

# Situation of livestock insurance in the region of Ghardaia (Algerian Northern Sahara)

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**Abstract:** Agricultural insurance is one of the important tools that help farmers gain access to appropriate financial services in support of agricultural production and to face some of the involved risks. The present article presents a detailed evaluation of the functioning of the agricultural insurance system. Assessing the participation of the Algerian Caisse de Mutualité Agricole, in the current rate of agricultural development. This institution of agricultural mutuality, with its national fund and its regional mutuals, is likely to be affected by several changes or even to be surpassed by other companies competing on the insurance market. An analysis was conducted in insurance companies and farmers to probe the reality on the ground and identify alternatives and proposals for well-targeted solutions in relation to the detected deficiencies. The study also found a generally less favorable attitude of the farmers towards agricultural insurance. Emerging from this analysis is a set of nuanced recommendations based on risk structure and environmental property rights.

**Key words:** agricultural insurance, participation, development, Saharan regions, Algeria

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## 1 Introduction

In Algeria, according to statistics (MADR, 2018), agriculture accounts for between 8% and 12% of gross national product (GNP). There are direct risks such as natural disasters and epidemics, as well as numerous indirect risks related to organisation and management, land tenure, water resource management, storage conditions, fertilisers, animal feed, veterinary medicines, plant protection, drugs, prices and inflation (Minh Duc, 2017). Insurance programs have become an increasingly

popular method for providing support to agricultural producers (Glauber, 2015). The Saharan agriculture requires large financial means because of the importance of the necessary investments, especially for the mobilization of water, the fight against the diseases and the risks of the breeding. However, Saharan agriculture faces difficulties in its operation and does not arrive in these different segments, realizing its potentialities.

The Caisse Nationale de Mutualité Agricole (CNMA) is made up of a National Fund and 62 Regional Banks to which are attached 123 local offices, with a total workforce of 2469 agents in 2003 including 1767 employees of the insurance business (Caisse Nationale de Mutualité Agricole [CNMA], 2018). Despite the importance of the sector, agricultural insurance remains the forgotten concept of strategies developed for the benefit of the sector for its modernization and upgrading.

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In this situation, can the agricultural insurance institution effectively manage risks by offering promising solutions? Are the insurer breeders satisfied with the services provided? This paper provides an analysis of the current situation of the insurance institution and highlights some of the challenges that face its management.

## 2 Materials and methods

### 2.1 Brief sketch of the study area

The oasis society evolved and seeks to adapt to the new economic situation (Conforti and Tonneau, 1999). Positive evolutionary tendencies, which can be further consolidated, provided that the conditions for effective technical, financial and organizational supervision are also identified (Bensaha and Arbouche, 2016). It covers 8,656,000 hectares of which the study area represents 22% (1,870,500 hectares). Agriculture occupies 527 165 hectares (28%), divided between 517,165 hectares of rangelands (98%) and 10,000 hectares of crops (Figure 1).

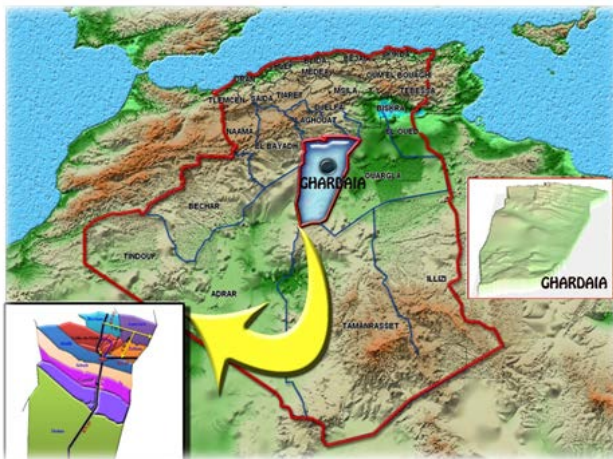


Figure 1 Location of the study area

### 2.2 Data analysis

The Insurance Database is a combination of quantitative collected data. This step allowed us to take advantage of the available information and, requisite to know: Press works, statistical data, annual reports and balance sheets. Also, we have made contacts with the Agricultural Services Direction (DSA), Regional Agricultural Mutual Fund (CRMA), Bank of Agriculture and Rural Development (BADR), Wilaya Chamber of Agriculture (WCA). It includes cross-sectional data on insurance terms.

Semi-structured and unstructured interviews with key persons such as farmers' mass management officials or policy makers from different levels of government provided general information about the research region and the situation risk for farmer's livestock in general. We have seen little scientific work on agricultural insurance. Thus, we considered it useful to take stock of the relationship between farmers and state monetary institutions and their participation in the current process of agricultural development. It is in order to bring a better knowledge of the ground concerning the customer's satisfaction towards the services provided by these institutions.

## 3 Results and discussions

In this respect, Bensaha and Arbouche (2014) noted that animal production has largely benefited from a situation in which the states intervened significantly to protect them, either or through the subsidy of inputs (imported gravid heifers, feeds, artificial insemination, etc.) (Table 1).

Table 1 Immovable property (existing on farms)

Type	Nombre	Capacity
Residential buildings	775	
Sheepfold	589	52,830 Heads
Cowshed	69	1,947 Heads
Livestock buildings		
Stable (Horses)	34	163 Heads
Hen house	78	293,950 Subjects
Hatcheries	33	2,000 Subjects

Note: Source from DSA (2018)

As a reminder, agricultural insurance is presented as a risk management tool to allow agricultural producers to protect their assets against the risks that threaten them, it is now in tune with the programs initiated by the public authorities' direction of the agricultural and rural world (CNMA, 2018). Thus, the Agricultural Mutuality, multiplying the range of its guarantees is a real tool for securing the farmer, because it is able to return the farmer or breeder in the situation where he was before the disaster (Figure 2).

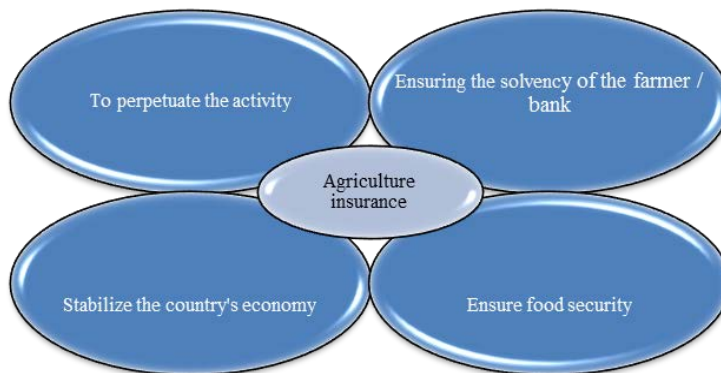


Figure 2 Role and objectives of insurance

In Algeria, the management of these catastrophic agricultural risks is entrusted on a national scale to the CNMA, and on a wilaya scale to the Caisse Regional de Mutualité Agricole (CRMA). Thus, the CNMA manages, on behalf of the State, the funds intended to support the development programs of the sector of the agriculture and the fishing. His intervention consists of verifying the technical compliance of the application of ministerial decisions and the financial management of payments (CNMA, 2018).

In the last decade, the sector recorded a dynamic of around 4% (MADR, 2018). Table 2 showed that the rapid growth in agricultural insurance since 2012 is attributable to several factors, including the appreciation in commodity prices; increased government subsidies.

Table 2 Evolution of the turnover of the insurance from 2012 to 2016

	2012	2013	2014	2015	2016
Agricultural risks	2,247,162	2,786,373	3,269,347	3,757,444	3,370,244
Whose:					
Production	641,999	668,596	738,899	782,293	655,637
livestock	686,41	932,327	1,048,927	1,338,490	1,203,350

Note: Source: National Insurance Council, MADR, 2018 Unit: Thousand Algerian dinar

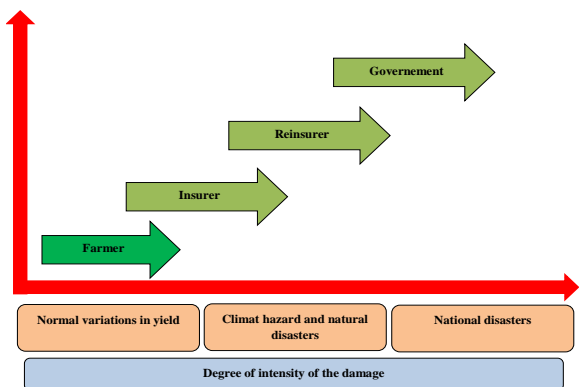


Figure 3 Distribution of stakeholder participation in agricultural risk management

The management of risk in agriculture and the role of insurance have long been the centre of attention for researchers and policymakers (Figure 3). Even with strong public support, insurance demand is not often as high as could be expected.

According to interviews with CNMA officials and interviews with a number of breeders, we found that the majority of breeders do not take into account the insurance of their livestock. This behavior is mainly due to their levels of education which is a handicap to manage to cover unforeseeable and out of control risks. It is worth pointing out that also for religious beliefs; breeders do not contract insurance subscriptions. Breeders in the study area do not insure against risks, they do not reach out to banks (CNMA, 2018). However, it is noted that many of them are unaware of the exact value of the effort they are. Breeders in the region have no culture to insure their property and animals. According to the CRMA, there is a clear evolution compared to previous years. More and more breeders are getting closer to insurance (Figure 4).

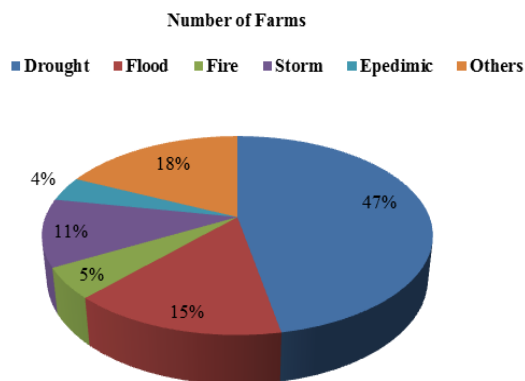


Figure 4 Distribution of the number of farms affected by agricultural risks

They believe that Islamic finance tools can be used to finance their production units. That is, the risks are also shared between the two parties (the bank and the farmer). Islamic financing, unlike a value chain, emphasizes the equal distribution of risks between the lender and the borrower. In this way, the profits and losses are shared between the two parties. Indeed, we can see a lack of awareness and awareness of risk management techniques, such as insurance techniques and other possible options that could be used to offset some of the risks in business units breeding.

Regarding the declaration of damage on 68 breeders 3 have declared their damage to the insurance companies, none and until now, has been compensated, which caused the discontent. But currently, the main reasons for losses are diseases that fatal accidents seem to happen less frequently. Livestock mortality is the most serious economic risk these pastoralist households face (CNMA, 2018). It's clear most uninsured herd mortality losses occur in droughts as covariate shocks affecting many households at once, sparking a humanitarian crisis (Chantararat et al., 2008; Mude et al., 2009).

The importance of livestock mortality risk management for breeders is amplified by the apparent presence of low income in Algeria, characterized by multiple herd size equilibria such that losses that push a breeder below a critical threshold. Put differently, livestock losses that push households below this threshold appear irreversible in expectation, or to at least have very severe, long-term consequences. Contemporaneously, in Europe, the Common Agricultural Policy (CAP) reform process had already gathered speed by the 2003 reform, which outlined a new approach to European intervention in the farm sector and in rural areas, privileging agriculture's contribution to constructing positive social values and progressively reducing the weight of market protection and internal price support (Buckwell, 2007).

Demand for livestock insurance was found to be affected by different socio-economic factors. In many uninsured farms, the loss of an animal is a real embarrassment (Farcy, 1955).

Besides animals, it is also possible to insure buildings,

machinery, liability, as well as accidents. In case of livestock insurance, the loss of the animal due to accident and/or disease is insured against. Yet livestock holdings reported by most breeders were not large enough to compensate entirely for their income fall. Although insurance principles thus seem to offer a way to reduce the costs of uninsured risk, most projects to date have insured stochastic income streams (e.g., crop yield insurance), despite the fact that globally most insurance sold is actually asset insurance (Chantararat et al., 2013). Arguably, demand for insurance will be stronger and more sustainable when it offers the farmer a nonzero sum choice.

In terms of human protection, according to the association of vets, paravets and animal health workers declared that the majority are insured against diseases and work accidents. The livestock insurance fund also means safety for the paravets and veterinarians, many of whom have limited practical experience, because it assures them against the risk of not treating animals properly and thereby causing their death (Dufhues et al., 2004). It also reduces the incentive for vets to obtain further training to improve their skills and performance. Income insurance can become a nonzero sum proposition if it simultaneously underwrites an increase in expected income even as it reduces risk exposure.

For the insurance of the workforce, the breeders declare that for lack of weakness of the cash of the exploitation do not recruit them. They are content with seasonal and family labor. Whereas the Algerian legislation makes the operator liable for the cost of accidents at work, incurred during agricultural work, by permanent or temporary workers in the farm, by casual or voluntary workers, by family members working permanently on the farm (with the exception of the farmer and his wife). Most farmers rely solely on the work of their family, from production to the market. This is mainly due to relatively small production areas and the fact that livestock production does not require a large labor force. Some breeders can draw on cash savings from family or friends to purchase animals to restock a herd after losses (DSA, 2018).

According to the DSA (2018), most livestock farmers

do not have relations with trade unions. It is obvious to create various kinds of breeders groups and associations aimed at solving technical and market challenges that individual farmers cannot deal by their own. Right now, the local breeders have received no technical support from a professional insurer. Diversification strategies that these breeders employ to manage risk, in nearly all cases these mechanisms are highly imperfect and in many cases carry very high implicit insurance premia. Without government subsidies or public reinsurance, insurers pass this high cost to the farmers' premiums (Doherty and Dionne, 1993; Miranda and Glauber, 1997; Mahul, 2001). A farmer can't bear the various risks by himself that threaten. He must ensure himself. (Farcy, 1955). None of the main risk-coping strategies that are hypothesized for (Insurer/Breeder) were effective during the crisis period.

At the end of this study, and following a long discussion with the farmers, they thought that Islamic financing methods encourage farmers to get involved in the agricultural sector, because they are consistent with their religious beliefs and can strengthen segments of the economy the production.

#### 4 Conclusion

Agricultural insurance is an important tool of the risk management for farmers and can contribute to the development of the region. However, it is important to handle the barriers in order to extend access and availability of these services. Therefore, the institutional challenge is to know how to develop an equitable, affordable and solvent insurance income that does not generate an unbearable burden over public budgets. The insurance institution needs to renovate its reception structures to better attract customers (farmers), i.e. it must study and apply a management and marketing strategy to agricultural production systems and breeding. In conclusion, agricultural insurance can be used to encourage livestock farms to adopt improved technologies.

#### References

- Bensaha, H., and F. Arbouche. 2014. Reproduction of dairy cows in the Saharian regions, studies of some parameters in the valley of M'zab, Algeria. *Lucrări Științifice-Universitatea de Științe Agricole și Medicină Veterinară, Seria Zootehnie*, 62: 28-34.
- Bensaha, H., and R. Arbouche. 2016. Impact de la dynamique de l'agriculture et ses conséquences sur la durabilité de l'écosystème saharien: cas de la vallée de M'zab (Sahara septentrional). *Revue Marocaine des Sciences Agronomiques et Vétérinaires*, 4(3): 31-36.
- Buckwell, A. 2007. The next steps in CAP reform Les prochaines étapes de la réforme de la PAC Die nächsten Schritte in der Reform der GAP. *Eurochoices*, 6(2): 13-19.
- Chantararat, S., C. G. Turvey, A. G. Mude, and C. B. Barrett. 2008. Improving humanitarian response to slow-onset disasters using famine indexed weather derivatives. *Agricultural Finance Review, Forthcoming*, 68(1): 169-195.
- Chantararat, S., A. G. Mude, C. B. Barrett, and M. R. Carter. 2013. Designing index-based livestock insurance for managing asset risk in northern Kenya. *Journal of Risk and Insurance*, 80(1): 205-237.
- Caisse Nationale de Mutualité Agricole. 2018. Activité des assurances en Algérie, Rapports publiés par le ministère des finances, 2010 à 2018.
- Conforti, J., and Tonneau, J. P. 1999. Les systèmes de production oasiens: le cas des oasis du Jerid. In *Agroéconomie des oasis*, F. Michel, S. Bedrani, and G. Didier ed., pp. 103-115. Montpellier: CIRAD
- DSA. 2018. Direction des Services Agricole de la wilaya de Ghardaïa; Programme de soutien a la relancé économique a court et moyen terme (2004-2017), Ghardaïa, 120.
- Doherty, N. A., and G. Dionne. 1993. Insurance with undiversifiable risk: contract structure and organization form of insurance firms. *Journal of Risk and Uncertainty*, 6(2): 187-203.
- Dufhues, T. B., U. Lemke, and I. Fischer. 2004. Constraints and potential of livestock insurance schemes – A case study from Vietnam. Research in Development Economics and Policy. Discussion Paper No 5/2004. Stuttgart, Germany: Grauer Verlag.
- Farcy, H. 1955. Les assurances de l'exploitant agricole. *Économie rurale*, 24(1): 23-40.
- Glauber, J. W. 2015. Agricultural Insurance and the World Trade Organization. IFPRI Discussion Paper 01473. Washington, DC: IFPRI.
- Mahul, O. 2001. Managing catastrophic risk through insurance and securitisation. *American Journal of Agricultural Economics*, 83(3): 656-661.
- Minh Duc, D. 2017. Agricultural insurance in Vietnam: pilot programme and pre-conditions for a public-private partnership approach. *Asia Pacific Journal of Public Administration*, 39(1): 63-71.

- Ministère de l'Agriculture et du Développement Rural (MADR). 2018. Revue de secteur agricole en Algérie Analyse de l'évolution des politiques de développement du secteur. Rapport de synthèse. Version première. Ministère de l'agriculture et du développement rural. Alger. Mai 2018.
- Miranda, M. J., and J. W. Glauber. 1997. Systemic risks, reinsurance, and the failure of crop insurance markets. *American Journal of Agricultural Economics*, 79(1): 206–215.
- Mude, A., C. B. Barrett, J. G. McPeak, R. Kaitho, and P. Kristjanson. 2009. Empirical forecasting of slow-onset disasters for improved emergency response: An application to Kenya's arid and semi-arid lands. *Food Policy*, 34(4): 329-339.