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# Agricultural insurance

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- **Linking small-scale farmers with markets**
- **Managing agricultural insurance in Brazil**
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- **FONTAGRO funding potato projects**



# Managing agricultural insurance in Brazil

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## Summary

This article presents different topics and proposals for solving the problems facing the rural insurance system in Brazil, addressed at the seminar "Risk and the Management of Rural Insurance in Brazil," held on June 24-26, 2008, at the Economics Institute of the University of Campinas (UNICAMP). Much of the discussion focused on the advantages of operating an insurance system vs. extending debt repayment dates; the subsidizing of premiums when risks are high; and the need for an information system that can operate with detailed data on farmers rather than averages, which do not reflect the true situation in agriculture. Reference was also made to the possibility of creating a Catastrophe Fund in Brazil to provide victims with additional indemnification, since to date it has been impossible to implement an efficient system of protection against the risks posed by pests and climatic events in Brazil.

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**Key words:** *rural insurance, agricultural development, agricultural policies, Brazil, climatic risk*

## Introduction

At the seminar “Risk and the Management of Rural Insurance in Brazil,” the rural insurance system in Brazil was analyzed. It was held on June 24-26, 2008, at the Economics Institute of the University of Campinas (UNICAMP) and was organized by the university, the National Federation of Insurance Agencies and Companies (FENAAG), the National Federation of

Insurance Companies (FENSEG), the Brazilian Agricultural Research Enterprise (EMBRAPA), the Inter-American Institute for Cooperation on Agriculture (IICA) and the Ministry of Agriculture, Livestock and Supply (MAPA).

At the event, it became clear that the current rural insurance system is highly deficient and that the principal reasons for this are low subsidies, the lack of an information system with realistic data on agricultural



productivity, less than accurate climate forecasts and the need for a Catastrophe Fund. As a result, it is necessary to examine how the current system has evolved and how it has impacted both production and rural credit, to determine how best to make it more efficient and to give the government the tools it needs to reduce the losses incurred when farmers default on the payment of debts.

*The problem is a system that has tried to insure farmers against all types of risk (flood, hail, drought, pests, etc.) in a country as large as Brazil, where the climate varies greatly from region to region.*



## Evolution of the insurance system in Brazil

The rural insurance system in Brazil has experienced a number of serious problems that have affected its development. One example is the gap between the value of claims filed and total premiums paid. Between 1995 and 2005, the premiums collected totaled R\$277 million and claims R\$500 million, leaving the system with a deficit of R\$223 million.

The worst period was between 2003 and 2004, when floods and droughts in the south led to claims totaling R\$106 million vs. premium payments of only R\$40 million, leaving the system almost broke. The problem is a system that has tried to insure farmers against all types of risk (flood, hail, drought, pests, etc.) in a country as large as Brazil, where the climate varies greatly from region to region.

Given these problems, the number of insurance operations declined sharply, falling to 32,000 in 2007, for a value of R\$2.4 billion, leaving 97% of the cultivated area

in Brazil uninsured. It should be pointed out that in that same year the government subsidized premiums to the tune of R\$61 million. In 2008, the government plans to provide R\$160 million in subsidies for up to 72,000 farmers, which would increase the total insured cultivated area to 10%. The current system operates primarily in Sao Paulo, Rio Grande del Sur, Parana and Santa Catarina, and most policies cover only a few crops: soybeans, corn, apples and grapes.

Rural insurance accounts for a very small portion of all insurance held in Brazil. It represents only .37% of insurance operations and is available through only five companies: Alianza del Brasil (BB), MAPFRE, Puerto Seguro, Noble and AGF.

Nonetheless, there is great potential for growth in the rural insurance industry. If that potential could be fully developed and some of the obstacles to the effective operation of the system were removed, it

would be possible, for example, to expand coverage to at least 50% of the cultivated area in Brazil in the short term.

As the agricultural market is modernized through the adoption of new market instruments (CDA, LCA Warrants, for example), there is increased pressure for the rural insurance system to be more efficient and to keep pace with the evolution of the market.

► *There are also structural factors in Brazilian agriculture that increase risk, such as the limited transportation infrastructure, the inadequate financial management practices of the farmers, due to a lack proper technical assistance, among others.*

The unavailability of insurance also affects rural credit, forcing banks to be extremely cautious when offering credit. Without insurance, banks cannot protect themselves against losses caused by the bankruptcy of clients. As a result, banks end up lending only a small portion of what they have available. This was the case in Mato Grosso, where only 5% of available credit was made available in 2007. At the national level, the insecurity and uncertainty created by the lack of insurance may have reduced the availability of credit by some 30%.

There are also structural factors in Brazilian agriculture that increase risk, such as the limited transportation infrastructure, the inadequate financial management practices of the farmers, due to a lack proper technical assistance, among others.

It is well known that insurance also helps lessen the impact of volatility in the agricultural market. The need for rural insurance becomes most apparent during bad times in agriculture. In times of crisis, when debts pile up, credit is restricted, making it impossible to restart production.

In the final stage of the cycle generated by the unavailability of insurance, lack of credit and low levels of production, the volume of unpaid debts grows significantly. At such times, there is almost always strong pressure by farmers, asking for more time to pay back their debts. Governments generally end up extending deadlines or forgiving part of the debts (amnesties, extensions, moratoria, etc.) This carries a high political cost for the government, has a financial impact on the national budget and does little to encourage efficiency among farmers.

It is estimated that unpaid agricultural debts total R\$130 billion (approximately US\$90 billion), which is equivalent to the value of an entire harvest. This debt can be broken down as follows: the national budget (R\$97 billion), the Bank of Brazil and private banks (R\$33 billion) and input suppliers (R\$10 billion).



Table 1 details the amounts owed to the Treasury:

**Table 1. Annual average rural debit balances between 1995 and 2007**

Year	Total accumulated debt R\$ <sup>3</sup>
1995	42.3
1996	39.1
1997	37.1
1998	40.2
1999	44.2
2000	48.0
2001	51.7
2002	54.5
2003	62.2
2004	68.7
2005	74.4
2006	81.5
2007	87.4

Source: Gervásio and Kreter 2007.

In order to avoid the accumulation of even more debt, the government could implement an efficient insurance system and, in this way, reduce the need to renegotiate debts.

The solution may be subsidies or contributions to private catastrophe funds, with which the government could help to implement an insurance system in Brazil and, in this way, reduce the amount of irretrievable debt. It is estimated that the

*The need for rural insurance becomes most apparent during bad times in agriculture. In times of crisis, when debts pile up, credit is restricted, making it impossible to restart production.*



cost of providing such preventive subsidies would be much less than the costs the government incurs when farmers do not pay their debts.

In order to strengthen this system, the government could follow the example set by Spain, where the government is forbidden from helping farmers who do not pay their debts. To avoid the risk of losing their lands, farmers ultimately purchase the necessary insurance.

Therefore, insurance would be the best way to avoid the further accumulation of debt in agriculture, which has become very costly for the government and tarnished the image of farmers in the eyes of society. Also, it would prevent interruptions to production.

## Obstacles to the implementation of an efficient insurance system

The main obstacles to the implementation of a rural insurance system in Brazil include the problem mentioned by almost every speaker at the seminar, which is the lack of an efficient data base that can be used

3 Billions of R\$ in May 2007, adjusted for the Broad National Consumer Price Index (IPCA)



to calculate productivity indexes for both family and commercial agriculture. When the data for these two categories are mixed together, lower average yields are obtained. If such figures are used as a reference for insurance purposes, the more mechanized farmers are not eligible for coverage.

In Mato Grosso, for example, insurance covers only those who produce fewer than 46 sacks (60kg) of soybeans per hectare. According to farmers, this amount is extremely low and leaves mechanized farmers, who produce an average of 65 sacks per hectare, uninsured. If, as the result of a climatic event, their production drops to 50 sacks, for example, they are not covered. Insurance that works this way is not attractive to medium- or large-scale farmers.

Another obstacle to the creation of an efficient insurance system is the lack of accurate climate forecasts. No matter how credible weather forecasts are, they cannot extend beyond 15 days, and climate forecasts are highly inaccurate (less than 40% reliable over long periods). There are few weather stations in Brazil that can predict, with any degree of certainty, changes in weather and climate.

The monitoring of climatic conditions has become even more important given the expected impact of global warming and the greenhouse effect on agriculture. Data presented at the Seminar indicate that in certain regions of Brazil there will be an increase in the incidence of dry periods and in the minimum temperature. As a result, by 2040, bean production may cease and 1000 municipalities may no longer be able to produce cotton, 400 rice, 300 coffee





and 400 for soybeans, and cassava may disappear in northeastern Brazil.

In response to this challenge, a number of institutions that monitor climate and weather have appeared: AGRITEMPO, the Integrated Agrometeorological Center (CIRAM), the Technological Research Center (CEPETEC), EMBRAPA, the Agricultural Research Institute of Parana (IAPAR), the Meteorological System of Parana (SIMEPAR), the Agricultural Research Center of Santa Catarina (CEPAGR), CLIMATEMPO, the Agricultural Meteorological System (SOMAR), the Meteorological Institute (IMET), the Meteorological Center of Minas Gerais and the Meteorological Center of Pernambuco (CAMEPE).

The Food Supply Company of Brazil (CONAB) has also improved its harvest forecasting system, which is based on estimates made by local experts and using the georeferencing system known as (GEOSAFRAS), which relies on satellites and people on site who use GPS devices.

*The monitoring of climatic conditions has become even more important given the expected impact of global warming and the greenhouse effect on agriculture.*



Further, the Brazilian Geography and Statistics Institute (IBGE) and the Agricultural Forecast Laboratory (LSPA) compile agricultural statistics at the municipal level. One of these data banks, known as PAM (Producción Agrícola Municipal) contains the data from the municipal level. However, since they are published a year after they are compiled, they are of little use. Also, it does not distinguish types of technology used by farmers and does not provide detail on the visits the LSPA makes every month to farms producing 34 different crops.

Nonetheless, the 2006 Agricultural Census can be used at the municipal level to distinguish between family and commercial farmers (FAO/INCRA methodology) and later apply those coefficients to the PAM data.



*There are a number of obstacles that must be overcome in Brazil, including a weak system responsible for investigating losses, due to the lack of trained personnel.*

Another element that helps to mitigate insecurity is the agricultural and climatic risk zonification done by the MAPA. Equations are used to determine the influence of soils, climate and plant characteristics (radicular system, water requirements, etc.) in the water balance of the crop. They also make it possible to determine the most suitable and least risky areas for planting each plant species. To date, the MAPA has published 200 resolutions with risk maps for a fairly wide range of products and regions. Zonification also promotes the development of technologies and helps to ensure that farmers and markets work with the same information.

Lastly, there are a number of obstacles that must be overcome in Brazil, including a weak system responsible for investigating losses, due to the lack of trained personnel. This invites fraud, so common in past experiences such as the Official Rural Insurance Program (PROAGRO), and still occurring today in the private-sector system. Because the risk is so great for insurance companies, they are not interested in providing this service or simply raise premiums to protect themselves.

This investigation could be done by satellite. However, it will still be necessary to have trained personnel who can use a GPS device to georeference, interpret, confirm and copy the satellite images on to effective risk maps.

The training of technical personnel is fundamental in an efficient investigation strategy. Without expert appraisals, it is impossible to develop an agricultural insurance system that can offer reasonable premiums.

## Proposals for overcoming obstacles

At the seminar, a proposal was made to discuss the topic of agricultural insurance further and to begin working with rural insurance rather than agricultural insurance alone. To do this, an income insurance system would be developed to include and protect farmers against variations in agricultural prices, as well as climatic risks. As a counterpart, the farmers would insure all his/her income. In other words, the farmer, and not only the crops, would be insured. Should a farmer lose money on one crop and earn money on another, his total income will not have varied and the insurance, therefore, would not be used.

There are, however, difficult technical-political problems that must be solved in order to adopt a system of this type. In the United States, such insurance exists, but risk is calculated based on the average earnings of the last five tax returns. In Brazil, most properties belong to physical persons, and their tax returns are neither reliable nor public.

The other solution presented was to propose to the government that it increase the subsidy on premiums. The subsidy currently varies between 40% and 60% of the premium, with an upper limit of R\$32,000 per subsidy. This helps small- and medium-scale, but not large-scale farmers.

Inasmuch as currently there are no state supported funds to protect farmers in the case of a catastrophic event (abnormal), several arguments were put forth that call for the creation of a Catastrophe Fund, to wit:



## arguments in favor of establishing a Catastrophe Fund

- The difference that exists between countries in terms of risk was explained. In Argentina, for example, the insurance system is fully private and focuses on providing protection only against the risk of hail, which is a fairly predictable event. As a result, the risk is less for insurers and reinsurers. In Brazil, in addition to hail, the system needs to provide protection against highly unpredictable events such as floods, droughts, excess rain, hurricanes, among others. As such, the possibility of a catastrophe occurring is greater and the current system has proven ineffective in providing such coverage.
- Others felt that the opening of the reinsurance system to foreign companies could help to reduce the cost of state intervention.
- It was decided that the Catastrophe Fund would be administered by a consortium which will have a council also supervised by the government through the Superintendancy of Public Insurance (SUSEP). The fund will be created with a subsidy from the government and with contributions from the private sector, which will serve as a reserve for the purpose of providing indemnification.
- The Catastrophe Fund would offer certain advantages over the current Rural Insurance Stabilization Fund (FESR). For example, it would not depend on supplementary budgetary allocations because it is a private fund to which the state will make a contribution so it can assume the commitments arising from catastrophes.
- The Ministry of the Treasury of Brazil has expressed interest in implementing this fund quickly and making it sustainable, thus putting an end to the renegotiations of agricultural debts, which are extremely costly. To this end, PLP 374/2008 has been sent to the National Congress in the hope that it will be approved in 2008.

## Final comments

Rural insurance, as it applies to agriculture, is one of the most important instruments for the development of agriculture. By protecting farmers against losses resulting from the adverse effects of nature, insurance becomes an instrument for income stabilization, job creation and promotion of technological development in the rural milieu.

Insurance also has an important impact on rural credit. By lowering the risk and

reducing the volume of unpaid debt, it brings down the cost of credit and facilitates the incorporation of rural activities into the capital market. In the current context, rural insurance is an essential condition for prosperity in agriculture, above all in an economic environment marked by uncertainty and high economic risks.

The time is right for Brazilian agriculture to take a major step forward by making the consolidation of rural insurance an important piece of the policy on promotion of competition and sustainable growth of the sector.

► *In the current context, rural insurance is an essential condition for prosperity in agriculture, above all in an economic environment marked by uncertainty and high economic risks.*

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# Résumé / Resumo / Resumen



## Gestion de l'assurance rurale au Brésil

Dans le présent article sont exposées plusieurs questions et propositions en rapport avec les problèmes du système actuel d'assurances rurales au Brésil, qui ont été examinées lors du séminaire sur le risque et la gestion de l'assurance rurale tenu du 24 au 26 juin 2008 à l'Institut d'économie de l'Université de Campinas (UNICAMP). Les principales questions abordées concernent notamment l'avantage que présente un système d'assurances du point de vue des reconductions de dettes, les subventions de primes lorsque les risques sont très élevés et la nécessité de disposer d'un système d'information qui fonctionne avec les données détaillées fournies par les agriculteurs plutôt qu'avec des moyennes qui ne reflètent pas la véritable situation du secteur agricole. Il est également fait référence à la possibilité d'instaurer un fonds de catastrophe au Brésil qui garantisse effectivement le paiement des indemnités extraordinaires, compte tenu du fait que, à ce jour, le pays n'a pas réussi à mettre en place un système efficace de protection contre les risques d'infestations et les phénomènes climatiques au Brésil.



## Gestão do seguro rural no Brasil

Apresenta os diversos temas e propostas para enfrentar os problemas do atual sistema de seguro rural no Brasil levantados no Seminário Risco e Gestão do Seguro Rural no Brasil, realizado de 24 a 26 de junho de 2008 no Instituto de Economia da Universidade de Campinas (UNICAMP). Os principais temas tratados disseram respeito às vantagens de um sistema de seguro com relação às prorrogações de dívidas, às subvenções aos prêmios quando os riscos são muito elevados e à necessidade de um sistema de informações que trabalhe com dados detalhados dos agricultores, em vez de médias que não refletem a verdadeira situação do agro. Também foi mencionada a possibilidade de ser estabelecido um fundo para catástrofes no Brasil que efetivamente garanta o pagamento das indenizações extraordinárias, tendo em vista que, até o presente, não foi possível implementar um sistema eficiente de proteção contra os riscos de pragas e eventos climáticos no Brasil.



## La gestión del seguro rural en Brasil

Se exponen diversos temas y propuestas para enfrentar los problemas del actual sistema de seguros rurales en Brasil, que surgieron del Seminario Riesgo y Gestión del Seguro Rural de Brasil, realizado del 24 al 26 de junio de 2008 en el Instituto de Economía de la Universidad de Campinas (UNICAMP). Los principales temas abordados corresponden a la ventaja de un sistema de seguro en relación con las prórrogas de deudas, las subvenciones a las primas cuando los riesgos son muy altos, la necesidad de un sistema de informaciones que trabaje con datos detallados de los agricultores en vez de promedios que no reflejan la verdadera situación del agro. También se hace referencia a la posibilidad de instaurar un fondo de catástrofe en Brasil que garantice de forma efectiva el pago de las indemnizaciones extraordinarias, en vista de que a la fecha no se ha logrado implementar un sistema eficiente de protección contra los riesgos de plagas y eventos climáticos en Brasil.