in Algeria;
- Identifying the agricultural policies followed in Algeria in order to develop and modernize this sector;
- Exploring the role of these efforts and policies in enhancing the competitiveness of the agricultural sector and improving its performance;
- Proposing some recommendations that can help in ensuring the sustainability of the competitiveness of the agricultural sector in Algeria.

The importance of the research:

- The competitiveness of the agricultural sector has a great importance to governments, given its effect on different dimensions, such as the economic dimension through contributing to food security and import substitution, the political dimension by reducing food dependence to other foreign countries, and socially by contributing to the providing of job opportunities and the development of rural regions, as well as environmentally by contributing to the selection of more sustainable and environmentally acceptable agricultural policies.

2. Determinants of the competitiveness of the agricultural sector in Algeria:

2.1. Determinants related to agricultural production factors:

2.1.1. Natural determinants:

2.1.1.1. Agricultural areas:

The following table shows the development of agricultural areas in Algeria between 2000 and 2012, including the used areas and the suitable for cultivation:

Table 1: Development of agricultural areas in Algeria during the period 2000-2021

(Unit: thousand hectares)

designation / Year	2000	2002	2004	2006	2008	2010
Area of land used for agriculture	40983.840	40817.940	42380.630	42448.840	42466.920	42443.860
agriculture area	8193.740	8270.930	8389.640	8414.670	8423.340	8445.490
Statement / Years	2012	2014	2015	2017	2019	2021
Area of land used for agriculture	42499.430	42888.555	43395.254	43395.254	43764.672	44395.786
agriculture area	8454.630	8465.040	8487.854	8864.123	8912.387	8987.456

Source: Based on the statistics of several publications of the National Office of Statistics

<http://www.ons.dz>

The above table figures show some evolution in suitable areas, growing from 8,193 million hectares to 8,987 million hectares during the period of study, with a noticeable acceleration after 2015, due to land rehabilitation efforts and various support programs in this area.

2.1.1.2. Water resources

Water resources in Algeria are linked to rainfall, which in its turn is linked to the characteristics of the climate, which varies between arid and semi-arid, making these resources insufficient. Therefore, it is not possible to rely only on traditional methods of water collection; instead, it is necessary to seek unconventional methods of water collection and storage, which will be discussed below. (Habitr, 2017, p. 161_163):

_ Traditional Water Resources:

Algeria's real water resources are estimated at **19.4 billion cubic meters**, of which only **75%** are renewable. Surface water accounts for **60%** of these resources, while groundwater accounts for about **15%** (Habitr, 2017, p. 161), and these resources can be divided into the following types:

- **Surface resources:** Algeria has **17** water basins that fall into three main groups:

- ✓ The first group: Mediterranean basins.
- ✓ The second group: the basins of the upper plains.
- ✓ The third group: Desert basins.

The total resources of these three basins amount to approximately **12.7 billion cubic meters**, and include 81 dams with an estimated capacity of 9 billion cubic meters in 2024 (National Agency for Water Resources, 2025).

- **Underground resources :**

These resources are concentrated in renewable reservoirs in northern Algeria and the basins of poorly fed desert areas, where they are estimated at **9.3 billion cubic meters**.

Conventional water resources in Algeria cover approximately **17.25 billion cubic meters** of water needs, and rainfall is the main source of water in Algeria, with surface runoff constituting about **13.50 billion cubic meters**, while groundwater occupies the second place as a water source with about 4.36 billion cubic meters.

Non-conventional Water Resources: Non-conventional water resources include:

- **Desalination of seawater:** Due to the inability to increase the resources of rivers and rainfall due to their dependence on uncontrollable natural factors, desalination of seawater has been turned to as a practical solution, especially since Algeria is located on the coast of the Mediterranean Sea with a length of **1,644 kilometers**. The number of stations allocated for this purpose reached 25 stations in 2025, of which 12 stations are in service with an estimated production capacity of 3.7 million cubic meters per day (Ministry of Water Resources, 2025).
- **Wastewater treatment** Wastewater can be exploited after being treated using modern technologies to meet some agricultural needs and other uses.

Table 2: Evolution of the volume of freshwater used for agriculture in Algeria 2000-2020
(unit: billion m³)

Years	2000	2002	2004	2006	2008	2010
Water volume	3,43	3,63	3,9	4,18	4,45	4.72
Years	2012	2014	2016	2018	2020	
Water volume	4,99	5,80	6,40	6,67	6,67	

Source: UN-Water, SDG 6 Data Portal <https://sdg6data.org/ar/tables>

The agricultural sector is one of the most water-consuming sectors, using nearly **50%** of the total water resources available in Algeria. The demand for water for agricultural irrigation in **2000** was estimated at **3.43 billion cubic meters**, equivalent to 49.18% of the total water demand, and is expected to reach 35.15% of the total water needs in **2025**, equivalent to **3.65 billion cubic meters**, while the demand for irrigation water is expected to be estimated at **4.25 billion cubic meters** in **2047**, equivalent to 29.84% of the total water demand (Habitri, 2017, p. 164).

2.1.1.3. Livestock:

Cattle plays a pivotal role in enhancing the competitiveness of the Algerian agricultural sector, as it is one of the main pillars on which food security and the rural economy depend. According to recent statistics, the cattle sector contributes about 35% of the value added of the agricultural sector in Algeria, reflecting its great economic importance. The data indicate that cattle during 2023 included approximately 19 million heads of sheep, 1.9 million cows, 5 million goats, in addition to 183,000 camels and large numbers of poultry (Ministry of Water Resources, 2025). It contributes mainly to the supply of animal protein sources, such as meat, milk and eggs, which meet a large part of the needs of the local population.

In addition, the livestock sector contributes to the creation of direct and indirect employment opportunities for hundreds of thousands of people, especially in rural areas, which enhances social and economic stability. The development of this sector also helps to reduce the amount of imports; however, it still faces challenges related to improving its productivity, developing the necessary infrastructure, and promoting the integration between plant and animal production to achieve sustainable agricultural development.

2.1.2. Human Determinants:

The human element is one of the main pillars of the development of the agricultural sector in Algeria, where labor plays an important role in enhancing productivity and achieving food security. According to recent statistics, this sector employs about 2.6 million people as agricultural workers, who represent more than 74% of the rural labor force and 24% of the national labor force (Algerian Investment Promotion Agency, 2025). Moreover, it ensures the food security of the country by covering more than 74% of the national needs of agricultural products, making it one of the largest sectors of employment, especially in rural areas. However, the sector faces challenges related to the aging of the labor force, as it is estimated that more than 60% of farmers are over the age of 50, which requires the rehabilitation and training of young generations to ensure the sustainability of this sector. In addition, improving the skills of agricultural workers and providing modern technology will contribute to raising productive efficiency, which enhances the competitiveness of the sector locally and internationally. Thus, investing in the human element and developing its competencies is a crucial factor for achieving sustainable agricultural development in Algeria.

The following table represents the evolution of employment in the agricultural sector during the period of study:

Table 3: Evolution of the volume of employment in the agricultural sector in Algeria during the period 2000-2024 (Unit: 1000 workers)

Year	Total number of active workers	Number of workers in the agriculture sector	Ratio of agricultural labor to total active labor
2000	8850	1185	13.40
2002	9303	1438	15.45
2004	9780	1617	16.53
2006	10267	1780	17.33
2008	10801	1841	17.04
2010	10812	2244	20.75
2012	11423	2476	21.67
2014	11453	2550	22.26
2016	12117	2545	21.00
2018	12400	2648	21.35
2020	12102	2650	21.89
2022	13023	2650	20.34
*2024	13200	2700	20.45

*: Estimates

Source: AOAD, Yearbook of Statistics, collection of volumes <https://www.aoad.org>

2.1.3. Capital Determinants

2.1.3.1. Fixed capital (agricultural mechanization):

Mechanization is an important factor that led to the **agricultural revolution** in all developed countries. Mechanization has replaced humans and animals, resulting in an estimated productivity increase of 20% and 30%. In developing countries, mechanization is used on a small scale, and its use is subject to factors, the most important are (Ben Sousha, 2024, p. 95):

- ✓ **The size of the farm** that does not hinder the uses of modern machinery;
- ✓ **Availability of capital** to acquire machinery;
- ✓ **Farmers' culture** and willingness to use these modern methods;
- ✓ **Seed and fertilizer equipment:** The rational use of this type of machinery allows for the even distribution of seeds and fertilizers so that plants receive nutrition and aeration. The automated use of plant protection products also helps prevent fatal plant diseases, leading to increased productivity and production. Agricultural mechanization also includes:
 - **Traction equipment:** Despite the remarkable development, this quantitative growth in the fleet of traction equipment from one year to another is not a sufficient indicator of the progress of agricultural mechanization. Studies and statistics have shown that the agricultural sector needs 6,000 to 70,000 tractors per year, according to the Economic and Social Council.
 - **Harvesting and threshing gear:** Harvesting is a vital process that takes place at the end of the agricultural season. Climatic conditions in Algeria may affect the late harvest, which may result in losses of staple crops (cereals) and consequently lower yields.
 - **Tillage equipment:** Land preparation is essential to provide favorable conditions for plant growth. Tillage requires specialized and sophisticated equipment depending on the soil type, and aims to improve aeration and eliminate weeds.

2.1.3.2. Revolving capital: This includes fertilizers, pesticides, sanitary and veterinary materials.

- **Fertilizer:** Fertilizer is a water-soluble substance added to agricultural soil to improve the quality and quantity of crops. The most important types are:
 - ✓ **Organic fertilizers:** They improve the natural qualities and fertility of the soil and their source is plant, animal, or both.
 - ✓ **Chemical fertilizers:** They contain nutrients that are easy and quick to use, but they require extreme knowledge and caution when using them.
- **Plant and animal sanitary materials:** Modern agriculture requires a lot of materials and pesticides that help in combating diseases that appear in the agricultural environment, which may negatively affect production and damage crops.

The following table shows the evolution of the capital directed to agricultural production in Algeria during the period 2000-2022

Table 4: evolution of the capital directed to agricultural production in Algeria during the period 2000-2022 (DZD billion)

Year	2000	2001	2002	2003	2004	2005	2006	2007
Capital	82,66	91,90	101,02	114,32	127,97	140,16	150,64	185,87
Year	2008	2009	2010	2011	2012	2013	2014	2015
Capital	223,07	250,83	275,07	292,47	304,65	329,73	362,99	389,40
Year	2016	2017	2018	2019	2020	2021	2022	
Capital	413,30	410,00	344,23	363,47	403,45	374,11	389,24	

Source: FAO database <https://www.fao.org/faostat/ar/#data/CS>

2.2. Financing determinants (bank lending)

Financing in general in the agricultural sector represents the sum of agricultural loans in their various forms, which have been disbursed by commercial banks and competent authorities to finance various agricultural activities.

These bank loans take several forms that can be explained as follows (Bank of Agriculture and Rural Development, 2025):

2.2.1. Errafik Loan: loan fully subsidized by the State and allocated to breeders and farmers organized into cooperatives or agricultural groups.

2.2.2. Federal Errafik Loan (Federal): This loan is intended for commercial enterprises and cooperatives active in the processing or storage of agricultural products. It is also a fully state-guaranteed loan intended for businesses active in the following areas: tomato processing, cereal production, milk production, potato seed production, pasta and couscous manufacturing units, date packaging and export, olive and olive oil production, honey production, etc.

2.2.3. Ettahadi Loan: A long-term, partially subsidized bank loan granted by the government for the purpose of cultivating unused land, establishing new farms, and raising livestock. This is a 7-year subsidized loan for the creation of new farms and livestock farming on an area not exceeding 10 hectares.

2.2.4. Ettahadi Federal Loan: This is an investment bank loan, partially guaranteed by the state, intended for a specific group of individuals involved in the processing, packaging, and storage of agricultural products. The loan term ranges from 3 to 15 years, with an interest rate of 0% for the first 3 years and 0% for the first 5 years. The lender's personal contribution ranges from 10 to 20%, ranging from 1 million Algerian dinars to 200 million Algerian dinars.

In addition to loans granted under special programs, which are:

- The subsidized loan granted by the National Microcredit Management Agency (NMMA): it is intended to finance agricultural activities for young people over 18 years of age. The loan is characterized by bank financing of 70% of the loan, agency financing of 29% and a contribution from the farmer not exceeding 01%.
- The subsidized loan from the National Unemployment Insurance Fund (NUIF) program: This is a long-term bank loan for emerging microenterprises in the agricultural sector, intended for unemployed people aged 30 to 50. This three-year loan provides the Bank for Agriculture and Rural Development with 70% of the project's value, while the agency contributes 29%, and the personal contribution represents 1% of the project's value.
- The National Youth Employment and Support Agency (NYESA) Subsidized Loan: This is a long-term loan provided to farmers aged 19 to 35 under the youth employment program. Its features are the same as those of the loan for farmers under the (NUIF) program.
- Leasing: Financial leasing is a sale loan with a purchase option for renting locally manufactured agricultural machinery and irrigation equipment for direct use in investment projects. Leasing is also considered a partially government-subsidized loan. Al BADR Bank provides its financing through a fixed-term lease agreement with (Agricultural and Rural Development Bank, 2025):

- ✓ Personal contribution ranging between 20% and 30% of the cost.
- ✓ The lease term ranges from 3 to 5 years.
- ✓ The credit amount is up to 100% of the cost.
- ✓ Interest rate of 5% (4% is an advantage from government).

The following table shows the evolution of the volume of loans to the agricultural sector in Algeria during the period 2002-2021 (Arab Organization for Agricultural Development,, 2025):

Table 5: Evolution of the volume of loans to the agricultural sector in Algeria during the period 2002-2021 (unit: one million US dollars)

Year	Facility Size	Growth Rate	Year	Facility Size	Growth Rate
2002	28,13	/	2012	29,57	-6,63
2003	11,62	-58,69	2013	28,45	-3,79
2004	14,02	20,65	2014	29,15	2,46
2005	13,9	-0,86	2015	52,46	79,97
2006	16,84	21,15	2016	43,8	-16,51
2007	19,6	16,39	2017	29,0	-33,79
2008	41,7	112,76	2018	30,0	3,45
2009	31,56	-24,32	2019	21,97	-26,77
2010	30,82	-2,34	2020	37,3	69,78
2011	31,67	2,76	2021	37,4	0,27

Source: AOAD Reports (set of issues) <https://www.aoad.org>

3. Agricultural policies in Algeria during the period 2000-2024:

The agricultural sector in Algeria has received great attention by the government, as a set of agricultural policies and strategies were adopted starting in 2000 with the aim of strengthening and developing this sector. These efforts have been undertaken in pursuit of overarching development objectives, in particular the enhancement of food security. These policies are a set of actions and programs designed to improve agricultural productivity and ensure the sustainability of natural resources, namely:

3.1. The National Plan for Agriculture (PNDA) in 2000:

The National Agricultural Development Plan, which was launched in the second half of 2000, is a strategic mechanism aimed at enhancing the technical, financial and legislative framework of the agricultural sector, with the aim of reaching modern agriculture that ensures self-sufficiency and enhances food security, by preserving and protecting natural resources, and exploiting them rationally, in addition to land reclamation, improving the use of available capabilities, developing the productive capacities of agricultural inputs to achieve sustainable development in the sector, and promoting products with a proven comparative advantage.

The National Agricultural Development Plan aims to address the previous gaps in the sector, with a focus on a set of basic directions, which are (Ben Sousha, 2024, p. 82):

- To achieve food security for the country, by ensuring the provision of food to the population, enhancing purchasing power, with rational exploitation of natural resources, and developing promising sectors to improve their productivity;
- Sustainably improve the level of food security of the country in order to facilitate the population's access to basic food needs, while rationally exploiting natural resources and developing products with competitive advantages in order to improve them, as well as enhancing the capabilities of the agricultural sector in creating decent job opportunities, raising the level of income and improving the standard of living of farmers.

The success of this scheme is achieved through nine major agricultural programs, including five programs aimed at modernizing and developing agricultural investors and livestock breeding, as follows (Ministry of Agriculture and Rural Development, 2000, p. 72):

- Programmes for the modernization and rehabilitation of agricultural investors ;
- Productivity improvement and production intensification programs;
- Programmes for the development and adaptation of production systems;
- Programs for the valuation of agricultural production (conversion, air conditioning, storage, marketing);
- Program to support investment in agricultural investors.

The plan also includes four programs aimed at protecting and developing the natural environment and creating new job opportunities, as follows:

- the National Afforestation Programme;
- Driver
- the Programme for the Protection and Development of the Steppe Areas;
- Oasis Protection and Development Program.

In 2004, the scheme expanded to include rural development as well, due to the poverty and deprivation that rural areas suffered, as it includes nearly half of the poor of Algeria, and this is due to the low incomes of farmers and their insufficiency to meet their needs, in addition to the deterioration of the situation of agricultural investors after the privatization of the agricultural sector by the state. Thus, the scheme included rural development as a living space characterized by a distinctive lifestyle, and therefore it must be integrated into the national economic development plan, by encouraging agricultural investment in the countryside, and ensuring that rural residents benefit from state support and improve their incomes and living conditions in order to encourage them to settle in the countryside and pay attention to agricultural activities (Ben Sousha, 2024, p. 83). This scheme is based on three main axes (Ministre délégué chargé du développement rurale, 2004, p. 50_52):

- Establish multisectoral partnership and integration within rural regions;
- Balanced valuation of resources and heritage of rural territories and their functioning within the perspective of development;
- These have all pointed to the need for structural changes within forestry organizations to address gender equality.

The State has identified a set of financial agencies and technical mechanisms necessary for the implementation of this plan, as follows (Ben Sousha, 2024, p. 84):

3.1.1. Financial institutions: They were represented in the various funds established for this purpose, namely:

- National Fund for Control and Agricultural Development;
- the Concession Reclamation Fund;
- Synergistic Agricultural Loan.

3.1.2. The technical mechanism: A multi-faceted technical framing system has been developed that is appropriate to the nature of the specific technical activities of each sub-programme. This method is considered an agricultural investment as a basic unit in the agricultural production process, unlike branch development programs that target the product itself. This has given a new character to agricultural policy by adopting the criterion of economic merit for production units, not the legal nature that distinguishes between what is private and public.

3.2. The Policy of Agricultural and Rural Renewal 2008-2014

The policy of agricultural and rural renewal was based on three strategic pillars (Almahi Thoraya and Uzal Abdulqader, 2021, p. 171):

3.2.1. Agricultural renewal: It is based on the approach of branches, by focusing on the priority branches of enhancing the productivity of agricultural capital, developing agricultural and rural infrastructure, and organizing programs.

It aims at the integrated, balanced and sustainable development of rural regions, and in order to achieve this goal, it develops neighboring projects for integrated rural development (PPDRI), which are sponsored by local actors. These projects pursue the economic and social goals of employment, improving returns, and stabilizing communities. These neighbourhood projects have been subsumed under the National Plan for the Development of the Territory (SNAT 2025).

Rural regeneration is also concerned with improving the standard of living and production in difficult areas such as mountains, steppe, and desert. It is based on community participation and mobilizes all parties, including individuals, local groups, cooperatives, professional organizations, agricultural investors, training institutes, and loans. The rural regeneration activity covers all areas (such as crafts, drinking water, electricity, valorization of cultural heritage...), and promotion of sectoral overlap.

3.2.2. Rural regeneration: This program is based on five main axes that constitute at the same time basic objectives, namely: combating desertification, maintaining water bodies, preserving and enhancing forest wealth, protecting ecosystems, in addition to reclamation operations. The program focuses on the economic aspect through agricultural regeneration, which aims to enhance productivity and ensure sustainable food security. It also supports the agricultural intensification and modernization of the agricultural sector by including women investors in the "Division" system, by organizing investment-oriented support operations to maximize added value across all stages of the Division, from production to consumption. The most prominent priority divisions in this program include: grains, dry vegetables, animal feed, potatoes, milk, red and white meat, olive cultivation, dates, industrial tomatoes, seeds, seedlings, and palms, in addition to water economics.

3.2.3. Program to support human energies and technical assistance to producers: The State has allocated 1,000 billion dinars of public expenditures for this program, and its objectives are as follows:

- Improve the growth rate of average agricultural production;
- Increasing national production and improving its various types;
- Supporting sustainable development and regional balances, and improving the living conditions of rural residents, through the implementation of 10,200 rural development projects across 2,174 rural areas, the completion of 727,000 rural dwellings, and the protection of more than 8.2 million hectares of land;
- Sustainable management of industrial machinery and improved agricultural and industrial integration;
- Creating about 750,000 permanent jobs and creating new sources of income outside the agricultural sector.

3.2.4. Stimulus Framework: It is a set of procedures, tools and devices placed within the reach of the three pillars of the policy of agricultural regeneration, rural regeneration, human capacity strengthening program and technical assistance. These tools are (Almahi Thoraya and Uzal Abdulqader, 2021, p. 171):

- refocusing support devices (i.e. support centrality);
- Clear and incentive procedures for private investment;
- secure access to natural resources from irrigation water and real estate assets;
- Facilitating access to financial services (single window, companion loan, challenge loan, agricultural guarantee fund...);
- regulation and stability of markets;

3.3. Agriculture Work Plan 2015-2019

The work plan of agriculture is based on three basic pillars, which are as follows (Amirouche Bouchlaghem and Karima Bouguerra, 2022,, p. 33):

- The **first pillar**: Agriculture and livestock: This is done by modifying, modernizing and developing the structure of the agricultural sector, encouraging the competencies of the agricultural sector, and following up and supporting agricultural entrepreneurs;
- **Pillar 2** : Give importance to forest production and encourage ecotourism;
- **The third pillar**: Following up and supporting investment programs in the fishing and aquaculture sector, increasing the development of fish exports while taking care to protect and protect fishing places.

The agricultural work plan aims to increase the average growth in the agricultural sector by 05% in the value of production estimated at 4300 billion Algerian dinars, afforestation environment by 13% , reducing the value of agricultural imports by 02 billion dollars annually, and increasing exports by 1.1 billion dollars annually, as well as reaching 1500,000 jobs in the agricultural sector.

3.4. Roadmap for agricultural and rural development 2020-2024:The Algerian agricultural sector is a major contributor to the country's economy . According to the roadmap developed by the Ministry of Agriculture for the period 2020-2024, the goal is to reduce the annual food import bill, estimated at \$10 billion, and develop the people of strategic commodities such as wheat, corn, sugar crops and oilseeds. The roadmap emphasizes the importance of modernizing the irrigation system to alleviate water stress and increase productivity. The roadmap also provides opportunities for exporters and investors, particularly in commodities such as wheat, milk powder, soybeans, maize, food and beverage ingredients, animal feed, pulses, walnuts, almonds and wood (Nadia Mostefaoui and Hayat Brahimi Benharrath, 2024, pp. 78-77).

This paper is based on a number of basic axes, which are as follows:

- Increase agricultural production and productivity by expanding irrigated areas;
- Rational use of agricultural land;
- Paying attention to agricultural and rural development in steppe and pastoral areas as well as mountainous areas;
- to develop, promote and ensure the conservation of forest heritage;
- Development and promotion in desert areas;
- Integrate knowledge and digitization into development programs.

In the same context, priorities have been identified, so that a short-term program and another program of an ongoing nature have been prepared. The short-term program is concerned with the development of desert agriculture, through the expansion of areas with capabilities and the development of industrial crops (such as corn, soybeans, sugar beets, etc.). As well as the establishment of the National Office for the Development of Industrial Agriculture in the Sahrawi Lands.

The most important axes of the roadmap related to the development of the sector, which has been prepared and which has entered into force with its specific objectives and deadlines for its implementation, are based on a number of foundations, intended to revive the mechanisms of agricultural work in its various aspects, as these initial foundations are:

- Structured investment, strategic people development, especially grain, rationalization of public expenditures, significant reduction in the import bill and valorization of agricultural products (industrial agriculture and export);
- Inclusion of capital in agriculture, digitization to revive the efficiency of management, support the field of innovation, boost small enterprises, improve incomes in the rural world and provide social and professional framing for farmers;
- Developing industrial agriculture through integrated valuation, especially the production of nutritional oils and residues (peanuts and soybeans..) Sugar (sugar beet), corn, and others, as they are considered strategic people that have effects on the national economy in terms of import.

4. The evolution of the competitiveness indicators of the agricultural sector in Algeria during the period 2000-2024:

The agricultural sector in Algeria witnessed a remarkable development in its competitiveness indicators during the period (2000-2024), as agricultural policies and modern investments contributed to increasing agricultural production and significantly enhancing agricultural productivity, which is reflected in the various indicators related to agricultural competitiveness, the most important of which we will try to address in the following:

4.1. Macro-Economic Indicators

4.1.1. The development of peasant production in the basic production divisions

Table 6: Evolution of agricultural production in the main production divisions 2000_20 22
(unit: thousand tons)

Years	Cereals	Dry legumes	Vegetables	Red and white meat	Milk
2001	3287.66	51.80	3631.11	421.55	1634.64
2005	4011.74	44.07	3995.41	340.89	1773.54
2006	1702.05	40.17	6068.13	478.01	1878.52
2008	4001.65	72.32	8640.42	559.66	2854.07
2010	5137.15	84.29	10402.3	606.33	3063.84
2012	3435.23	93.70	12297.7	715.82	3648.55
2014	3445.16	77.31	8880.46	1053.18	3586.53
2016	6065.94	146.30	9409.39	989,67	3280.00
2018	4392.30	115.05	10287.2	798,52	3189,24
2020	4717,64	100,21	10021,24	803,13	3263,60
2022					

Source: AOAD, Agricultural Statistics Yearbook, set of issues
<https://www.aoad.org>

Through the figures in the table, the following observations can be recorded on the various production divisions throughout the study period:

- Cereal production has fluctuated continuously, and its lowest level was recorded in 2008 with a production volume of 1702,05 thousand tons, and this decline is mainly related to the decline in rainfall levels, while its highest level was recorded in 2018 with a production of 6065,95 thousand tons, and this improvement is mainly due to the high level of precipitation on the one hand, and the various support and care policies that this division has received.
- The legumes division also witnessed fluctuating performance, rising and falling, as it recorded its highest level according to the data contained in the table in 2018 with a production volume of 146,30 thousand tons. According to the Guardian Ministry, this development is related to the high productivity per hectare of the cultivated area, which is due to the use of modern technologies and improving the quality of seeds.
- As for the Greens Division, it is characterized by the continuous rise in production during the first years of the study, recording the highest volume in 2014, which amounted to 12297.7 thousand tons, with a decline recorded in subsequent years. The significant growth recorded in this division comes due to the emergence of new and important production poles in the south of Algeria, such as the states of Wad Sof and Biskra, in addition to the impregnable state in recent years.
- As for the meat division with its red and white varieties and the milk division, although they did not achieve high rates of self-sufficiency, they recorded a remarkable improvement in production levels between the beginning and end of the period, and this is due to the increased interest in these two divisions despite the significant rise in their costs, especially the meat division with the large rise in feed prices in the international market, and this is what prompted the state to pay attention in recent years to expand the process of growing feed in large regions of the southern states, and this is to meet the increasing demand for them and control meat prices.

4.1.2. The Sector's contribution to GDP

Table 7: Evolution of the contribution of the agricultural sector to GDP 2000-2017

Years	Manufacturing GDP (SAR Bn)	Annual growth rate	GDP of the agricultural sector (billion DZD)	Annual Growth Rate of the Agriculture Sector	Percentage of contribution of the agriculture sector in PIB
2000	4123.5	2.2	346.2	5.0-	8.4
2002	4541.9	4.7	417.2	1.3-	9.2
2004	6127.5	5.2	578.9	3.1	9.4
2006	8391.0	2.0	642.0	4.9	7.7
2008	11043.7	2.4	727.4	2.7	6.6
2010	11991.6	3.6	1015.3	4.9	8.5
2012	15843.0	3.3	1421.7	20.2	8.8
2014	17205.1	3.3	1771.5	8.1	10.3
2016	17406.8	4.2	2140.3	10.6	12.3
2018	22683.8	1.4	2486.2	3.3	11.0
2020	20902.1	-0.5	2619.8	2.8	13.0
2022	32028.4	3.6	3323.1	5.3	10.0
2023	33638.3	4.1	4314.1	3.0	13.0
2024	9305.8	4.2	1157.5	3.2	12.0

Source: Prepared by the researcher based on the statistical publications of the Central Bank of Algeria during the period 2007-2024 <http://www.bank-of-algeria.dz>

Through the figures in the above table, we note that the GDP of the agriculture sector recorded a continuous increase throughout the study period, from DZD 346.2 billion in 2000 to DZD 4313.1 billion in 2023, which reflects a significant improvement in the performance of the sector. This increase was reflected in the improvement in the percentage of the contribution of the agricultural sector to the real GDP, despite some fluctuations in some years, which is mainly due to the fluctuations in oil prices and their impact on GDP, to which the hydrocarbon sector contributes a significant percentage.

4.2. Foreign Trade Indicators:

4.2.1. Development of agricultural exports and imports and the agricultural trade balance

Table 8: Evolution of the agricultural trade balance during the period 2001 and 2017

(unit: \$ million)

Years	Total exports	Agricultural and food exports	Ratio of agricultural exports to total exports	Total imports	Agricultural and food imports	Ratio of agricultural imports to total imports	Balance of Agricultural Trade Balance
2000	21651	30	0.14	9345	2356	25.21	-2335
2002	18700	35	0.19	12010	2572	21.41	-2537
2004	32208	66	0.20	17954	3385	18.85	-3319
2006	54755	66	0.12	20681	3572	17.27	-3506
2008	78590	119	0.15	37993	7397	19.47	-7278
2010	57091	315	0.55	38885	5696	14.65	-5381
2012	71736	402	0.44	51569	9023	17.91	-8708
2014	61172	323	0.53	58330	11005	18.87	-10682
2016	29698	327	1.10	46727	8224	17.60	-7897
2018	41115	373	0.91	48573	8199	16.88	-7826
2020	21925	437	1.99	35547	7723	21.73	-7286
2022	38632	269	0.41	38868	10369	23.53	-10100
2023	55554	428	0.77	42842	9921	23.16	-9493
2024	12176	96	0.79	11194	2791	24.93	-2695

Source: Central Bank of Algeria, Several Annual Reports + Tripartite Statistical Bulletin March 2016, p. 28 <http://www.bank-of-algeria.dz>

Through the figures in the above table, we can note that food exports have witnessed continuous development during various years, rising from \$30 million in 2000 to \$402 million in 2013 and then to \$437 million in 2020, the highest value reached during the length of the study period, and then its value returned to decline in subsequent years, reaching \$239 million in 2022. As for agricultural imports, they have witnessed a continuous rise at the beginning of the study period, rising from \$9345 million in 2000 to \$58330 million in 2014, the highest peak, to return to the relative decline after recording a value of 35547 million quintals, and given these figures in the table, it can be said that despite efforts to promote oil exports, the performance of the sector in various indicators does not meet the purpose.

This large variation in both agricultural imports and exports was mainly reflected in the agricultural trade balance, which registered a growing deficit throughout the study phase.

4.2.2. Agricultural Exports and Imports Value Index

The value of agricultural exports and imports index is an index issued by the **Food and Agriculture Organization of the United Nations (FAO)** and is used to track changes in the value of agricultural trade over time, whether at the level of a specific country or globally, and is calculated through the following relationship:

Value index = [value of trade (in dollars) in a given year/value of trade (in dollars) in the base year] 100x

Table 9: Evolution of the value index of agricultural exports and imports during the period 2000- 2022

Year	2000	2002	2004	2006	2008	2010
M. Exports	1	10	22	26	21	29
M. Imports	1	30	40	40	84	61
Year	2012	2014	2016	2018	2020	2022
M. Exports	81	108	111	87	125	97
M. Imports	97	115	87	92	93	121

Source : <https://www.fao.org/faostat/ar/#data/QI>

The above table shows noticeable changes related to the development of the export value index, which has witnessed an improvement over the various years of the study. It reached its highest value in 2020, recording a value of 125, which reflects a good rise in the value of agricultural exports compared to the first years of the study period.

As for the indicator of the value of imports, it is the other that has recorded remarkable and fluctuating growth during the years of the study period and recorded the highest value in 2022 with a value of 121. This fluctuation is mainly related to the levels of local agricultural production from the grain division, where whenever local production from this division recorded a decline (due to a decrease in the percentage of precipitation), we find in contrast this indicator recording an increase due to high imports of grain.

4.3. Agricultural Production and Productivity Indicators:

4.3.1. Aggregate Agricultural Production Index

It is a **quantitative indicator** (i.e. measured in quantities, not financial values) that reflects the development of **total agricultural production** in a particular country or region, with weights adjusted for the importance of each agricultural product (often based on international reference prices). It is calculated by the following relationship:

$$\text{Production index} = \frac{(Q_t \times W)}{(Q_0 \times W)} \times 100$$

The following chart shows the development of this indicator in Algeria

Figure 1: Evolution of the indicator of total agricultural production 2000-2023



Source : <https://www.fao.org/faostat/ar/#data/QI>

Through the above chart, it is clear to us that the agricultural production index recorded a remarkable development during the various years of the study period. Returning to the figures, it rose from 39.4 in 2000 to 114.9 in 2020 and 116.4 in 2023, which is better than the value recorded in Egypt and Tunisia in 2023, where it reached 109.1 and 115.5, respectively (FAO, 2025).

This rise mainly reflects the success of the efforts made and the policies adopted to develop agricultural production during this period, especially in the main production divisions such as grains and vegetables.

4.3.2. Agricultural productivity index per hectare

Issued by the Food and Agriculture Organization of the United Nations (FAO), this indicator is used to measure the efficiency of agricultural production by calculating the amount of production (in tons) or its value (in US dollars) per unit of cultivated area (hectare). This indicator is a vital tool for evaluating the effectiveness of the use of agricultural resources, such as land and water, and is used to compare agricultural performance between countries or across years. The following table shows the development of this indicator in Algeria during the period 2000-2022.

Table 10: Evolution of the value of agricultural production per hectare of agricultural area 2000- 2022 (unit: US \$)

Year	2000	2002	2004	2006	2008	2010
Amount	142.35	158.86	196.72	212.88	198.77	256.52
Year	2012	2014	2016	2018	2020	2022
Amount	300.06	324.15	344.24	363.68	377.08	372.19

Source : <https://www.fao.org/faostat/ar/#data/QI>

The above table figures show a significant improvement in the value of agricultural production in Algeria over the various years of study, as it rose from \$142.35 per hectare in 2000 to \$377.08 per hectare in 2020, with some decline in 2022, where \$372.19 per hectare was recorded. This improvement in productivity is mainly accompanied by the improvement of the production technology used and the development of the use of fertilizers of various varieties in agricultural activity, compared with Tunisia and Egypt in losing

4.4. Institutional and political indicators:

Institutional and political indicators are essential factors in assessing the competitiveness of the agricultural sector in any country, as they affect the regulatory, legal and administrative environment in which farmers and agricultural investors operate. It includes a set of indicators that measure the quality and effectiveness of policies and institutions that regulate and support the agricultural sector technically, legislatively and financially, whether directly or indirectly. Below is the evolution of some of these indicators in Algeria.

4.4.1. Evolution of government spending on the agricultural sector

Government spending plays a vital role in the development of the agricultural sector in various countries of the world, as both the increase in production and the improvement in productivity levels of this sector are directly linked to the government's allocations for its development. The following table shows the development of government spending (processing expenditures) aimed at developing and strengthening the agricultural base during the period 2002-2024

Table 11: Evolution of the volume of government expenditure (processing expenditures) on the agricultural sector 2002-2023 (unit: DZD billion)

Year	2002	2004	2006	2008	2010	2012
Amount	129,9	85,11	112,92	308,5	392	301
Year	2014	2016	2018	2020	2022	2023
Amount	315	271	157	209	253,5	618

Source: Official Gazette of the People's Democratic Republic of Algeria, Finance Laws for the period 2002-2023 <https://www.joradp.dz/HAR/Index.htm>

The figures in the above table show that the general trend of these expenditures is constantly rising, rising from 129.9 billion DZD in 2002 to 618 billion DZD in 2023, with some fluctuations

recorded in some study periods such as 2016 and 2018, where the value of these expenditures has witnessed a significant decline compared to previous years. This is mainly due to the fluctuations that have occurred in oil prices and their effects on balance sheet revenues and thus on the allocation and implementation of public expenditures in this field. However, it can be said that the general trend that shows the continuous rise of these expenditures mainly reflects the trends of public policy towards the development of this sector and the strengthening of its physical and technical capital.

4.4.2. Evolution of Logistics Infrastructure Index

The Logistics Infrastructure Index of the Food and Agriculture Organization of the United Nations (FAO), as measured by the Logistics Performance Index (LPI) of the Deutsche Bank, is one of the composite indicators used to measure the availability and efficiency of supporting infrastructure for the agricultural sector, especially with regard to supply chains, distribution, transportation and storage. This indicator is classified on a scale from 1 (very low) to 5 (very high), where higher values reflect better quality in logistics infrastructure. The following table shows the development of this indicator in Algeria during the period 2007-2023.

Table 12: Evolution of the Logistics Infrastructure Index 2007-2023

Year	2007	2010	2012	2014	2016	2018	2023
Indicator value	2,06	2,36	2,41	2,65	2,77	2,45	2,5
Rank	140	130	125	96	75	117	97

Source: <https://lpi.worldbank.org/international/scorecard/radar/C/DZA/2023/>

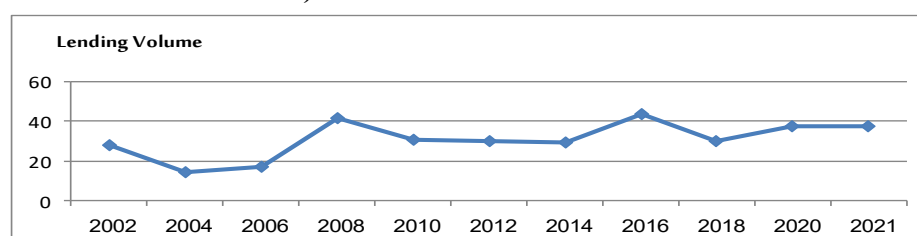
The standard values of the indicator range between 1 and 5 (THE WORLD BANK, 2025), where the higher its value, the more this indicates the development of the logistics infrastructure supporting the agricultural sector and vice versa. The value of this indicator has generally witnessed continuous improvement during the study period, rising from 2.06 (ranked 140 out of 150 countries) to 2.77 in 2016 (ranked 75 out of 160 countries), which reflects a positive result of efforts to develop the infrastructure of the agricultural sector and enhance its competitiveness.

4.5. Financial Highlights:

4.5.1. Agricultural Lending Index

This indicator represents the evolution of the volume of loans granted to the agricultural sector, and the latter has evolved for the Algerian agricultural sector as shown in the figure below

Figure 2: Evolution of agricultural lending volume in Algeria 2000- 2021 (unit: US \$ million)



Source: AOAD,
Agricultural Statistics
Yearbook, set of issues.
<https://www.gahp.org>

The statistics on Algeria

contained in the website of the Arab Organization for Agricultural Development, as expressed in the above figure, reflect a continuous fluctuation in the volume of loans granted to the agricultural sector, as it reached in 2002 about \$28.13 million, to be reduced in 2003 to \$14.02 million, and then increased to \$41.7 million in 2008, and recorded its highest value in 2016 at \$43.8 million.

4.5.2. Fixed Capital Index in Agriculture

The Gross Fixed Capital Formation in Agriculture (GFCFA) indicator issued by the Food and Agriculture Organization of the United Nations (FAO) expresses the value of investments actually implemented in fixed assets within the agricultural sector during a given year. It measures spending on fixed assets that are used in agriculture and last for more than a year, such as: the purchase of agricultural machinery and equipment (such as tractors, irrigation systems, harvesters), the construction or improvement of agricultural structures (such as greenhouses, stables, warehouses), the planting of perennial trees and orchards, repairs and improvements to agricultural land (such as land levelling, water drainage, the construction of small dams). The following figure shows the development of this indicator in Algeria during the period 2000-2022.

Table 13: Evolution of Gross Fixed Capital Formation in Agriculture 2000- 2022

(Unit: USD Million)

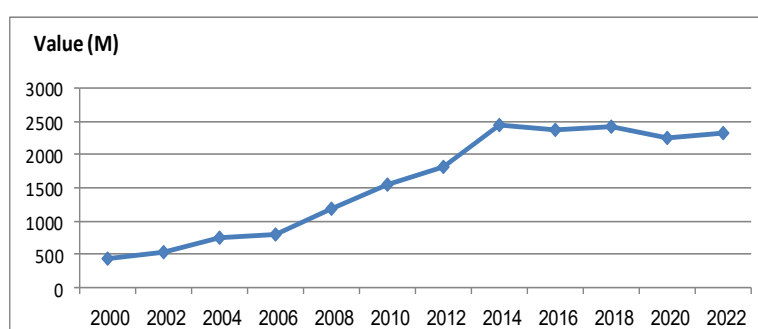
Year	2000	2002	2004	2006	2008	2010
Amount	432,97	525,13	756,22	805,47	1182,74	1541,91
Year	2012	2014	2016	2018	2020	2022
Amount	1825,00	2444,81	2381,36	2424,36	2260,13	2326,03

Source : <https://www.fao.org/faostat/ar/#data/QI>

Figure 3: Evolution of gross fixed capital formation in agriculture 2000- 2022

Source: Based on the statistics in the table above

The total fixed capital formation in the agricultural sector witnessed a continuous and noticeable growth during the various study periods, especially between 2000 and 2014, as it increased from about \$433 million to \$2.44 billion



per year in annual value, due to various government support programs directed to the development of the agricultural sector and its infrastructure through various agricultural programs and policies starting from the National Agricultural Development Plan in 2000.

4.5.3. Index of external financial flows towards the agricultural sector

This indicator expresses the total cash flows from abroad that are directed to investing in the agricultural field or financing agricultural activities, whether these flows are in the form of official or private loans or in the form of grants and subsidies to the agricultural sector or one of its activities. The following table shows the development of these flows in Algeria during the period 2000-2022, according to the statistical data of the Food and Agriculture Organization of the United Nations (FAO).

Table 14: External financial flows to the agricultural sector during the period 2000- 2022

(Unit: US \$ million)

Year	2000	2002	2004	2006	2008	2010
Amount	13 ,13	14,16	17,45	6,40	5,01	6,41
Year	2012	2014	2016	2018	2020	2022
Amount	3,03	6,50	6,61	10,06	7,68	6,91

Source : <https://www.fao.org/faostat/ar/#data/QI>

These flows are very limited compared to the large investment potential and opportunities possessed by the agricultural sector in Algeria and in the various sectors of livestock and agricultural production. They reached their highest value in 2004 at \$17.45 million, while their lowest value in 2012 was \$3.03 million. This requires the state to exert great efforts at the level of economic diplomacy to identify the great investment opportunities available locally and work to enhance the competitiveness of the agricultural sector in the field of attracting foreign capital.

4.6. Indicators of self-sufficiency and food security

The self-sufficiency and food security indicators are among the most important strategic indicators used to measure the competitiveness of the agricultural sector, especially in countries such as Algeria, which seeks to enhance their productive capacities and reduce their dependence on foreign markets.

4.6.1. Self-sufficiency index in some key production divisions

This indicator shows the extent to which local agricultural production is able to meet the needs of the population of basic foodstuffs and its importance in enhancing the competitiveness of the agricultural sector through:

- The higher this indicator, the more efficient and effective the local production.
- Promotes food sovereignty and reduces dependence on imports, making the agricultural sector more competitive.

This indicator is calculated according to the following relationship:

$$\text{Self_Sufficiency Index} = \frac{\text{Domestic Production}}{\text{Domestic Consumption}} \times 100$$

The following table shows the development of the self-sufficiency index in Algeria during the period 2001-2020 in some strategic goods.

Table 15: Evolution of the percentage of self-sufficiency in some major production divisions (unit: %)

Years	Grains	Al-Khidhir	Legumes	FRUITS
2009/2001	32.76	99.76	22.21	90.48
2010	36.53	99.71	29.24	90.65
2011	32.00	99.70	27.70	91.50
2012	39.30	99.80	29.00	91.80
2013	39.57	99.74	34.02	93.03
2014	24.70	99.60	38.90	90.20
2015	23.80	99.60	31.70	92.00
2016	19.10	99.60	31.00	94.80
2017	21.20	100.00	50.50	104.60
2018	26.60	99.80	38.00	100.20
2019	24.70	100.10	39.50	97.60
2020	25.10	99.80	37.50	96.10
2022	30,0	99.80	30,30	96,40

Source: AOAD, Agricultural Statistics Yearbook, set of issues. <https://www.gahp.org>

The table shows a decrease in the self-sufficiency rate of cereals, which in the best periods did not exceed 40% in 2013. This is despite the great efforts exerted by the state to develop this division and increase its production capacity. However, the climatic factors associated with the fluctuations in precipitation rates remain the main determinant of the volume of production in it on the one hand and the large demand for cereals as the main food source for the Algerian people on the other hand.

The same observation related to the legumes division, which despite the fact that Algeria has significant comparative advantages that make it one of the largest producers in it, but the self-sufficiency rate is still low throughout the study period, and the best recorded percentage was in 2017, where it reached 50.50%. While the figures show high rates of self-sufficiency in the vegetable and fruit divisions over the various years of the study period.

4.6.2. Existing Food Security Indicators

Food security indicators reflect the state's ability to provide sufficient, safe and nutritious food to all the population at all times, as well as the effectiveness of the national food system, and the ability of the agricultural sector to provide sustainable and safe food, which makes the country more resilient and credible at the international level. The following table shows the development of some food security indicators in Algeria during the period 2000-2023.

Table 16: Evolution of some food security indicators during the period 2000-2022

Years	Number and proportion of undernourished people Millions.	Proportion of undernourished population to total population(%)	Minimum Dietary Energy Requirements (Kcal/capita/day)
2000	2,3	7,2	1781
2002	2,2	6.8	1797
2004	2,1	6.5	1809
2006	2	6	1815
2008	1.8	5.2	1815
2010	1,5	4.1	1811
2012	1.2	3.1	1805
2014	1	2.7	1797
2016	1	2.6	1790
2018	0	<2.5	1785
2020	0	<2.5	1784
2022	0	<2.5	1787
2023	0	<2.5	1790

Source : <https://www.fao.org/faostat/ar/#data/QI>

Through the figures in the above table, we note that the number of undernourished people has become completely non-existent since 2016. The indicator of the proportion of the undernourished population to the total population only recorded a significant decline, after this percentage was estimated at 7.2% in 2000, it fell to less than 2.5% in 2023, while the global percentage reached during the same year about 9.1%. The indicator of the minimum daily food energy requirements per capita also witnessed a remarkable stability at about 1800 kilocalories per capita per day, which is in line with global rates ranging from 1660 to 2040 calories, according to estimates that take into account demographic factors and levels of physical activity of the population.

On the other hand, FAO data indicate that the average daily food supply per capital in Algeria during the period 2019-2021 was about 3,479 calories. This figure reflects the availability of food well, far exceeding the minimum required, demonstrating an improvement in food security in the country.

5. Conclusion

After the analysis of the evolution of the agricultural sector in Algeria during the period 2000-2024, it can be said that the latter has experienced a remarkable development during this period, thanks to the natural resources of vast exploitable areas, climatic diversity and the availability of surface and groundwater resources, as well as the human resources of a large,

qualified and competent workforce, and the implementation of a set of government policies aimed at improving production and ensuring food security.

The study also revealed that agricultural policies, particularly through support programs and public investments, have contributed to improving certain key indicators such as agricultural production and food security, and reducing malnutrition rates to less than 2.5%. Competitiveness indicators also showed that Algeria has made improvements in self-sufficiency indicator commodities and has made progress in public support and agricultural investment indicators. However, several challenges remain, particularly with regard to the productivity of agricultural production factors, limited exports, weak integration into value chains, and the lack of logistical and technical efficiency.

5.1. Findings: The most important findings can be summarized in the following points:

5.1.1. Agricultural potential and natural resources

- ✓ Algeria has a large agricultural area estimated at 8.5 million hectares, but the current exploitation rate remains below the available capabilities;
- ✓ Algeria has a great climatic diversity that allows the production of a wide range of agricultural crops during all the seasons of the year (cereals, vegetables, fruits...), and by breeding various animal varieties (sheep, cows, goats, camels...);
- ✓ Algeria has significant surface and groundwater resources, especially in the south, but it suffers from under-exploitation and poor distribution and irrigation networks.

5.1.2. Implemented agricultural policies

- ✓ Several strategic programs were launched to develop the agricultural sector, such as the agricultural and rural development plans (ARDP) in 2000, the policy of agricultural and rural renewal in 2008, the agricultural work plan in 2015, and the agricultural and rural development roadmap in 2020, in addition to supporting investment through the development of a set of financing funds and the introduction of a set of soft loans for the benefit of farmers with the aim of providing the necessary financing for the development of the sector;
- ✓ The increase in equipment expenditures directed to agriculture, especially during the years of the oil boom 2008–2010, and during the years 2023 and 2024;

5.1.3. Competitiveness indicators

- ✓ The self-sufficiency index has seen a significant improvement in some agricultural production sectors such as vegetables, fruits and milk, while dependency remains high in the main consumption divisions such as grains and pulses;
- ✓ The Food Security Index has improved significantly, with the proportion of the population undernourished falling to less than 2.5% in 2023;
- ✓ Gross fixed capital formation in agriculture has experienced fluctuating growth but generally positive, reflecting growing interest in investment in this sector;
- ✓ External financial flows towards agriculture remained weak compared to regional countries, which limits Algeria's integration into global markets.
- ✓ Low competitiveness of exports: agricultural exports still represent a low percentage of GDP, and raw materials dominate the export structure with the absence of a food transformation industry.

5.1.4. Structural Problems

- ✓ Poor individual productivity due to lack of training and technical supervision of farmers;
- ✓ Weak logistics infrastructure (transportation, storage, refrigeration...);
- ✓ The fragility of the financing system for farmers, especially in isolated rural areas.

5.2. Recommendations: Based on the findings, a set of recommendations can be made to improve the competitiveness of the agricultural sector:

- ✓ Expand the currently cultivated areas by solving the problem of agricultural land and offering investment incentives to serious investors;
- ✓ Allocate investments to the development of agricultural and logistical infrastructure, especially in the southern regions;
- ✓ Improving water resources management by incorporating modern irrigation and waste management techniques;
- ✓ Encouraging farmers to use technology and digitization to raise productivity and enhance quality;
- ✓ Restructuring agricultural support to be more targeted and effective;
- ✓ Supporting agricultural research and innovation and linking its outputs directly to producers through effective agricultural extension centers;
- ✓ Work to access foreign markets and developing export capabilities by simplifying procedures, supporting food transformation industries, and developing local quality labels (Algerian Label);
- ✓ Improving logistical connectivity between production areas and consumer markets by developing of transport and storage networks;

In conclusion, it can be said that improving the competitiveness of the agricultural sector in Algeria requires a comprehensive approach combining effective policies, smart investments and the optimization of available resources, ensuring sustainable food security and a strong agricultural economy, integrated at the regional and international level.

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