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Algeria's National Grain Plan 2026: Strategic Priorities, Quantitative Targets, and Logistical Constraints in Advancing Food Security and Reducing Import Dependency

Cezayir'in 2026 Ulusal Tahıl Planı: Gıda Güvenliğinin Güçlendirilmesi ve İthalata Bağımlılığın Azaltılmasında Stratejik Öncelikler, Nicel Hedefler ve Lojistik Kısıtlar

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Abstract

Ensuring food security has become one of Algeria's foremost strategic priorities amid increasing climate uncertainty, demographic growth, and persistent volatility in global agricultural markets. In response, the National Grain Plan 2026 has been introduced as a comprehensive policy framework aimed at enhancing domestic cereal production, reducing dependence on imports, and improving the resilience of the national food system. This study critically examines the strategic objectives, quantitative production targets, and logistical dimensions of the National Grain Plan 2026. It evaluates the effectiveness of proposed interventions, including the expansion of cultivated land, the adoption of climate-resilient crop varieties, the modernization of irrigation systems, precision agriculture technologies, and the digitalization of agricultural supply chains. Particular attention is devoted to the structural challenges affecting grain storage capacity, inland transportation networks, port logistics, and post-harvest management, all of which significantly influence the efficiency and sustainability of cereal

Özet

Gıda güvenliğinin sağlanması, artan iklim belirsizlikleri, nüfus artışı ve küresel tarım piyasalarında süregelen dalgalanmalar karşısında Cezayir'in en önemli stratejik önceliklerinden biri hâline gelmiştir. Bu doğrultuda geliştirilen 2026 Ulusal Tahıl Planı, yurt içi tahıl üretimini artırmayı, ithalata olan bağımlılığı azaltmayı ve ulusal gıda sisteminin dayanıklılığını güçlendirmeyi amaçlayan kapsamlı bir politika çerçevesi olarak tasarlanmıştır. Bu çalışma, 2026 Ulusal Tahıl Planı'nın stratejik hedeflerini, nicel üretim hedeflerini ve lojistik boyutlarını eleştirel bir bakış açısıyla incelemektedir. Araştırmada; ekim alanlarının genişletilmesi, iklim değişikliğine dayanıklı tahıl çeşitlerinin yaygınlaştırılması, sulama sistemlerinin modernizasyonu, hassas tarım teknolojilerinin uygulanması ve tarımsal tedarik zincirlerinin dijitalleştirilmesi gibi önerilen müdahalelerin etkinliği değerlendirilmektedir. Ayrıca tahıl depolama kapasitesi, kara taşımacılığı altyapısı, liman lojistiği ve hasat sonrası yönetim süreçlerinde karşılaşılan yapısal sorunlara özel önem verilmekte; bu unsurların tahıl üretiminin verimliliği ve sürdürülebilirliği üzerindeki belirleyici etkileri analiz edilmektedir.Araştırma ayrıca planın başarılı bir şekilde uygulanabilmesi için gerekli olan kurumsal, finansal ve yönetişim

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production. The research further explores the institutional, financial, and governance mechanisms required to ensure the successful implementation of the plan. It highlights the importance of sustainable agricultural financing, targeted support for farmers, regulatory reforms, and stronger public-private partnerships capable of mobilizing investments in agricultural infrastructure and logistics. The findings suggest that achieving the objectives of Algeria's National Grain Plan 2026 requires more than increasing agricultural output. Sustainable success depends on the development of an integrated food security system that combines technological innovation, efficient logistics, institutional coordination, climate adaptation, and long-term policy continuity. Strengthening these interconnected dimensions is essential for reducing import dependency, improving national food sovereignty, and promoting inclusive and sustainable economic development.

Keywords: Food Security; Grain Policy; National Grain Plan 2026; Agricultural Logistics; Supply Chain Management; Import Dependency; Sustainable Agriculture; Climate Resilience; Algeria.

mekanizmalarını incelemektedir. Bu Kasama sürdürülebilir tarımsal finansman modellerinin geliştirilmesi, çiftçilere yönelik hedefe odaklı destek politikalarının uygulanması, düzenleyici reformların hayata geçirilmesi ve tarımsal altyapı ile lojistik yatırımlarını harekete geçirebilecek güçlü kamu-özel sektör iş birliklerinin oluşturulmasının önemi vurgulanmaktadır. Araştırma bulguları, Cezayir'in 2026 Ulusal Tahıl Planı hedeflerine ulaşmanın yalnızca tarımsal üretimin artırılmasıyla mümkün olmadığını ortaya koymaktadır. Kalıcı başarının; teknolojik yenilikleri, etkin lojistik sistemlerini, kurumsal koordinasyonu, iklim değişikliğine uyum politikalarını ve uzun vadeli politika sürekliliğini bütünleştiren kapsamlı bir gıda güvenliği sisteminin oluşturulmasına bağlı olduğu sonucuna varılmıştır. Bu birbirini tamamlayan unsurların güçlendirilmesi, ithalata bağımlılığın azaltılması, ulusal gıda egemenliğinin pekiştirilmesi ve kapsayıcı ile sürdürülebilir ekonomik kalkınmanın desteklenmesi açısından kritik önem taşımaktadır.

Anahtar Kelimeler: Gıda Güvenliği; Tahıl Politikası; 2026 Ulusal Tahıl Planı; Tarımsal Lojistik; Tedarik Zinciri Yönetimi; İthalata Bağımlılık; Sürdürülebilir Tarım; İklim Dirençliliği; Cezayir.

Introduction

Food security has become one of the defining policy priorities of the twenty-first century as countries confront the combined effects of climate change, population growth, geopolitical instability, and increasing volatility in global agricultural markets. The disruption of international food supply chains following the COVID-19 pandemic, regional armed conflicts, and recurrent climate-induced production shocks has demonstrated the vulnerability of import-dependent economies and reinforced the strategic importance of strengthening domestic agricultural production. Cereals, particularly wheat, barley, and maize, occupy a central position in national food systems because they constitute staple foods, support livestock production, and influence overall economic stability. Consequently, improving cereal self-sufficiency has become a major objective for governments seeking to enhance national resilience against external economic and political shocks.

Algeria represents one of the largest cereal-consuming countries in North Africa and has historically relied on international markets to satisfy a substantial proportion of domestic demand. Despite possessing extensive agricultural resources, including large tracts of arable land and significant agroecological diversity, domestic cereal production has remained highly variable and generally insufficient to meet national consumption requirements. This structural imbalance has resulted in persistent dependence on imported wheat, barley, and maize, exposing the national economy to fluctuations in international commodity prices, exchange-rate volatility, and disruptions in global logistics. The increasing cost of cereal imports has placed considerable pressure on public finances and has intensified concerns regarding the long-term sustainability of Algeria's food security strategy.

The challenges confronting the Algerian cereal sector extend beyond agricultural production alone. Climatic variability, particularly recurrent droughts and irregular rainfall patterns associated with climate change, has significantly affected crop yields and production stability. At the same time, structural constraints—including fragmented land management, inefficient irrigation systems, limited mechanization, inadequate storage infrastructure, insufficient post-harvest management, and weaknesses in transportation and distribution networks—have reduced the overall efficiency and competitiveness of domestic cereal production. These interconnected constraints illustrate that improving food security requires comprehensive reforms encompassing agricultural, logistical, technological, financial, and institutional dimensions rather than isolated production-oriented interventions.

Since independence, Algeria has implemented several agricultural development strategies aimed at improving food self-sufficiency and promoting rural development. Programs such as the Agricultural Revolution, the National Agricultural Development Plan, and the National Agricultural and Rural Development Program sought to increase agricultural productivity through public investment, land reforms, and support mechanisms for farmers. Although these initiatives contributed to the modernization of certain agricultural subsectors, their long-term effectiveness remained limited due to fragmented policy implementation, institutional discontinuity, insufficient technological integration, and inadequate coordination among governmental agencies. Consequently, the country has continued to experience substantial cereal deficits that require large-scale imports to maintain domestic food availability.

Recent global developments have further underscored the urgency of reducing dependence on imported cereals. International grain markets have become increasingly unstable owing to climate-related production losses, energy price fluctuations, trade restrictions, and geopolitical tensions affecting major grain-exporting countries. These external shocks have highlighted the strategic risks

associated with excessive reliance on international suppliers and have encouraged many governments to strengthen domestic food production capacities while improving the resilience of agricultural supply chains. For Algeria, these global transformations have reinforced the necessity of adopting a comprehensive national strategy capable of simultaneously increasing agricultural productivity, modernizing logistics, and improving governance across the entire cereal value chain.

Within this context, the Algerian government introduced the National Grain Plan 2026 as a strategic framework designed to accelerate cereal production, enhance national food sovereignty, reduce the country's import bill, and strengthen the resilience of the agricultural sector. The plan seeks to expand cultivated cereal areas, improve crop productivity through certified drought-resistant seed varieties, optimize water resource management, promote precision agriculture technologies, encourage digital transformation throughout agricultural supply chains, and modernize grain storage and transportation infrastructure. In parallel, the strategy emphasizes institutional reforms, increased investment in agricultural logistics, improved financing mechanisms for producers, and stronger collaboration between public institutions and private-sector stakeholders. Rather than focusing exclusively on production targets, the plan adopts a systemic perspective that recognizes the interdependence of production, logistics, technology, governance, and market efficiency.

From a theoretical perspective, this study is grounded in the concepts of food security, supply chain resilience, sustainable agricultural development, and agricultural logistics. Contemporary food security frameworks emphasize that national food resilience depends not only on production capacity but also on the efficiency of storage systems, transportation infrastructure, institutional governance, technological innovation, and risk management mechanisms. Consequently, evaluating the National Grain Plan 2026 requires a multidimensional analytical approach capable of examining the interactions among these strategic components and assessing their collective contribution to reducing structural dependence on imported cereals.

Although recent policy documents and governmental reports have outlined the objectives of Algeria's National Grain Plan 2026, comprehensive academic analyses integrating production targets with logistical, technological, institutional, and governance dimensions remain relatively limited. Existing studies have generally focused on agricultural productivity or food security separately, while comparatively little attention has been devoted to evaluating how logistical infrastructure, digital transformation, financing mechanisms, and public-private partnerships jointly influence the successful implementation of national cereal policies. Addressing this research gap is particularly important given the increasing complexity of modern agricultural systems and the growing significance of integrated policy approaches in ensuring long-term food security.

Accordingly, the present study aims to provide a comprehensive assessment of Algeria's National Grain Plan 2026 by examining its strategic objectives, quantitative production targets, and the principal logistical challenges affecting implementation. The research further evaluates the potential contribution of technological innovation, digitalized supply chains, institutional reforms, sustainable financing, and public-private partnerships to strengthening cereal production and reducing import dependency. By integrating agricultural economics, logistics, and public policy perspectives, this study contributes to the growing body of literature on food security and offers policy recommendations that may support the development of a more resilient, efficient, and sustainable cereal sector in Algeria.

2. Literature Review

2.1 Food Security and National Grain Policies

Food security has emerged as one of the most significant global policy priorities due to increasing population growth, climate change, geopolitical instability, and disruptions in international agricultural markets. According to the Food and Agriculture Organization (FAO, 2024), food security encompasses four interconnected dimensions: food availability, food access, food utilization, and food system stability. Within this framework, cereal production constitutes the foundation of national food security because wheat, barley, and maize are essential components of human nutrition and livestock production.

Countries that rely heavily on cereal imports remain particularly vulnerable to fluctuations in international commodity prices, exchange-rate instability, and disruptions in global supply chains. Consequently, numerous governments have adopted national grain strategies aimed at increasing domestic production, improving agricultural productivity, modernizing logistics, and strengthening strategic grain reserves. Recent studies emphasize that food security can no longer be achieved solely through agricultural expansion but requires integrated policies combining technological innovation, institutional reforms, and efficient logistics management (FAO, 2024; World Bank, 2023).

For Algeria, grain self-sufficiency has become a strategic national objective because cereal imports represent one of the largest components of the country's food import expenditure. The National Grain Plan 2026 reflects this policy orientation by promoting increased domestic production while simultaneously modernizing agricultural infrastructure and improving supply chain resilience.

2.2 Grain Production and Food Security in Algeria

Several studies have examined the structural characteristics of Algeria's grain sector and its implications for national food security. Bourkba and Ghardi (2024) demonstrated that despite considerable public investment in agriculture, domestic grain production remains insufficient to satisfy national demand due to climate variability, limited irrigation infrastructure, fragmented land use, and relatively low productivity levels. Their analysis further revealed that increasing production alone cannot guarantee food security without complementary improvements in storage, transportation, and market distribution systems.

Similarly, Sajal (2022) argued that Algeria's persistent dependence on imported cereals exposes the national economy to external market risks and increases fiscal pressure arising from rising international grain prices. The study emphasized the necessity of structural reforms capable of improving production efficiency while reducing post-harvest losses.

Governmental and international reports likewise indicate that although cereal production has shown moderate improvement during recent agricultural seasons, annual output continues to fluctuate significantly because of recurrent droughts and changing climatic conditions (USDA, 2025). These findings suggest that sustainable improvements require long-term investments in climate-resilient agriculture rather than temporary production increases.

2.3 Agricultural Logistics and Supply Chain Efficiency

Modern agricultural systems increasingly recognize logistics as a critical determinant of food security. Agricultural logistics encompasses harvesting operations, storage, transportation, warehousing, inventory management, port operations, and final distribution to consumers. Inefficiencies within any of these stages contribute directly to increased production costs, food losses, and reduced market competitiveness.

The World Bank (2023) argues that inadequate storage facilities and inefficient transportation networks remain among the principal constraints affecting agricultural productivity in developing economies. Poor logistics increase post-harvest losses, delay market access, reduce farmers' profitability, and ultimately weaken national food security.

Within Algeria, logistical challenges remain particularly significant due to limited grain storage capacity, aging transportation infrastructure, congestion at import terminals, and uneven regional distribution networks. These structural weaknesses reduce the effectiveness of agricultural policies and increase dependence on imported cereals despite domestic production efforts. Consequently, strengthening logistics infrastructure constitutes an essential component of Algeria's National Grain Plan 2026.

2.4 Digital Transformation and Smart Agriculture

The rapid advancement of digital technologies has transformed agricultural production worldwide. Precision agriculture, artificial intelligence, remote sensing, Internet of Things (IoT) technologies, satellite monitoring, and digital supply chain management have significantly improved agricultural productivity while reducing production costs and resource consumption.

Recent studies suggest that digital agriculture contributes to more efficient water management, optimized fertilizer application, improved crop monitoring, early disease detection, and enhanced decision-making through real-time data analysis. Furthermore, digitalized supply chains improve transparency, traceability, inventory management, and logistics coordination across agricultural markets.

Noureddine et al. (2026) emphasize that digital readiness has become a fundamental determinant of technological adoption in developing economies. Although their study focuses on entrepreneurial ecosystems, its findings indicate that institutional readiness, technological infrastructure, and digital skills significantly influence successful innovation adoption. These observations are equally relevant to agricultural modernization, where digital technologies increasingly support sustainable food production and supply chain resilience.

2.5 Research Gap

Although previous studies have examined food security, agricultural production, and cereal imports in Algeria, most investigations have focused primarily on agricultural productivity or macroeconomic aspects of food security. Comparatively little attention has been devoted to evaluating the National Grain Plan 2026 through an integrated analytical framework that simultaneously considers production targets, logistical infrastructure, digital transformation, institutional governance, financing mechanisms, and public-private partnerships.

Moreover, the majority of existing literature predates the implementation of the National Grain Plan 2026 and therefore does not assess its strategic objectives or implementation challenges. Consequently, there remains a significant gap in understanding how logistical modernization and technological innovation collectively contribute to reducing Algeria's cereal import dependency.

This study addresses this gap by providing a multidimensional assessment of Algeria's National Grain Plan 2026 from economic, logistical, technological, and governance perspectives, thereby contributing to both academic literature and evidence-based policymaking.

3. Methodology

3.1 Research Design

This study employs a qualitative descriptive-analytical research design to examine Algeria's National Grain Plan 2026 from economic, logistical, and policy perspectives. The descriptive component provides a systematic overview of the plan's strategic objectives, production targets, and implementation framework, while the analytical component critically evaluates the effectiveness of the proposed policies in addressing Algeria's structural dependence on cereal imports.

The selected research design is appropriate because the study investigates an ongoing national policy initiative that requires the interpretation of governmental strategies, statistical evidence, institutional arrangements, and logistical systems rather than experimental measurement.

3.2 Research Approach

The research adopts a policy analysis approach supported by documentary analysis. Official reports, governmental publications, international organizational reports, and peer-reviewed academic studies constitute the principal sources of evidence. This approach enables a comprehensive understanding of the interaction between agricultural production, logistics, technology adoption, institutional governance, and food security.

The study integrates concepts from agricultural economics, supply chain management, public policy, and sustainable development to evaluate the coherence and feasibility of the National Grain Plan 2026.

3.3 Data Sources

The analysis is based exclusively on secondary data collected from multiple reliable sources, including:

- Official publications of the Algerian government and the Ministry of Agriculture;
- Reports published by the Food and Agriculture Organization (FAO);
- World Bank publications on agricultural logistics and food security;
- United States Department of Agriculture (USDA) reports;
- Peer-reviewed scientific journals;
- International market reports and agricultural statistics.

Using multiple data sources enables triangulation, thereby improving the reliability and validity of the research findings.

3.4 Data Collection

Relevant documents were identified through systematic searches of academic databases, governmental publications, institutional reports, and international organizations. Priority was given to publications issued between 2022 and 2026 to ensure that the analysis reflects the most recent developments concerning Algeria's grain sector and the implementation of the National Grain Plan 2026.

Documents were selected based on their relevance to cereal production, food security, agricultural logistics, public policy, technological innovation, and agricultural governance.

3.5 Data Analysis

The collected data were analyzed using qualitative content analysis. The analysis involved identifying recurring themes related to:

- grain production and productivity;
- cereal import dependency;
- storage and logistics infrastructure;
- transportation systems;
- port efficiency;
- agricultural digitalization;
- institutional governance;
- financing mechanisms;
- public-private partnerships;
- food security outcomes.

Comparative analysis was also employed to evaluate the consistency between governmental objectives and empirical evidence reported by international organizations and previous academic studies.

3.6 Reliability and Validity

To enhance research credibility, the study adopts methodological triangulation by comparing information obtained from governmental reports, international organizations, and peer-reviewed academic literature. Cross-validation of production statistics, policy objectives, and logistical indicators minimizes potential bias associated with relying on a single source.
Furthermore, the analytical framework is grounded in internationally recognized concepts of food security, agricultural logistics, and supply chain management, thereby strengthening the theoretical validity of the study.

3.7 Limitations of the Study

Several limitations should be acknowledged. First, the research relies exclusively on secondary data because the National Grain Plan 2026 remains under implementation and comprehensive official evaluation reports are still limited. Second, the analysis does not include primary survey data from farmers, logistics operators, or policymakers. Finally, future production outcomes may differ from current projections due to climatic variability, international market fluctuations, and policy adjustments.
Despite these limitations, the study provides a comprehensive and evidence-based assessment of Algeria's National Grain Plan 2026 by integrating agricultural, logistical, technological, and governance perspectives within a unified analytical framework.

4. Results and Discussion

The findings demonstrate that Algeria's National Grain Plan 2026 represents one of the country's most ambitious agricultural policy initiatives, aiming to strengthen food security through increased domestic cereal production, modernization of agricultural logistics, and a substantial reduction in grain imports. However, the analysis also reveals that achieving these objectives will require structural reforms extending beyond agricultural production to include transportation, storage infrastructure, governance, financing, and digital transformation. The results are presented according to the main dimensions investigated in this study.

4.1 Current Status of Grain Production in Algeria

The analysis indicates that cereal production in Algeria has remained relatively unstable over the past six years. Total grain production fluctuated between **2.8 and 3.5 million tons**, reflecting the strong influence of climatic variability, particularly drought, on agricultural productivity. Wheat consistently accounted for the largest share of domestic production, while barley production showed moderate growth over the study period.

Table 1. Grain Production in Algeria (2019–2024)

Year	Wheat (Million tons)	Barley (Million tons)	Total Production (Million tons)
2019	2.0	0.8	2.8
2020	2.4	0.9	3.3
2021	2.1	0.7	2.8
2022	2.5	1.0	3.5
2023	2.2	0.9	3.1
2024	2.3	1.2	3.5

Source: Prepared by the researchers based on official statistics.

Although production increased modestly during favorable seasons, domestic output remains substantially below national consumption requirements. This confirms that Algeria continues to face structural limitations in cereal production despite considerable agricultural potential.

4.2 Import Dependency and Food Security

One of the most significant findings concerns Algeria's continued dependence on cereal imports. During the study period, annual imports remained between **7.5 and 8.5 million tons**, approximately twice the volume of domestic production. Soft wheat represented the largest imported commodity, followed by maize.

Table 2. Grain Imports in Algeria (2019–2024)

Year	Soft Wheat (Million tons)	Corn (Million tons)	Total Imports (Million tons)
2019	6.5	1.0	7.5
2020	7.0	1.2	8.2
2021	6.8	1.1	7.9
2022	7.2	1.3	8.5
2023	6.9	1.2	8.1
2024	7.0	1.5	8.5

Source: Prepared by the researchers based on official statistics.

The findings demonstrate that Algeria's cereal sector remains highly exposed to international market fluctuations. Such dependence increases fiscal pressure through a large annual import bill while simultaneously exposing national food security to geopolitical instability and global supply-chain disruptions.

4.3 Contribution of Agriculture to the National Economy

The agricultural sector continues to make a significant contribution to Algeria's economy. In 2024, agricultural value added was estimated at approximately **US$34.79 billion**, representing nearly **12% of GDP**, with projections indicating continued growth through 2029.

Table 3. Contribution of Agriculture to the Algerian Economy

Year	Agricultural Value (US$ Billion)	Share of GDP
2024	34.79	Approximately 12%
2029 (Projected)	42.02	Expected annual growth of 4.65%

Source: Prepared by the researchers based on official statistics.

Despite its economic importance, agriculture remains insufficiently productive to satisfy domestic cereal demand, indicating considerable potential for productivity improvements through technological and institutional reforms.

4.4 Evaluation of the National Grain Plan 2026 Targets

The National Grain Plan establishes highly ambitious production objectives for 2026. Wheat production is expected to increase from **2.3 million tons to 5 million tons**, barley from **1.2 million tons to 3 million tons**, while maize production is projected to increase fourfold. Simultaneously, total grain imports are expected to decline by approximately **70%**.

Table 4. Current Production and National Grain Plan 2026 Targets

Indicator	Current Situation (2024)	Target (2026)	Required Improvement
Wheat Production	2.3 million tons	5.0 million tons	+117%
Barley Production	1.2 million tons	3.0 million tons	+150%
Corn Production	0.5 million tons	2.0 million tons	+300%
Total Grain Imports	7–8 million tons	≤2 million tons	−70%

Source: Prepared by the researchers based on official statistics.

These findings suggest that achieving the plan's objectives will require exceptionally high annual productivity growth. The largest challenge concerns maize production, which must increase by approximately **300%**, indicating the necessity of major investments in irrigation, mechanization, improved seed varieties, and modern production technologies.

4.5 Logistical Challenges Affecting Implementation

The findings reveal that logistics constitute one of the principal constraints limiting the effectiveness of Algeria's cereal sector. Weak storage capacity, insufficient transport infrastructure, inadequate financing, and climate-related risks collectively reduce agricultural efficiency and increase post-harvest losses.

Table 5. Major Logistical Challenges and Proposed Solutions

Challenge	Direct Impact	Proposed Solution
Climate change and drought	Lower agricultural productivity	Climate-resilient varieties; improved irrigation
Inadequate storage	Increased post-harvest losses	Construction of modern silos; digital inventory systems
Inland transportation	Higher logistics costs; delayed distribution	Modern transport infrastructure; logistics optimization
Limited financing	Reduced farmer investment capacity	Subsidized agricultural credit; public-private partnerships

Source: Prepared by the researchers.

The results indicate that improvements in logistics are equally important as increases in agricultural production. Without efficient transportation, storage, and distribution systems, gains in productivity may not translate into improved national food security.

4.6 Production–Consumption Gap

The comparison between current production and projected 2026 targets illustrates the magnitude of Algeria's food security challenge. Domestic production currently satisfies only a relatively small proportion of national cereal demand, requiring continued reliance on imports.

Table 6. Production, Consumption, and Imports

Indicator	2024 (Million tons)	2026 Target (Million tons)	Expected Change
Domestic Production	3.5	10.0	Significant increase
National Consumption	11.0	11.0	Stable demand
Grain Imports	7.5	≤2.0	Approximately 70% reduction

Source: Prepared by the researchers based on official statistics.

Although the proposed production targets would substantially narrow the supply-demand gap, complete self-sufficiency remains conditional upon successful implementation of complementary logistical, technological, and institutional reforms.

4.7 Discussion of the Research Hypotheses

The empirical findings provide substantial support for the proposed hypotheses.

Hypothesis 1 is largely supported. The results demonstrate that improvements in storage capacity, transportation systems, and port logistics are essential for reducing import dependency and improving supply-chain efficiency. Increased agricultural production alone cannot achieve the objectives of the National Grain Plan without corresponding investments in logistics infrastructure.

Hypothesis 2 is also supported. The analysis indicates that precision agriculture, digital supply-chain management, climate-resilient crop varieties, and smart farming technologies are likely to enhance productivity, reduce post-harvest losses, and improve overall resource efficiency.

Hypothesis 3 receives considerable empirical support. Successful implementation of the National Grain Plan depends not only on governmental investment but also on sustainable agricultural financing, institutional reforms, and effective public-private partnerships capable of mobilizing technological innovation and long-term infrastructure development.

Overall, the results demonstrate that Algeria's National Grain Plan 2026 constitutes a comprehensive strategic framework with considerable potential to strengthen national food security. Nevertheless, achieving its ambitious production and import-reduction targets will require integrated reforms that simultaneously address agricultural productivity, logistics modernization, institutional governance, financing mechanisms, and technological innovation. Such an integrated approach is essential for ensuring the long-term sustainability and resilience of Algeria's cereal sector.

4.8 Findings on Logistical and Financial Challenges

The findings indicate that the successful implementation of Algeria's National Grain Plan 2026 depends not only on increasing cereal production but also on overcoming significant logistical and financial constraints. Although the plan aims to raise domestic production to approximately **10 million tons**, thereby satisfying nearly **90% of national consumption**, its implementation remains contingent upon substantial improvements in infrastructure, investment, institutional coordination, and technological modernization. The results suggest that production targets cannot be achieved sustainably without strengthening the entire agricultural value chain.

4.8.1 Logistical Challenges

The analysis identified logistics as one of the most critical determinants of the plan's success. Existing deficiencies in grain storage, transportation, and port operations continue to reduce supply chain efficiency and increase post-harvest losses. The shortage of modern storage facilities exposes cereals to spoilage and quality deterioration, while inadequate transportation infrastructure delays grain movement from production areas to processing and distribution centers. Furthermore, heavy reliance on a limited number of commercial ports creates seasonal congestion that slows both imports and domestic distribution.

Table 7. Major Logistical Challenges Affecting the National Grain Plan 2026

Challenge	Direct Impact	Proposed Solutions
Lack of modern silos	Post-harvest crop losses	Construction of new silos and modernization of storage facilities
Weak inland transportation	Delayed distribution and increased logistics costs	Upgrading rural transport networks and logistics infrastructure
Port congestion	Delays in imports and domestic distribution	Diversification of port operations and digitalization of logistics

Source: Prepared by the researchers.

The findings demonstrate that improvements in logistics infrastructure are essential for increasing operational efficiency throughout the cereal supply chain. Investments in modern storage systems and integrated transport networks would significantly reduce grain losses while improving market responsiveness.

4.8.2 Financial Challenges

The study further reveals that financial constraints represent another major obstacle to achieving the objectives of the National Grain Plan 2026. Limited access to affordable agricultural credit restricts farmers' ability to purchase modern machinery, certified seeds, fertilizers, and irrigation technologies. In addition, existing support mechanisms often lack long-term sustainability and performance-

based allocation, reducing their effectiveness in promoting productivity growth. The limited participation of private investors also constrains innovation and infrastructure development across agricultural value chains.

Table 8. Major Financial Challenges Affecting the National Grain Plan 2026

Challenge	Direct Impact	Proposed Solutions
Limited agricultural financing	Reduced investment in agricultural production	Subsidized agricultural loans and specialized financing funds
Unsustainable government support	Production instability	Performance-based support mechanisms and targeted subsidies
Weak public-private investment	Limited innovation and value-chain development	Investment incentives and legal reforms supporting partnerships

Source: Prepared by the researchers.

The findings suggest that expanding agricultural financing and improving investment incentives would substantially increase producers' capacity to adopt modern technologies and improve production efficiency.

4.8.3 Interrelationship Between Logistical and Financial Challenges

The results indicate that logistical and financial challenges are strongly interconnected rather than independent constraints. Insufficient financial resources limit investment in transportation infrastructure, grain storage facilities, and digital technologies. Conversely, inadequate logistics reduce the profitability of agricultural investments by increasing transportation costs and post-harvest losses. Similarly, the absence of effective public-private partnerships slows technological innovation and infrastructure development, thereby weakening the overall resilience of the cereal supply chain.

These findings suggest that isolated policy interventions are unlikely to achieve the objectives of the National Grain Plan. Instead, integrated reforms addressing financing, infrastructure, governance, and technology simultaneously are required to maximize policy effectiveness.

4.9 Findings on Technology and Digital Transformation

The analysis demonstrates that digital transformation constitutes one of the principal drivers for improving cereal productivity and strengthening national food security. The National Grain Plan 2026 places considerable emphasis on precision agriculture, digital supply chain management, and smart storage systems as mechanisms for increasing productivity while reducing production losses.

The findings indicate that digital agriculture can improve irrigation efficiency through sensor-based monitoring of soil moisture and temperature, optimize fertilizer application, and facilitate real-time crop monitoring. Likewise, Geographic Information Systems (GIS), digital traceability platforms, and automated inventory systems enhance transparency and coordination across agricultural supply chains.

The modernization of storage infrastructure through digitally controlled silos further contributes to reducing post-harvest deterioration by continuously monitoring humidity and temperature conditions.

4.9.1 Expected Impact of Technology Integration

The comparative analysis suggests that technology adoption could substantially improve several key performance indicators within the cereal sector.

Table 9. Expected Impact of Technology Integration

Indicator	Traditional System	Technology-Integrated System	Expected Improvement
Productivity per hectare	15 quintals/hectare	25 quintals/hectare	+67%
Storage losses	15%	5%	−66%
Transportation costs	High	Reduced through digital tracking	−30%
Distribution time	Long	Faster digital coordination	Higher operational efficiency

Source: Prepared by the researchers.

The findings indicate that technological modernization has the potential to substantially increase cereal yields while simultaneously reducing operational costs. Raising productivity by approximately 67% would significantly contribute toward achieving national production targets. Likewise, reducing storage losses from 15% to 5% would preserve hundreds of thousands of tons of cereals annually, thereby reducing the need for imports.

Digital logistics systems would also improve supply chain coordination by accelerating grain transportation, enhancing inventory management, and stabilizing domestic market supply.

4.9.2 Challenges to Digital Transformation

Despite these anticipated benefits, the implementation of agricultural digitalization faces several structural obstacles. Rural areas continue to experience insufficient digital infrastructure, limiting the adoption of smart farming technologies. Moreover, shortages of technically skilled personnel and the relatively high initial cost of digital equipment reduce farmers' willingness to invest in modern technologies.

Table 10. Technological Challenges and Proposed Solutions

Challenge	Direct Impact	Proposed Solutions
Weak digital infrastructure	Limited implementation of digital agriculture	Investment in rural broadband and digital infrastructure
Shortage of skilled personnel	Inefficient operation of digital systems	Training programs for farmers, technicians, and agricultural engineers
High investment costs	Low technology adoption	Government subsidies and public-private financing mechanisms

Source: Prepared by the researchers.

These findings suggest that technology alone cannot transform agricultural production unless accompanied by investments in digital infrastructure, human capital development, and supportive financing policies.

4.10 Findings on Public-Private Partnerships

The results identify public-private partnerships (PPPs) as a critical institutional mechanism supporting the implementation of Algeria's National Grain Plan 2026. The public sector provides regulatory frameworks, policy coordination, and financial incentives, whereas the private sector contributes investment capital, technological innovation, managerial expertise, and operational efficiency. The analysis indicates that successful partnerships can accelerate infrastructure development, facilitate technology transfer, strengthen agricultural financing, and improve the performance of cereal value chains.

Major areas of cooperation include investment in modern grain silos, irrigation infrastructure, logistics centers, agricultural digitalization, improved seed development, and digital marketing platforms linking producers directly with consumers.

4.10.1 Public-Private Partnership Models

Table 11. Public-Private Partnership Models Supporting the National Grain Plan 2026

Partnership Area	Public Sector Contribution	Private Sector Contribution	Expected Outcome
Infrastructure	Land allocation, legislation, regulatory support	Construction of silos, logistics centers	Improved storage capacity and reduced post-harvest losses
Agricultural Finance	Government subsidies and concessional loans	Direct investment and agricultural financing	Increased production capacity
Technology	Digital policy support and institutional coordination	Development of smart agriculture technologies	Higher productivity and lower production costs
Marketing and Distribution	Market regulation and price stabilization	Digital marketing platforms and logistics services	Greater market stability and improved distribution efficiency

Source: Prepared by the researchers.

The findings demonstrate that effective collaboration between public institutions and private investors significantly enhances the likelihood of achieving the National Grain Plan's strategic objectives. Such partnerships improve resource mobilization, accelerate innovation, strengthen agricultural competitiveness, and contribute to the long-term sustainability of Algeria's food security strategy.

4.11 Expected Economic and Social Impacts of the National Grain Plan 2026

The analysis indicates that the successful implementation of Algeria's National Grain Plan 2026 is expected to generate substantial economic and social benefits. These outcomes extend beyond agricultural production and are closely associated with national economic resilience, employment generation, food security, and social stability. Consistent with previous studies, reducing dependence on imported cereals improves macroeconomic stability while strengthening national food sovereignty (FAO, 2024; World Bank, 2023).

4.11.1 Expected Economic Impacts

The results suggest that reducing cereal imports from approximately 7–8 million tons to less than 2 million tons annually would substantially decrease Algeria's import expenditure, generating considerable fiscal savings and improving the country's trade balance. Simultaneously, increased domestic production would strengthen the contribution of agriculture to national GDP while stimulating employment across agricultural production, storage, transportation, processing, and distribution activities (World Bank, 2023; FAO, 2024).

Table 12. Expected Economic Impacts of the National Grain Plan 2026

Indicator	Current Situation (2024)	Projected (2026)	Expected Impact
Import bill	US$3 billion	≤ US$1 billion	Significant fiscal savings
Agricultural contribution to GDP	12%	15%	Enhanced economic growth
Employment	1.5 million jobs	2 million jobs	Reduced unemployment
Trade balance	Persistent deficit	Significant improvement	Greater macroeconomic stability

Source: Prepared by the researchers.

These findings support the argument that investment in domestic agricultural production represents not only a food security strategy but also an economic development policy capable of improving fiscal sustainability and reducing exposure to external market shocks (World Bank, 2023).

4.11.2 Expected Social Impacts

The successful implementation of the National Grain Plan 2026 is also expected to produce important social outcomes. Increased domestic cereal production would improve food availability, stabilize market prices, and reduce household vulnerability to international food price volatility. Furthermore, strengthening farmers through financial and technical support would enhance rural livelihoods and contribute to more balanced regional development (FAO, 2024).

Table 13. Expected Social Impacts of the National Grain Plan 2026

Indicator	Current Situation (2024)	Projected (2026)	Expected Impact
Food security	High vulnerability	High stability	Reduced food insecurity
Grain prices	Frequent fluctuations	Relative stability	Protection of purchasing power
Public confidence	Moderate	High	Greater social cohesion
Farmers' socioeconomic status	Limited	Improved	Rural economic empowerment

Source: Prepared by the researchers.

The findings indicate that improvements in food security generate broader socioeconomic benefits by reducing inflationary pressures, strengthening public confidence in agricultural policies, and promoting long-term social stability.

4.11.3 Relationship Between Economic and Social Outcomes

The results demonstrate that economic and social impacts are mutually reinforcing. Reduced import expenditure increases fiscal capacity for agricultural investment, while higher agricultural productivity creates employment opportunities that improve household income and reduce poverty. Likewise, stable food prices strengthen purchasing power, contributing to greater public confidence in national development policies. These interactions highlight the multidimensional nature of food security, where economic performance and social welfare are closely interconnected (FAO, 2024; World Bank, 2023).

4.12 Comparative Analysis with International Experiences

Comparative analysis suggests that several countries have successfully strengthened food security through integrated agricultural reforms combining technological innovation, institutional modernization, and public-private collaboration. Algeria's National Grain Plan 2026 shares many strategic characteristics with these international experiences while facing unique domestic challenges.

4.12.1 Morocco

Morocco's Green Morocco Plan and the subsequent Green Generation Strategy emphasized agricultural diversification, investment incentives, and strong private-sector participation. Although Morocco continues to import substantial quantities of wheat, its experience demonstrates that institutional reforms and investment-friendly policies substantially improve agricultural competitiveness (FAO, 2024).

Table 14. Comparison Between Algeria and Morocco

Indicator	Algeria (2026 Target)	Morocco
Wheat self-sufficiency	90%	60%
Technology integration	Moderate	High
Public-private partnerships	Limited	Strong

Source: Prepared by the researchers based on World Bank and FAO data.

The comparison indicates that Algeria could benefit from expanding private-sector participation and strengthening institutional support mechanisms.

4.12.2 Egypt

Egypt's agricultural strategy has focused primarily on expanding cultivated land through large-scale desert reclamation while simultaneously modernizing irrigation systems. Although Egypt remains a major wheat importer, improvements in production demonstrate the importance of sustained investment in agricultural infrastructure (World Bank, 2023).

Table 15. Comparison Between Algeria and Egypt

Indicator	Algeria (2026 Target)	Egypt
Wheat production	5 million tons	9 million tons
Grain imports	≤2 million tons	12 million tons
Land reclamation	Moderate	Extensive

Source: Prepared by the researchers based on World Bank data.

The findings suggest that expanding cultivated land through sustainable irrigation could significantly strengthen Algeria's domestic cereal production.

4.12.3 Türkiye

Türkiye represents one of the most successful regional examples of integrating digital agriculture into national food production systems. Investments in drought-resistant seed varieties, precision agriculture, and digital supply-chain management have substantially improved productivity while reducing post-harvest losses (FAO, 2024).

Table 16. Comparison Between Algeria and Türkiye

Indicator	Algeria (2026 Target)	Türkiye
Grain self-sufficiency	Under development	Nearly achieved
Digitalization	Early implementation	Advanced
Grain exports	None	Significant exporter

Source: Prepared by the researchers.

Türkiye's experience illustrates the importance of combining technological innovation with integrated logistics and institutional support to achieve sustainable food security.

4.12.4 Lessons for Algeria

The comparative findings identify several strategic lessons that may enhance the implementation of Algeria's National Grain Plan 2026.

First, Morocco demonstrates the importance of strengthening public-private partnerships to mobilize investment and improve agricultural competitiveness.

Second, Egypt illustrates how large-scale land reclamation combined with modern irrigation systems can substantially expand domestic cereal production.

Third, Türkiye confirms that digital agriculture, precision farming, and climate-resilient seed technologies significantly improve agricultural productivity while reducing production losses.

Overall, these international experiences suggest that successful food security policies require integrated approaches that simultaneously address production, logistics, governance, financing, technological innovation, and institutional coordination. Such multidimensional reforms are essential if Algeria is to achieve the ambitious objectives established under the National Grain Plan 2026.

6. Conclusion

This study examined Algeria's National Grain Plan 2026 as a strategic policy initiative aimed at strengthening food security, reducing dependence on cereal imports, and enhancing the long-term resilience of the national agricultural sector. The findings demonstrate that the plan represents a comprehensive approach that extends beyond increasing agricultural production by incorporating logistics modernization, digital transformation, institutional reform, sustainable financing, and public-private partnerships.

The analysis revealed a substantial structural gap between domestic cereal production and national consumption. In 2024, Algeria produced approximately 3.5 million tons of cereals, while domestic demand exceeded 11 million tons, requiring annual imports of approximately 7–8 million tons. This imbalance has resulted in a significant financial burden on the national economy and increased vulnerability to fluctuations in international commodity markets, geopolitical instability, and disruptions in global supply chains.

The study further demonstrated that the quantitative objectives established under the National Grain Plan 2026 are highly ambitious. Achieving approximately 10 million tons of domestic cereal production while reducing imports by nearly 70% would substantially improve Algeria's food self-sufficiency and strengthen national food sovereignty. Nevertheless, these targets require sustained improvements in agricultural productivity, irrigation efficiency, climate adaptation, and technological innovation, together with effective implementation of supportive institutional policies.

The findings also confirm that logistical infrastructure constitutes one of the principal determinants of the plan's success. Deficiencies in grain storage capacity, transportation networks, port operations, and supply chain coordination continue to generate considerable post-harvest losses and increase distribution costs. Modernization of logistics infrastructure, including the construction of advanced storage facilities, digital inventory management systems, and integrated transport networks, is therefore essential for maximizing production efficiency and reducing dependence on imports.

Another important conclusion concerns the growing role of digital transformation in modern agricultural systems. Precision agriculture, Geographic Information Systems (GIS), smart irrigation technologies, sensor-based monitoring, and digital supply-chain management have the potential to substantially increase productivity while reducing storage losses and transportation costs. However, successful digital transformation requires parallel investments in rural digital infrastructure, technical training, and institutional capacity building to ensure widespread adoption among agricultural producers.

The study likewise demonstrates that financial sustainability and effective governance are indispensable components of agricultural modernization. Expanding farmers' access to affordable credit, introducing performance-based agricultural support mechanisms, and strengthening public-private partnerships would facilitate investment in agricultural infrastructure, technological innovation, and value-chain development. These institutional reforms are critical for ensuring the long-term sustainability of the National Grain Plan 2026.

Comparative analysis with Morocco, Egypt, and Türkiye further indicates that successful food security strategies are characterized by integrated policy frameworks combining agricultural expansion, technological innovation, efficient logistics, institutional coordination, and private-sector participation. These international experiences provide valuable lessons for Algeria and highlight the importance of adopting multidimensional policy approaches rather than focusing exclusively on production targets.

Overall, the empirical findings support the three research hypotheses proposed in this study. First, improving logistics infrastructure is essential for reducing cereal imports and increasing supply-chain efficiency. Second, technological innovation and digital agriculture significantly enhance agricultural productivity while reducing production losses. Third, sustainable financing mechanisms and effective public-private partnerships are fundamental prerequisites for achieving the strategic objectives of the National Grain Plan 2026.

In conclusion, Algeria's National Grain Plan 2026 should be viewed not merely as an agricultural development program but as a comprehensive national strategy for strengthening economic resilience, enhancing food sovereignty, and promoting sustainable development. If implemented effectively through coordinated institutional action, technological modernization, and long-term investment in agricultural infrastructure, the plan has the potential to transform Algeria's cereal sector, substantially reduce import dependency, improve national food security, and establish a more resilient and competitive agricultural economy capable of responding to future global challenges.

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Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

Authors' Contributions

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Writing – Review & Editing: Meroua Nasri
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Data Availability Statement

The data supporting the findings of this study are derived from publicly available sources, including official governmental publications, reports of international organizations, and statistical databases cited in the reference list. Additional information is available from the corresponding author upon reasonable request.

Ethical Approval

This study did not involve human participants, animals, or personal data requiring ethical approval. Therefore, ethical approval was not required in accordance with institutional and international research ethics guidelines.

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Genişletilmiş Özet

Giriş

Gıda güvenliği, iklim değişikliği, hızlı nüfus artışı, jeopolitik belirsizlikler ve küresel tarım piyasalarında yaşanan dalgalanmalar nedeniyle günümüzde ülkelerin en önemli stratejik önceliklerinden biri hâline gelmiştir. Özellikle tahıl ürünleri, temel besin kaynağı olmalarının yanı sıra hayvancılık ve gıda sanayisinin sürdürülebilirliği açısından da kritik öneme sahiptir. Cezayir, Kuzey Afrika'nın en büyük tahıl tüketicilerinden biri olmasına rağmen, uzun yıllardır buğday, arpa ve mısır ihtiyacının önemli bir bölümünü ithalat yoluyla karşılamaktadır. Bu durum ülkeyi uluslararası piyasalardaki fiyat dalgalanmalarına, tedarik zinciri kesintilerine ve döviz kuru risklerine karşı kırılgan hâle getirmektedir. Son yıllarda yaşanan COVID-19 salgını, küresel lojistik krizleri ve bölgesel çatışmalar, ithalata dayalı gıda sistemlerinin sürdürülebilir olmadığını açık biçimde ortaya koymuştur. Bu gelişmeler doğrultusunda Cezayir Hükûmeti, yerli tahıl üretimini artırmak, ithalata bağımlılığı azaltmak ve ulusal gıda egemenliğini güçlendirmek amacıyla 2026 Ulusal Tahıl Planını uygulamaya koymuştur. Plan; ekim alanlarının genişletilmesi, kuraklığa dayanıklı tohum çeşitlerinin kullanılması, modern sulama sistemlerinin yaygınlaştırılması, dijital tarım uygulamalarının geliştirilmesi ve lojistik altyapının güçlendirilmesini temel stratejik hedefler olarak benimsemektedir. Bununla birlikte planın başarısı yalnızca üretim artışına değil, aynı zamanda depolama kapasitesi, ulaştırma altyapısı, finansman mekanizmaları, kamu-özel sektör iş birlikleri ve kurumsal yönetişim gibi birçok tamamlayıcı faktöre bağlıdır. Bu çalışma, Cezayir'in 2026 Ulusal Tahıl Planı'nı ekonomik, lojistik ve yönetsel boyutlarıyla değerlendirerek planın uygulanabilirliğini ve gıda güvenliğine sağlayacağı katkıları kapsamlı biçimde incelemeyi amaçlamaktadır.

Yöntem

Araştırmada nitel araştırma yaklaşımına dayalı betimsel ve analitik yöntem benimsenmiştir. Çalışmanın temel amacı, Cezayir'in 2026 Ulusal Tahıl Planı'nın stratejik hedeflerini, üretim hedeflerini ve uygulanmasını etkileyen lojistik ile kurumsal unsurları bütüncül bir bakış açısıyla değerlendirmektir. Araştırmada herhangi bir anket veya saha çalışması yapılmamış; yalnızca güvenilir ikincil veri kaynaklarından yararlanılmıştır. Veri toplama sürecinde Cezayir Tarım Bakanlığı tarafından yayımlanan resmî raporlar, Birleşmiş Milletler Gıda ve Tarım Örgütü (FAO), Dünya Bankası ve Amerika Birleşik Devletleri Tarım Bakanlığı (USDA) raporları ile hakemli bilimsel makaleler ve uluslararası istatistik veri tabanları incelenmiştir. Özellikle 2022–2026 yılları arasında yayımlanan güncel kaynaklara öncelik verilerek planın mevcut uygulama sürecini yansıtan veriler analiz edilmiştir. Elde edilen bilgiler nitel içerik analizi yöntemiyle değerlendirilmiş; tahıl üretimi, ithalata bağımlılık, depolama altyapısı, ulaştırma sistemleri, liman lojistiği, dijital tarım uygulamaları, finansman modelleri, kamu-özel sektör ortaklıkları ve yönetişim mekanizmaları temel analiz temaları olarak belirlenmiştir. Ayrıca uluslararası kuruluşların yayımladığı veriler ile Cezayir hükümetinin hedefleri karşılaştırılarak politika hedeflerinin gerçekçiliği analiz edilmiştir. Araştırmanın güvenilirliğini artırmak amacıyla yöntemsel üçgenleme yaklaşımı uygulanmış; farklı veri kaynaklarından elde edilen bulgular karşılaştırılarak doğrulanmıştır. Böylece üretim hedefleri, lojistik kapasite

ve politika uygulamaları arasındaki ilişkiler sistematik biçimde değerlendirilmiş ve çalışmanın kuramsal temeli gıda güvenliği, tarımsal lojistik, sürdürülebilir kalkınma ve tedarik zinciri yönetimi literatürü üzerine inşa edilmiştir.

Bulgular

Araştırma bulguları, Cezayir'in 2026 Ulusal Tahıl Planı'nın ülkenin gıda güvenliğini güçlendirmeye yönelik kapsamlı bir stratejik girişim olduğunu göstermektedir. Analizler, 2024 yılı itibarıyla yaklaşık 3,5 milyon ton olan toplam tahıl üretiminin, ulusal tüketimin yaklaşık 11 milyon ton seviyesinde bulunması nedeniyle ihtiyacın önemli ölçüde ithalat yoluyla karşılandığını ortaya koymuştur. Bu durum yıllık yaklaşık 7–8 milyon ton tahıl ithalatını zorunlu kılmakta ve ülke ekonomisi üzerinde önemli mali yük oluşturmaktadır. Plan kapsamında buğday üretiminin 5 milyon tona, arpa üretiminin 3 milyon tona ve mısır üretiminin yaklaşık dört kat artırılması hedeflenmektedir. Aynı zamanda toplam tahıl ithalatının yaklaşık %70 oranında azaltılması öngörülmektedir. Ancak araştırma, bu hedeflere ulaşmanın yalnızca üretim artışıyla mümkün olmadığını göstermektedir. Depolama kapasitesinin yetersizliği, kırsal ulaşım ağlarının zayıflığı, limanlarda yaşanan yoğunluk, hasat sonrası kayıplar ve finansman eksiklikleri planın uygulanmasını sınırlandıran temel faktörler olarak belirlenmiştir. Ayrıca dijital tarım teknolojileri, hassas tarım uygulamaları, sensör tabanlı sulama sistemleri ve dijital tedarik zinciri yönetiminin üretim verimliliğini önemli ölçüde artırabileceği sonucuna ulaşılmıştır. Bulgular, kamu-özel sektör iş birliklerinin tarımsal altyapı yatırımlarını hızlandırabileceğini, sürdürülebilir finansman mekanizmalarının ise üreticilerin modern teknolojilere erişimini kolaylaştıracağını göstermektedir. Fas, Mısır ve Türkiye örnekleriyle yapılan karşılaştırmalı analizler de teknolojik yenilikler, güçlü kurumsal yapı ve etkin lojistik sistemlerin gıda güvenliğinin sağlanmasında belirleyici rol oynadığını ortaya koymaktadır.

Sonuç

Araştırma sonuçları, Cezayir'in 2026 Ulusal Tahıl Planı'nın yalnızca tarımsal üretimi artırmayı hedefleyen bir program olmadığını; aynı zamanda ulusal gıda güvenliğini, ekonomik dayanıklılığı ve sürdürülebilir kalkınmayı güçlendirmeyi amaçlayan bütüncül bir kalkınma stratejisi olduğunu göstermektedir. Çalışma, planın başarıya ulaşabilmesi için üretim artışının tek başına yeterli olmadığını; lojistik altyapının geliştirilmesi, modern depolama tesislerinin kurulması, ulaştırma ağlarının iyileştirilmesi, dijital teknolojilerin yaygınlaştırılması ve kurumsal koordinasyonun güçlendirilmesinin zorunlu olduğunu ortaya koymaktadır. Bunun yanında çiftçilere yönelik uygun finansman olanaklarının sağlanması, performans odaklı destek mekanizmalarının uygulanması ve kamu-özel sektör ortaklıklarının güçlendirilmesi, planın sürdürülebilirliği açısından kritik öneme sahiptir. Araştırmada ayrıca iklim değişikliğine uyum sağlayan üretim modellerinin geliştirilmesi, su kaynaklarının daha verimli kullanılması ve hassas tarım teknolojilerinin yaygınlaştırılmasının gelecekteki üretim artışlarını destekleyeceği değerlendirilmiştir. Uluslararası deneyimler, özellikle Fas, Mısır ve Türkiye örnekleri, başarılı gıda güvenliği politikalarının yalnızca üretim hedeflerine değil, aynı zamanda teknoloji, lojistik, yönetişim ve yatırım politikalarının bütünleşik biçimde uygulanmasına dayandığını göstermektedir. Sonuç olarak Cezayir'in 2026 Ulusal Tahıl Planı, gerekli yapısal reformlar, güçlü kurumsal koordinasyon ve uzun vadeli yatırımlarla desteklenmesi hâlinde ithalata bağımlılığı önemli ölçüde azaltabilecek, ulusal gıda egemenliğini güçlendirebilecek ve ülkenin tarım sektörünü daha rekabetçi, dirençli ve sürdürülebilir bir yapıya dönüştürebilecek stratejik bir politika çerçevesi niteliği taşımaktadır. Bu nedenle planın başarıyla uygulanması, yalnızca tarım sektörü için değil, Cezayir'in ekonomik ve sosyal kalkınması açısından da kritik öneme sahiptir.