

Agricultural Insurance as a Mechanism for Enhancing Agricultural Renaissance: Insights from the Algerian Context (2012-2025)

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Abstract :

The agricultural sector in the Arab world in general and Algeria in particular suffers from a multitude of risks resulting from its exposure to numerous uncontrollable fluctuating natural variables. This renders the institutionalization of agricultural insurance principles in these countries imperative, given its substantial benefits to both the national economy and the agricultural sector. These benefits include providing necessary stability and support to agricultural investors by mitigating risks and perils facing agricultural production—both crop and livestock alike. Agricultural insurance guarantees compensation for potential losses and distributes risks among various subscribers, thereby ensuring positive guarantees and incentives for farmers to practice their activity and expand their agricultural investments. This constitutes the fundamental step toward achieving self-sufficiency in agricultural products.

Keywords: Agricultural sector, Agricultural risks, Agricultural insurance.

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Introduction

The agricultural sector constitutes one of the fundamental sectors upon which nations rely for advancing their economies, as it addresses numerous problems and challenges confronting global crises, particularly price volatility. Agriculture serves as a source of food wealth and the optimal instrument for achieving food security. However, the agricultural sector in primary nations that adopt it as part of a comprehensive system of strategies, plans, and programs remains the cornerstone of economic development. Despite possessing approximately 8.5 million hectares of arable land—comprising one hectare of plateau, nine million hectares of northern desert spaces, and 4.2 million hectares of forests—the sector faces significant challenges.

The current reality qualifying this productive and fundamental sector, despite the areas it encompasses and requires—without examining whether nations possess them—highlights prominent issues including soil degradation, desertification of land areas, progressive destruction of forests, and scarcity of water resources. These problems have adversely affected agricultural revenues. Confronted with this situation, measures and policies must be implemented, at minimum, to address these problems afflicting farmers, thereby fostering development and income stability. Agricultural insurance plays an effective role in stabilizing the agricultural sector and, at minimum, mitigating various types of these problems. Therefore, understanding urgent financial requirements becomes imperative to achieve the objectives of nations whose farmers suffer from these challenges, leading to the adoption and activation of agricultural insurance as a fundamental sectoral basis.

This study aims to shed light on the role of insurance in promoting the agricultural sector in nations, beginning with the following urgent question: What is the significance of agricultural insurance in promoting the agricultural sector and achieving economic development?

1. Research Hypotheses

Based on the problematic, the following research hypotheses emerge:

- Diminution of agricultural revenues in the absence of insurance
- Apprehension among agricultural nations regarding farmers' forfeiture of acquisition and production
- Agricultural insurance impedes the achievement of stability regarding farmers' future decisions when purchasing policies

2. Study Structure

The study is structured into three principal sections:

- First: Fundamentals of agricultural insurance resolution

- Second: The role of agricultural insurance in promoting the agricultural sector and achieving economic development
- Third: The reality of agricultural insurance in Algeria

3. Significance and Objectives of the Study

The significance of this study lies in addressing the encountered problem represented by agricultural insurance and its role in advancing developing economies by providing security and stability to local agricultural nations, thereby achieving efficiency and agricultural outputs. It further encompasses establishing related food industries to absorb potential agricultural surplus, creating complementary food industries for local agricultural power equipment, eliminating unemployment, and employing surplus labor force for the desired economic development.

The objectives of the study emanate through the following exemplars:

- Shedding light on concepts related to agricultural insurance and its role in confronting agricultural risks;
- Studying the significance of agricultural risks facing agricultural products during their growth;
- Presenting and studying insurance products relied upon to confront agricultural risk problems;
- Analyzing the role played by agricultural insurance in promoting the agricultural sector and achieving economic development;
- Attempting to provide a clear picture of the reality of agricultural insurance in Algeria.

I. An Overview of Agricultural Insurance:

1. Defining the Concept

The nature of risks afflicting farmers comprises natural phenomena that occasionally manifest through droughts, floods, hail, precipitation, violent winds, and similar occurrences. Additionally, there are contingent outcomes such as depressed prices due to dumping and supply surges. Furthermore, consequences arise from crop and livestock infestations by pests and diseases that partially or completely destroy them. These risks generate outcomes that necessitate extended deferred measures to address their impacts. Despite globalization and technological advancements that have transformed these into fundamental chains deferring these important risks, agricultural insurance—with its multiple forms—constitutes one of the adopted mechanisms for managing these risks. Indeed, agricultural insurance encompasses broad concepts across global nations, particularly developed countries, with this significance deriving from agriculture being an activity exposed to human nutritional requirements. Protection and

prevention. Given the multitude of risks confronting agricultural processes and their traditional protection in numerous instances, activating comprehensive protection for them through insurance against these risks depends occasionally on methodologies for confronting the problem (Rashash, Mafdi, Al-Othaymi, & Al-Abaydah, 2010, p. 18).

Agricultural insurance is defined as a process linked to risks in a manner that guarantees, upon their occurrence, reduction and avoidance of losses and their immediate exclusion from production. It also constitutes an institutional mechanism for managing those risks for farmers to achieve production, representing an analytical instrument for farmers as part of nations whose production falls under coverage through appropriate administrative methodologies in land cultivation or livestock promotion (Shahawash, 2018, p. 8).

Another definition characterizes agricultural insurance as a mechanism aiming to reduce risks resulting from the agricultural sector's exposure to risk storms by distributing the burdens of these risks across a large group of farmers. It is further noted that agricultural insurance is not restricted to crop insurance alone, but also encompasses trees, animals, such as forests, aquaculture, poultry, and products ancillary to agriculture (Iturrioz, 2009, p. 5).

In the same context, agricultural insurance has been defined as a technique that provides farmers with minimum protection against risks and uncertainties associated with crop production in exchange for paying a premium, enabling farmers to stabilize their income and reduce fluctuations resulting from agricultural losses (McDonald, 1989, p. 186).

Similarly, agricultural insurance is described as a financial tool used to transfer production risks associated with farming to a third party in return for a premium reflecting the long-term cost of assuming those risks, thereby spreading agricultural risks across a wide pool of insured participants (Mahul & Stutley, 2010, pp. 53-54).

Furthermore, some scholars define agricultural insurance as a contractual arrangement whereby the insurer undertakes to compensate the farmer for specified agricultural losses resulting from natural disasters, pests, diseases, or market fluctuations, in return for the payment of an agreed premium (Fragoso, Ribeiro, Gonçalves, & Rocha Junior, 2021, p. 26)

A comparative analysis of the previously presented definitions reveals that the concept of agricultural insurance has been approached from several complementary perspectives. A first group of definitions focuses on the risk-management dimension, emphasizing the role of agricultural insurance as a mechanism for protecting farmers against uncertainties arising from climatic hazards, pests, and diseases that threaten agricultural production. A second

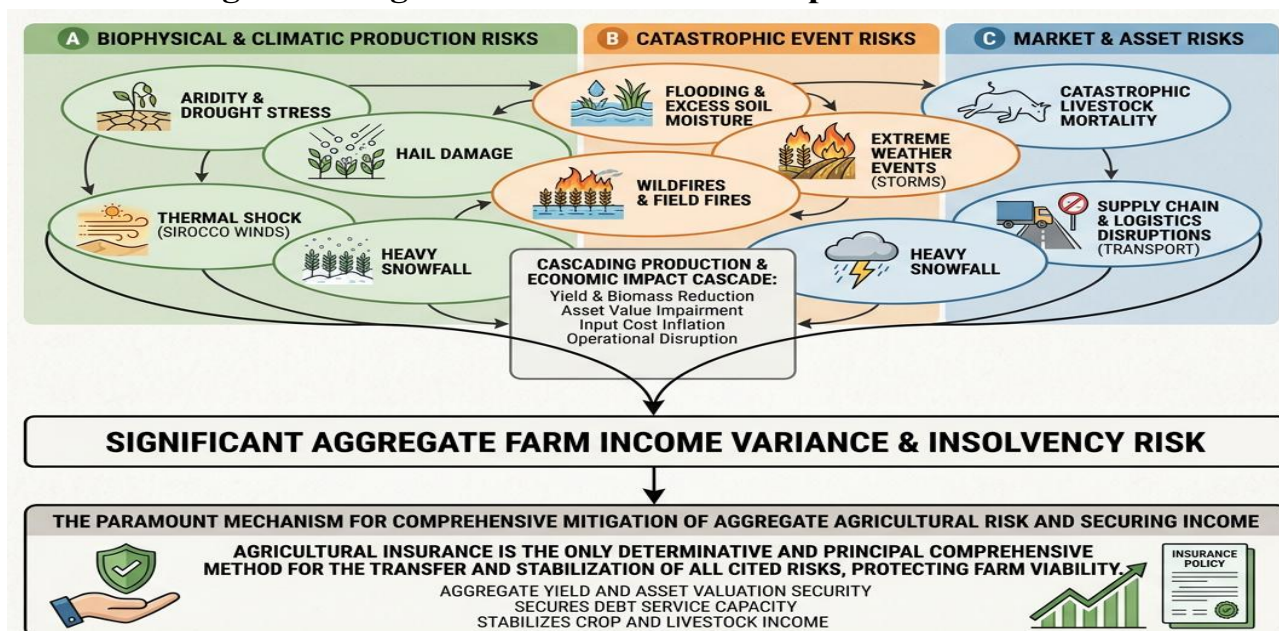
perspective highlights the income stabilization function, where agricultural insurance is seen as a financial instrument that helps farmers stabilize their income and reduce fluctuations in agricultural revenues across production seasons. Meanwhile, another group of definitions adopts a broader institutional perspective, considering agricultural insurance a structured system that distributes agricultural risks among a large number of farmers and institutions, thereby enhancing the resilience of the agricultural sector.

Furthermore, some definitions extend the scope of agricultural insurance beyond crops to include livestock, aquaculture, and forestry, reflecting the evolution of agricultural activities and the diversification of rural economies. These different perspectives collectively indicate that agricultural insurance is not merely a compensation mechanism for agricultural losses but rather an integrated risk-management and financial stabilization tool aimed at supporting agricultural sustainability and food security

Agricultural insurance may thus be defined as a risk-pooling mechanism designed to minimize welfare losses arising from stochastic exposure of the agricultural sector to hazardous elements, through the actuarial distribution of loss burdens across a large portfolio of participating farmers.

The following diagram illustrates the principal risk exposures confronting the agricultural sector:

Figure 01: Agricultural Sector Risk Exposure Matrix



Source: Prepared by the researchers based on: Ameur Oussama, (2014). **The role of insurance in supporting agricultural development: A case study of Algeria during the period 2002/2013** [Conference paper]. 9th International Conference on the Sustainability of Food Security in the Arab World in Light of International Economic Variables and Challenges (Chlef, Algeria), pp. 4.

2. Reasons for renewed interest in agricultural insurance

The notable shift in recent decades towards employing insurance as a central mechanism for risk management in the agricultural sector reflects an interplay of climatic, commercial, and institutional factors. These factors have reshaped the risk structure faced by producers, making insurance a more attractive tool for both farmers and policymakers. These drivers can be summarized as follows (KANG, 2007, p. 2):

2.1 Escalation of Systemic Climate Risks:

The renewed interest in agricultural insurance is primarily attributed to climate change, manifested in the increasing frequency and severity of extreme weather events (such as droughts and floods). From an economic perspective, both global warming and increasing productive specialization raise the degree of market interdependence and integration, transforming weather risks from idiosyncratic risks that can be managed locally into large-scale systemic risks. This shift reduces the effectiveness of traditional coping mechanisms (e.g., local diversification) and heightens the need for risk transfer mechanisms such as insurance.

2.2 Financial Intensification of Commercial Agriculture:

As agriculture transitions towards a capitalist, commercial model, the levels of capital investment in the sector rise. This investment (whether by farmers or financing financial institutions) necessitates risk management mechanisms to protect the return on capital. Economic analysis shows that agricultural insurance has become an essential tool in the agricultural finance structure, particularly with the spread of contract farming arrangements. In this framework, insurance is not merely an independent service but an integral part of an integrated package of inputs and services that ensures the stability of value chains.

2.3 Exceptional Treatment of Insurance in WTO Regulations:

From an institutional perspective, the regulatory framework of the World Trade Organization (WTO) provides a strong incentive. While "Green Box" rules impose strict limits on direct production-distorting subsidies, they exempt subsidies for agricultural insurance premiums from reduction commitments. This creates a strategic situation where governments can redirect support from traditional subsidy forms (which may be trade-distorting) towards insurance subsidies, achieving two objectives: supporting farm income and complying with international obligations.

2.4 Innovation in Insurance Products and Overcoming "Moral Hazard":

The last decade has witnessed evolution in the theory and practice of agricultural insurance through the introduction of innovative products such as revenue insurance and weather index-based derivatives. The economic

significance of these products, especially index-based ones, lies in their ability to mitigate the severity of "moral hazard" and "adverse selection" problems that impede traditional insurance markets. This is achieved by decoupling indemnity payments from individual farmer behavior and linking them to an objective, non-manipulable index.

2.5 Biosecurity and Plant Health Risks:

In an era of globalization, the accidental introduction of exotic pests and diseases poses an existential threat to agricultural productivity. Economically, biosecurity measures can be viewed as an underfunded public good. Insurance emerges here as a tool to manage the risk of "failure" of these preventive measures, providing a financial safety net in the event of a biological breach, thereby protecting investments and incentivizing adherence to stringent plant health standards.

2.6 Intertwining of Production Risk with Quality, Safety, and Environmental Standards:

The evolution of food safety and environmental protection standards (such as restricting fertilizer and pesticide use) is reshaping the production risk function. Theoretically, imposing these constraints narrows the farmer's margin of maneuver in pest control, which may increase yield variability. Consequently, insurance becomes a complementary tool to environmental policies, mitigating the financial risks associated with adopting more sustainable, yet potentially riskier in the short term, agricultural practices.

2.7 Trade Liberalization and Price Volatility:

The liberalization of agricultural trade links domestic markets to global commodity markets, exposing farmers to sharp price volatility and classic "boom and bust" economic cycles. In this context, the risks faced by farmers are no longer confined to production risk but increasingly encompass market risk. Therefore, the demand for insurance (especially revenue insurance, which covers both types) responds to the need to stabilize income in the face of competitive global market forces.

3. Principles of Agricultural Insurance

Agricultural insurance operates on the fundamental principle of risk pooling and diversification, similar to other forms of insurance, yet it is distinct due to the systemic nature of agricultural risks.

3.1 Risk Assessment and Premium Calculation:

Insurance companies specializing in agriculture rely on statistical data to assess the risks to which specific crops or livestock are exposed in a given geographical area over a defined period (Ramaswami, 2002). By analyzing historical

data—such as the frequency and severity of floods, droughts, or pest infestations—insurers can quantify the potential losses for a group of farmers. This actuarial analysis enables the company to calculate an appropriate premium. Risk theory suggests that if an insurer can effectively pool a large number of individuals to reduce total risk, they can provide insurance by charging a premium close to the actuarially fair rate (Wang, 1999). For instance, if historical statistics show a high probability of flooding in a specific region, the premium for farmers in that area will be set at a level that reflects that elevated risk. The premium is, therefore, a function of the probability of a loss event occurring and the magnitude of that potential loss.

3.2 The Insurance Contract and Indemnification:

In exchange for the payment of a premium by the insured (the farmer), the insurance company contractually commits to providing financial compensation (indemnity) in the event of a covered loss, as stipulated in the policy. This transfer of risk from the farmer to the insurer provides a financial safety net, allowing the farmer to recover from adverse events and continue operations. The premium collected is not merely a fee for this guarantee; it also contributes to a collective fund used to pay claims. The difference between the total premiums collected and the claims paid out, after deducting administrative and operational expenses, constitutes the company's underwriting profit, which is often supplemented by investing the premium reserves.

3.3 The Principle of Risk Pooling and the Law of Large Numbers:

The economic viability of agricultural insurance hinges on the law of large numbers. While a single farmer's risk of a total crop failure is high and unpredictable, the average loss for a large group of farmers across a diversified geographic area becomes more predictable. By pooling the risks of many farmers, the insurer can smooth out the financial impact of localized disasters. The losses of the few who suffer a bad year are covered by the premiums of the many who have a normal or good year. This horizontal distribution of risk—spreading it across a large number of policyholders—is the core mechanism that makes insurance feasible (Wang, 1999). It is important to note that insurance does not prevent the peril (e.g., a hailstorm), but it mitigates its financial consequences by redistributing the economic burden.

3.4 Challenges in Agricultural Insurance:

Unlike life or automobile insurance, agricultural risks are often systemic—meaning they can affect a vast number of policyholders simultaneously (e.g., a widespread drought). This correlation of risk violates the assumption of independence required for traditional risk pooling and poses a significant challenge for private insurers. The economic theory of contracts applied to

agricultural insurance shows that information problems prevent Pareto optimality from being attained (Nelson & Loehman, 1987, p. 525). Specifically, insurers must contend with two main information asymmetries:

- **Adverse selection:** This occurs when high-risk farmers are more likely to purchase insurance than low-risk farmers, leading to a pool of insureds with higher-than-average risk.
- **Moral hazard:** This refers to the possibility that insured farmers may take fewer precautions against loss, knowing they are covered, or may adjust input usage in ways that increase the likelihood or magnitude of a claim.

To manage these challenges, many agricultural insurance schemes involve government support as a reinsurer of last resort. Furthermore, insurers employ careful policy design mechanisms, such as deductibles and coinsurance, to mitigate the effects of moral hazard and adverse selection.

II. The Role of Agricultural Insurance in Promoting the Agricultural Sector and Achieving Economic Development

There is no doubt that the significance of agricultural insurance lies in the benefits and profits that can be derived from it for the various stakeholders within and outside the agricultural sector. These range from farmers to policymakers, officials, and private sector entities, chief among them insurance companies, banks, civil society actors, and others. The ultimate outcome of an agricultural insurance program is the reduction, sharing, confrontation, and overcoming of risks. Consequently, it contributes to (Al-Barghouthi, 2009, p. 29):

1. The Immediate and Future Significance of Agricultural Insurance:

The importance of agricultural insurance, in general, can be summarized as follows:

- Providing protection for the insured farmer against future shocks related to price, market, climate, etc.
- Serving as a crucial policy instrument for the state to support and protect the agricultural sector, particularly in the context of trade liberalization, whether under the auspices of the World Trade Organization or within the framework of liberalized inter-market trade globally.
- Deriving its importance from its impact on protecting and developing the farmer's long-term investments. It also serves as collateral for loans, thereby facilitating access to credit for insured farmers—whether they are owners, tenants, or sharecroppers. This is particularly vital in irrigated agriculture due to the prevalence of sharecropping arrangements.
- Fostering a private sector-led agricultural sector in production and services, including insurance.

- Meeting the demand for agricultural production and optimizing the utilization of available resources.
- Enabling farmers, both landowners and tenants, to access agricultural services, financial resources, and other necessities.
- Encouraging farmers to adopt advanced agricultural techniques, whether high-value inputs or agricultural technologies.
- Stabilizing farmers' incomes over the long term, especially in the face of shocks, disasters, and significant losses.
- Facilitating lending transactions between financial institutions and farmers, particularly those who do not own land or lack other bankable collateral.
- Assisting farmers in maintaining records of their farms and various crops, thereby enhancing the agricultural information base, strengthening the farmer's capacity to manage the production process, and enabling the recovery of certain entitlements such as value-added tax.
- Improving the ability of farmers and decision-makers in general to make informed decisions based on knowledge and data.

2. The Role of Agricultural Insurance in the Social Sphere:

Agricultural insurance plays an important role in the social domain in the following ways:

- Offering insurance products at various levels in rural areas will contribute to raising awareness among farmers in general and engaging educated individuals in the matter of agricultural insurance and related issues concerning risks, their avoidance, agricultural loss calculations, and compensation in particular. These are all matters that elevate the level of awareness in rural areas and also reinforce the culture of insurance and self-reliance;
- Equity in the distribution of wealth in rural areas, particularly preventing the further marginalization of those marginalized on the basis of gender, ethnicity, economy, or other factors;
- Attachment to place and the desire to remain, regardless of external temptations, if the program succeeds in providing a decent and stable income, or at least a minimum level thereof;
- Exploiting local (social and human) resources in local development by providing opportunities for contribution and initiative, if not opportunities for employment and income generation, or generating moral value and not merely material value.

3. The Role of Agricultural Insurance at the Macroeconomic Level:

Agricultural insurance plays an important role in the macroeconomic level in the following ways:

- Increasing capital formation (accumulation) in rural areas, as agricultural insurance encourages farmers to increase investment in agriculture, as well as insuring other farm holdings and assets;
- Increasing income from agricultural activity and value added in the agricultural sector;
- Enhancing efficiency in the exploitation of farm resources (waste, extravagance, etc.), where an increase in the marginal return of available resources and their proper operation is expected;
- Strengthening the private sector's ability to enter the agricultural sector, which constitutes a broad segment of the insurance market that remains neglected and presents an opportunity for private insurance companies;
- Reducing the risks faced by private insurance companies when offering and selling agricultural insurance products, reaching the farmer segment and their property, and selling insurance policies for farm assets such as equipment and buildings, etc.; and possibly life and health insurance policies and other insurance services from which rural areas are deprived.

The adoption of an agricultural insurance program works directly or indirectly to enable work in other important areas and axes for the agricultural sector. It is necessary here to focus on four interrelated, overlapping, and mutually reinforcing matters that are imperative for the success of any agricultural insurance program. These matters are central to agricultural and rural development, and agricultural insurance will establish the foundations to support them and provide the justification for capacity building in them:

- Agricultural credit and lending;
- Agricultural marketing;
- Agricultural extension and farm management;
- Agricultural scientific research.

These are supposed to harmonize with one another within a purposeful agricultural policy aimed at placing agriculture in its proper position.

4. Insurance and Agricultural Credit:

Agricultural insurance plays an important role in agricultural credit in the following ways:

- Facilitating farmers' access to loans, as the farmer's inability to access credit constitutes one of the most important problems facing the development and sustainability of agriculture in the Arab world, and consequently its ability to compete;
- Some believe that the success of agricultural finance, whether through linking the formal or informal financial system, requires linking it to an insurance

system against natural risks, as well as linking it to an advanced marketing system;

- Strengthening economic and institutional capabilities;
- Increasing the effectiveness and efficiency of rural and agricultural finance funds and financing mechanisms in rural population clusters;
- Ensuring the sustainability of financing activity and enhancing farmers' access to finance and loans, and thus their financial position.

5. Agricultural Insurance, Agricultural Extension, and Farm Management:

Agricultural insurance plays an important role in Agricultural Extension, and Farm Management in the following ways:

- Facilitating and enhancing the capacity for innovation and the adoption of innovations, whether new or unknown and associated with some risk, especially if linked to a well-informed agricultural insurance program that is nationally supported with information and financially backed.
- Developing the farm structure to allow for optimal or better utilization of its assets and developing its agricultural chains and the value added of its agricultural activity.
- The financial stability of the farm, even if relative, constitutes a major tributary for strengthening the economic security of agricultural areas in particular (including sustainable food security) and at the country level in general.
- Improving performance in facing natural disasters, both at the country and micro (farm) level, by providing information and facilitating local contribution, thereby stimulating self-reliance to face risks and crises, and potentially lightening the burden on the treasury, as farmers and the private sector participate in sharing losses, including catastrophic ones. Furthermore, the value added in agriculture will be positively affected by the presence of an agricultural insurance program, ensuring savings that outweigh the losses for all these parties combined or alleviating the financial burden on some of them in the absence of the program.

6. Agricultural Insurance and Scientific Research:

It is well known that agricultural insurance is voracious for information and data from various levels, including climatic information and data, and those related to the local and export markets, etc., in addition to data related to agricultural activity along the entire agricultural chain, as the effectiveness and feasibility of agricultural insurance are the outcome of these activities in confronting natural risks and market risks.

This means that agricultural insurance requires intensifying national and regional efforts to establish and develop agricultural databases and information,

as well as those related to insurance, such as climatic and market data, as well as farmer and consumer behavior, etc. The capacity of databases, their comprehensiveness of various dimensions, and the accuracy of the information they provide are prerequisites for beneficial insurance for the various parties. This places the task upon agricultural research centers, statistics and meteorology centers, as well as universities, as part of their mission to develop agricultural knowledge and direct it to support agricultural and development decisions, of which agricultural insurance constitutes one of the most important components and the main umbrella for the sustainability and balance of development.

III. Agricultural Risks in Algeria and the State of Agricultural Insurance

1. Agricultural Risks in Algeria:

The agricultural sector in Algeria faces numerous risks that can lead to crop destruction and a substantial decline in income, underscoring the critical importance of developing agricultural insurance products. According to the National Spatial Planning Scheme (Schéma National d'Aménagement du Territoire), Algeria's physiographic diversity, coupled with the interplay of geological and climatic conditions, has rendered it a "land of risks." Of the fourteen major risk categories identified by the United Nations, Algeria is exposed to ten: earthquakes and geological hazards, floods, climatic risks, radiation and nuclear risks, forest fires, industrial and energy risks, risks related to human health, risks related to animal and plant health, air, marine, or water pollution, and disasters stemming from large human gatherings (Ministry of Interior, 2026).

The strong correlation between this sector and prevailing natural and climatic conditions renders it highly susceptible to severe fluctuations. In 2017, a record number of forest fires resulted in the destruction of millions of hectares. Similarly, 2018 witnessed recurring disasters, primarily associated with flash floods, urban flooding, and storms, driven by severe and abrupt climatic disturbances across various regions of the country. This situation necessitates a fundamental reassessment of the understanding of disaster risk exposure in all its dimensions and the implementation of more effective mitigation strategies (Bank, 2023).

2. Agricultural Insurance Products in Algeria:

Algerian insurance companies provide farmers, producers, and breeders with a portfolio of specialized insurance products tailored to their specific activities. These products offer financial compensation designed to alleviate the severity of losses, thereby contributing to the stabilization of farm income, ensuring the renewal of investment capacity, and fostering the overall stability of the agricultural sector. The Algerian market, primarily through the National Fund

for Agricultural Cooperation (CNMA), offers the following key insurance products:

2.1 Crop Production Insurance (Assurance Végétale)

- Comprehensive Agricultural Insurance
- Comprehensive Date Palm Insurance
- Comprehensive Potato Insurance
- Hail Insurance
- Combined Hail and Fire Insurance
- Crop Fire Insurance
- Operational Irrigation Network Insurance
- Fruit Tree Insurance
- Comprehensive Tomato Insurance
- Comprehensive Olive Insurance
- Comprehensive Grapevine Insurance
- Comprehensive Cereal Insurance (Hail, Fire, and Drought)
- Greenhouse Insurance

2.2 Livestock Production Insurance (Assurance Animale)

- Comprehensive Cattle Insurance
- Comprehensive Sheep Insurance
- Comprehensive Equine Insurance
- Comprehensive Camelid Insurance
- Comprehensive Poultry Insurance
- Comprehensive Beekeeping Insurance
- Comprehensive Turkey Insurance

2.3 Motor Vehicle Insurance (Assurance Automobile)

- Trailer Insurance
- Tractor and Agricultural Machinery Insurance
- Leased Agricultural Equipment Insurance

2.4 Industrial Risks Insurance (Assurance des Risques Industriels)

- Fire and Explosion Insurance
- Loss of Operating Profit Following Fire Insurance

2.5 Farmers' Civil Liability Insurance (Assurances des Risques Simples)

- Farmer's Civil Liability Insurance
- Equestrian Civil Liability Insurance
- Veterinarian Liability Insurance
- Multi-Risk Household Insurance
- Water Damage Insurance

3. The State of the Agricultural Insurance Market in Algeria

3.1 Development of the Agricultural Insurance Market in Algeria:

The following table illustrates the share of agricultural insurance within the Algerian insurance market for the period 2012-2025:

Table 01: Agricultural Insurance Premiums in Algeria

Unit: Million Algerian Dinar

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	*2025
Amount	2,244	2,792	3,356	3,757	3,376	2,624	2,473	2,684	2,218	2,157	2,433	2,005	2,356	1,944
(%)	38,5	24,41	20,18	11,94	-10,13	-22,27	-5,73	8,51	-17,35	-2,76	12,82	-17,62	17,53	-17,48
Market structure	2,4	3	2,7	3,2	2,8	2,2	2	2	2	1,8	1,7	1,4	1,6	1,7

Source: Compiled by the authors based on: National Insurance Council. (2012-2025).

Market trend notes. ASSURAL, Permanent Secretariat of the National Insurance Council.

Retrieved January 11, 2026, from <https://cna.dz/notes-de-conjoncture/>

An examination of the agricultural insurance data from 2012 to 2025 reveals varying growth dynamics and persistent structural constraints in the sector. The agricultural insurance premiums in Algeria experienced a notable increase between 2012 and 2015, driven largely by expanded coverage of crop production and agricultural equipment. This expansion aligns with research showing that improved product offerings and risk mitigation mechanisms tend to increase participation in agricultural insurance systems (Maviya & Siziba, 2025, p. 273).

However, the period 2016–2018 saw a decline in premiums, likely reflecting market contractions and limited product uptake, particularly in livestock and other peripheral insurance lines. This pattern mirrors scholarship indicating that agricultural insurance sectors in developing contexts often show fluctuating growth year-to-year due to macroeconomic pressure and risk perceptions within farming communities (Manaa, 2025, p. 252).

Despite this resurgence, the share of agricultural insurance relative to total insurance markets remains comparatively low — not exceeding 2% by 2025. Such a low relative share is consistent with broader empirical evidence that agricultural insurance uptake in developing economies often lags behind theoretical potential, owing to barriers including affordability, information deficits, and structural market limitations (Panda, Lambert, & Surmins, 2020).

The literature identifies several factors limiting the penetration of agricultural insurance in Algeria. Low awareness and limited insurance literacy reduce farmers perceived benefits and willingness to participate, while high premiums relative to incomes and liquidity constraints further hinder uptake. Limited availability of tailored products, combined with distrust of insurers and concerns

* 30/09/2025.

over claim settlement reliability, exacerbate these challenges, as do structural and administrative inefficiencies such as slow and complex compensation procedures. Major external events have also influenced the sector: global economic shocks between 2014 and 2016, marked by commodity price volatility and slowed investment, constrained farmers' risk-taking capacity, and the COVID-19 pandemic (2020–2021) disrupted supply chains, labor mobility, and rural economies, further limiting the ability of smallholders to maintain coverage or invest in new risk mitigation measures. Taken together, these internal and external factors explain why, despite measurable growth, agricultural insurance in Algeria remains a modest share of the total insurance market. Addressing these barriers through targeted education, product innovation, and regulatory improvements is critical to increasing penetration and strengthening the sector's resilience against climatic and economic shocks.

3.2 Market Share of Agricultural Insurance in Algeria:

Table 03 below illustrates the market share of agricultural insurance in Algeria for the years 2017–2023.

Table 03: Components of the Agricultural Insurance Market in Algeria for the Years 2017–2023

Insurance Branches / DZD	Year	Public Companies	Private Companies	Mixed Companies	Total Market	Market Share of Private Capital Companies
Agricultural Insurance	2017	2 451 325 111	178 678 513	0	2 630 003 623	6,80%
	2018	2 378 815 023	94 697 814	0	2 473 512 837	3,80%
	2019	627 514 215	24 457 590	0	651 971 805	3,80%
	2020	2 120 730 307	87 178 353	0	2 207 908 660	3,90%
	2021	2 066 123 441	58 818 544	0	2 124 941 985	2,80%
	2022	2 335 987 811	72 148 157	0	2 408 135 968	3,00%
	2023	1 927 307 285	66 164 576	0	1 993 471 861	3,30%
Fire and Agricultural Multi-Risk Insurance	2017	/	/	/	/	/
	2018	176 216 753	22 603 092	-	198 819 845	11,40%
	2019	27 292 680	12 849 970	0	40 142 650	32%
	2020	183 854 864	36 142 540	0	219 997 404	16,40%
	2021	215 654 674	23 785 650	-	239 440 324	9,90%
	2022	284 185 400	23 254 104	0	307 439 503	7,60%
	2023	167 288 506	18 138 608	0	185 427 114	9,80%
Crop Production Insurance	2017	587 180 107	12 173 361	-	599 353 468	2,00%
	2018	623 683 918	5 608 233	-	629 292 151	0,90%
	2019	238 375 467	1 425 165	0	239 800 632	0,60%
	2020	561 029 791	3 757 974	0	564 787 765	0,70%
	2021	561 029 791	3 757 974	0	564 787 765	0,70%
	2022	583 956 172	2 140 002	0	586 096 174	0,40%
	2023	400 445 319	-184 881	0	400 260 438	0,00%
Livestock Production Insurance	2017	624 210 648	111 811 894	-	736 022 541	15,20%
	2018	556 399 231	52 974 635	-	609 373 866	8,70%
	2019	180 856 883	8 200 355	0	189 057 238	4,30%
	2020	729 891 870	33 402 048	0	763 293 919	4,40%
	2021	729 891 870	33 402 048	0	763 293 919	4,40%
	2022	818 658 042	38 253 589	0	856 911 631	4,50%
	2023	868 639 701	26 907 667	0	895 547 367	3,00%
Farmers' Civil Liability Insurance	2017	420 386 278	55 889	-	420 442 167	0,00%
	2018	344 537 378	10 532	-	344 547 910	0,00%

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	2019	32 438 770	0	0	32 438 770	0,00%
	2020	82 557 948	0	0	82 557 948	-
	2021	82 557 948	0	0	82 557 948	-
	2022	40 904 851	0	0	40 904 851	0,00%
	2023	28 225 379	9 258	0	28 234 638	0,00%
Multi-Risk Insurance for Agricultural Machinery & Equipment	2017	696 367 309	20 235 397	-	716 602 706	2,80%
	2018	696 367 309	20 235 397	-	716 602 706	2,80%
	2019	145 877 455	1 982 100	0	147 859 555	1,30%
	2020	539 436 668	13 875 791	0	553 312 458	2,50%
	2021	539 436 668	13 875 791	0	553 312 458	2,50%
	2022	560 900 873	8 500 462	0	569 401 335	1,50%
	2023	447 564 205	8 042 270	0	455 606 476	1,80%
Other Agricultural Damages	2017	123 180 769	34 401 972	-	157 582 741	21,80%
	2018	13 561 896	54 951	-	13 616 847	0,40%
	2019	2 672 960	0	0	2 672 960	0,00%
	2020	23 959 166	0	0	23 959 166	-
	2021	18 187 518	-	-	18 187 518	0,00%
	2022	47 382 474	0	0	47 382 474	0,00%
	2023	15 144 174	13 251 655	0	28 395 828	0,00%

Source: Compiled by the authors based on: National Insurance Council. (2017-2023). Market trend notes. ASSURAL, Permanent Secretariat of the National Insurance Council. Retrieved January 11, 2026, from <https://cna.dz/notes-de-conjoncture/>

The data presented in the table indicate that the agricultural insurance market in Algeria is characterized by the near-total dominance of public sector institutions, contrasted with a very limited presence of private insurance companies, while the mixed sector is almost entirely absent during the period under study. This institutional structure reflects the organizational framework of agricultural insurance in Algeria, which has historically been closely associated with public institutions, most notably the National Mutual Fund for Agricultural Cooperation.

The table shows a steady growth in total agricultural insurance between 2012 and 2016, with revenues rising from MAD 1.398 billion to MAD 2.591 billion, driven by expansion in crop production, livestock, and agricultural machinery coverage.

In 2018, agricultural insurance premiums declined by 5.5% compared to 2017, primarily due to decreases in livestock production (-20.6%), multi-peril machinery and equipment (-8.4%), and farmers' civil liability (-6.9%). These sub-sectors maintained respective shares of 26.6%, 31.1%, and 15.2% of the agricultural insurance portfolio. Conversely, fire and multi-peril agricultural risks increased by 31.3%, crop production by 21.9%, and other agricultural damages by 7.5% over the same period.

From 2019 to 2025, the sector shows relative stability with gradual growth, reaching MAD 1.95 billion in 2025. This expansion reflects the introduction of new insurance products, broader coverage for agricultural machinery, and

improved marketing strategies, indicating increased farmer awareness and government incentive programs supporting agricultural insurance adoption

3.2.1 Clear Dominance of Public Sector Institutions

The available data clearly demonstrate that public insurance companies account for the overwhelming majority of the market across almost all agricultural insurance branches. In the overall agricultural insurance segment, public insurers generated approximately DZD 2.45 billion in premiums in 2017, out of a total market size of DZD 2.63 billion, representing more than 93% of the market.

Despite some fluctuations during the study period—particularly in 2019, when the total market volume declined sharply to approximately DZD 652 million due to a significant contraction in agricultural insurance activity—the public sector rapidly regained its position in the following years. Premium volumes increased again, reaching approximately DZD 2.33 billion in 2022, before declining slightly to DZD 1.93 billion in 2023.

The relative stability of public sector dominance can be explained by several structural factors, most notably:

- The strong linkage between agricultural insurance and government support policies for the agricultural sector;
- The historical expertise and institutional presence of public insurance institutions in agricultural risk management;
- The limited engagement of private insurance companies in this segment due to the high level of risk associated with agricultural activities;

3.2.2 Limited Presence of Private Insurance Companies

The data further reveal that the contribution of private insurance companies to the agricultural insurance market remains extremely modest compared with the public sector. In the overall agricultural insurance branch, the market share of private insurers did not exceed 6.8% in 2017, declining thereafter to 3.8% in both 2018 and 2019, and further to 2.8% in 2021, before stabilizing at approximately 3.3% in 2023.

It is also noteworthy that private sector participation varies significantly across different insurance branches. Some segments exhibit relatively higher levels of private sector involvement, such as:

- Fire and agricultural multi-risk insurance, where the private sector reached a market share of 32% in 2019, the highest level recorded during the study period, although it later declined and stabilized between 7% and 16%;
- Livestock production insurance, where private insurers recorded market shares ranging between 3% and 15% over the study period.

Nevertheless, private sector participation remains extremely limited in most other branches, particularly:

- Crop production insurance;
- Farmers' civil liability insurance;
- Agricultural machinery and equipment insurance;
- In many of these cases, the private sector's market share did not exceed 1%, and in some years, it was virtually negligible.

3.2.3 Near Absence of Mixed Insurance Companies

The data also highlight the almost complete absence of mixed insurance companies in the agricultural insurance market throughout the 2017–2023 period, as no meaningful contributions were recorded in most insurance branches. This situation reflects the limited attractiveness of agricultural insurance for public–private partnership structures, which can be attributed to several structural constraints, including:

- The high level of risk associated with agricultural activities;
- The limited diffusion of insurance culture among farmers;
- The significant reliance on government compensation mechanisms and public disaster relief programs in response to agricultural losses and natural disasters.

3.2.4 Uneven Market Dynamics Across Agricultural Insurance Branches

The table also reveals significant heterogeneity in market dynamics across the different agricultural insurance branches. While livestock insurance and agricultural machinery insurance display relatively higher levels of activity, other branches—such as farmers' civil liability insurance and other agricultural damage insurance—remain extremely limited in terms of market volume.

Furthermore, the data indicate notable fluctuations in market size during 2019 across most insurance branches, which may be linked to climatic conditions or economic factors that affected the demand for agricultural insurance during that year.

3.2.5 Overall Assessment of Market Structure

Based on the above analysis, it can be concluded that the agricultural insurance market in Algeria exhibits a relatively concentrated structure dominated by public sector institutions, with only a marginal contribution from private insurers and an almost complete absence of mixed-sector companies. The weak market share of private insurance companies also reflects the persistence of several structural constraints limiting the development of this market, including the high level of agricultural risk exposure, the relatively low demand for agricultural insurance products, and the limited investment incentives available to private insurers operating in this segment.

3.3 Regional Comparative Analysis of Agricultural Insurance

To better position the Algerian agricultural insurance sector within the regional context, a comparative analysis was conducted covering selected countries in the Middle East and North Africa (MENA) and Sub-Saharan Africa. The comparison relies on recent market estimates and industry reports focusing on market size, growth dynamics, public subsidy mechanisms, and insurance penetration levels.

Empirical evidence indicates that the agricultural insurance market in the Middle East and Africa remains relatively small compared with global markets, but it is expanding steadily due to climate risk exposure and increasing policy support. In 2024, the regional agricultural insurance market was estimated at approximately USD 1.19 billion, with projected growth of around 6–7% annually over the next decade.

However, the level of development varies significantly between countries, reflecting differences in government subsidy programs, institutional frameworks, and farmer participation rates.

Table 04: Regional Comparative Analysis of Agricultural Insurance Markets (2024)

Country / Region	Estimated Market Size (USD million)	Growth Dynamics	Government Premium Subsidy	Insurance Coverage Level
Middle East & Africa (Total)	1,195	~6.8% CAGR (2025–2033)	Variable	Low overall penetration
Turkey	486 (2023)	Rapid expansion	~50% subsidy	High (~3.1 million insured farmers)
Egypt	83 (2024 est.)	~6% annual growth	Limited / emerging programs	Very low penetration
South Africa	125 (2024 est.)	~6–7% growth	Limited	Medium coverage
Algeria	≈17–18 (2024 est.)	+17.5% recovery growth	Limited and selective	Very low coverage
Morocco	≈40	Moderate / stable growth	Up to 90% subsidy	Medium coverage
Tunisia	≈8 (estimate)	Slow growth	Partial support	Low (≈8% coverage)

Source: Compiled by the authors based on:

- Cognitive Market Research. (2024). Agricultural insurance market report. Cognitive Market Research.
- Grand View Research. (2024). Agricultural insurance market size, share & trends analysis report by product, by application, by region, and segment forecasts (2024–2033). Grand View Research.
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The comparative evidence highlights the structural underdevelopment of the Algerian agricultural insurance market relative to several regional peers. Although the sector recorded a positive recovery of approximately 17.5% in 2024, reaching a turnover of about 2.36 billion DZD, its contribution remains marginal within the national insurance industry, accounting for only about 1.38% of total insurance premiums.

By contrast, countries such as Turkey have developed highly institutionalized agricultural insurance systems. The Turkish agricultural insurance pool (TARSIM) benefits from government premium subsidies of around 50% and covers more than 3.1 million farmers, making it one of the most advanced agricultural insurance systems in emerging economies.

Similarly, Morocco has implemented one of the most generous subsidy frameworks in the region, with government support covering up to 90% of insurance premiums for certain crop insurance schemes. This policy has significantly improved farmers' participation and increased insurance penetration. In comparison, Algeria's agricultural insurance system remains characterized by weak penetration and limited policy support mechanisms. The proportion of insured farmers remains extremely low—estimated at less than 1% of the total farming population in previous years, with only marginal improvement in recent periods. This limited coverage reflects several structural constraints, including:

- weak insurance culture among farmers;
- limited diversification of agricultural insurance products;
- high exposure to climate risks (drought, floods, hailstorms);
- insufficient government subsidy schemes compared with regional benchmarks.

Consequently, despite the recent recovery observed in 2024, the Algerian agricultural insurance market continues to lag behind regional leaders, highlighting the need for institutional reforms, expanded premium subsidies, and innovative insurance mechanisms such as index-based or parametric agricultural insurance

IV. Conclusion

Despite the agricultural sector being one of the productive sectors in nations; as it represents an important percentage of GDP reaching 98%, in the long run and contributing to achieving optimal efficiency in public agricultural crop yields, reducing import bills, agricultural insurance is considered among the most important mechanisms for achieving [stability in] the agricultural sector. The updated data for 2024 demonstrates significant potential, with 17.5% market growth following the 2023 drought-induced decline. However, the persistent

dominance of public sector entities (95% market share), limited private sector participation (5%), and very low farmer coverage rates (0.56% historically) indicate structural deficiencies requiring urgent policy attention.

Therefore, urgent financial requirements must be understood to achieve the objectives of nations from which farmers suffer, particularly the high risks related to agricultural production for a complete cycle return on the group from few in the productive process, and consequently not guaranteeing stable perseverance of income for agricultural producers. Although we know that farmers ensuring their products prevent this, this returns to insurance culture among farmers and deficiency of the insurance process.

And the high cost of agricultural insurance premiums and the weak financial capacity of the farmer, and contracting procedures and their weak capacity for public assistance, therefore necessary measures must be taken that require activating the role of agricultural insurance and seeking to find activation procedures in this strategic sector. The regional comparative analysis demonstrates that successful agricultural insurance systems require substantial government commitment, innovative product design, and private sector engagement—elements currently insufficiently developed in the Algerian context.

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