AGRICULTURAL INSURANCE IN SPAIN

Insurance as a tool for mitigating the effects of drought in agriculture

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Climate change will aggravate the situation in many European regions affected by water scarcity and drought.

The latest data supplied by the IPCC show that areas affected by droughts have “probably” increased since 1970 and that climate change is accentuating regional differences, which is expected to lead to more severe and more frequent drought in the south of the European continent.
There is a need to review the European Strategy on water scarcity and drought in 2012 and, in view of the relationship between this topic and climate change and the WFD, to tie that review in with the review in both those areas, also scheduled for 2012.

Is advisable to integrate the management of water scarcity and that of all other extreme phenomena into one common management framework.
Spanish strategies to prevent and respond to droughts

- Special Action Plans against Droughts
- Regulation on droughts
- Emergency Measures
- Farm insurance policy
How can participate the insurance in the management of agricultural weather risks (drought and others)?

What is the Spanish experience in the crop insurances development to cover drought?

Lessons learned and conclusions remarks
How can participate the insurance in the management of agricultural weather risks (drought and others)?

General questions about crisis management and crop insurance.
The problem to face a natural disaster is not new.

After a disaster occurs, governments, farmers and corporations, recognize the importance to be prepared for an “agricultural weather risk”.

But often they do not take the necessary steps to be prepared to the next disaster.
The need to be prepared for a catastrophe is evident when it is evaluated the economic consequences of natural disasters.

Losses due to great natural catastrophes throughout the world.

Benefits of insurance when it is available

- Producers can reduce their risk exposure. Farm income flow is stabilized.
- Wealth creation is promoted. Farmers do not need to assign too many resources to cover risks.
- An automatic mechanism is provided for offsetting catastrophic damage. The Administration no longer needs to provide extraordinary disaster aids.
Insurance and disaster’s management cycle

- Take out an insurance policy
- Prediction and Early Warning
- Damages mitigation
- Preparedness
- Protection
- Reconstruction
- Disaster
- Damages assessment
- Recovery
- Response to damages
- Compensation payments
- Assessment

Source: Adaptation of the “National Drought Mitigation Center”. University of Nebraska – Lincoln, USA
How to manage farmer’s weather risks?
Wider perspectives on risk management strategies

Hazard: Intensity or magnitude, frequency and geographical distribution

Inventory: Land use

Crop susceptibility to weather risks

Vulnerability

Cultural methods management productions

Estimated losses

Historical economic losses

Farm economical sustainability

Economical risk

Strategies for risk management in farms

Risk Reduction

Risk Transfer

Informal instruments

Public aids

Catastrophe funds

Crop insurances

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Strategies for drought risk management in farms

Risk Reduction (on-farm instruments)

- Gathering information.
- Reduction of risk exposure.
- Diversification of production.
- Flexibility.
- Self-insurance or individual funds.
Traditional and new strategies for drought risk management in farms

Risk Transfer

- Informal instruments for risk distribution.
- Extraordinary public post-disaster aid.
- Catastrophe funds.

Crop insurances:
- Standard insurance.
- Index insurance.
Traditional strategies for farm risks transfer (No market-based instruments)

☑ Informal instruments for risk distribution.

Related to traditional forms of resource pooling or other types of solidarity among farmers. These are the most basic forms of collective risk management but have not significance in the commercial agriculture in developed or developing countries.
Extraordinary public post-disaster aids.

Although they are not formal instruments for risk management, after catastrophic damage, Governments are obliged to aid affected farmers. These aids may be release as: tax reduction, direct payments, subsidized loans, inputs distribution, etc.
Disaster or catastrophe funds.

They are a formal instruments for risk management. After disaster occurrence, only can be used the working capital of the fund to compensate the farmers affected, with the amounts specified in the fund’s rule operation, because it has not capacity for borrowing.
Crop insurances.

It is a formal way to share the risk among a large group of farmers, which are exposed.

Types of crop insurances:

- Standard insurance
- Index insurance and weather derivatives
Standard insurance

Insurance policies, individually for each farm, result in indemnity payments in case of the damage occurrence.

Index insurance and weather derivatives

Index insurance policies base their payoffs on the value that underlying index takes on.
## Advantages and disadvantages of crop insurance scheme types

<table>
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<th>“STANDARD” INSURANCE</th>
<th>“INDEX” INSURANCE AND WEATHER DERIVATIVES</th>
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<tbody>
<tr>
<td><strong>Strengths</strong></td>
<td>✓ Applicable to any insurable risk.</td>
<td>✓ Reduced administration costs.</td>
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<td>✓ Compensation for real damages of each insured farmer.</td>
<td>✓ Eliminates moral hazard.</td>
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<td>✓ Reduces anti-selection.</td>
<td>✓ Simple design and application.</td>
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<tr>
<td>**Application</td>
<td>✓ Requires adoption of moral hazard control measures.</td>
<td>✓ Not applicable to all risks.</td>
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<tr>
<td>constraints**</td>
<td>✓ Higher administration costs.</td>
<td>✓ Generates anti-selection.</td>
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<td>✓ Requires definition of appraisal process for damages on the field.</td>
<td>✓ Difficult to understand and accept by the farmers.</td>
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<td>✓ Coverage by geographical area.</td>
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<td>✓ Difficult to select adequate rate.</td>
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For every case should be selected what scheme fits better the risk and producer conditions.
Aspects to take into account to insure drought risk

- The drought damages are progressive.
- It is difficult to differentiate the losses produced by the drought from those due to other risks.
- It is necessary to control moral hazard and adverse selection.
- Crop development analysis is the best choice to evaluate drought damages.
- It is a systematic risk.
General aspects of the Spanish agricultural insurance system
Institutions involved in the Spanish agricultural insurance system

- **Ministry of Environment and Rural and Marine Affairs (ENESA)**
  - State Agric. Insurance Agency
  - Planning and subsidies on the cost of insurance
  - Oversight and regulation of the insurance system

- **Regional Governments**

- **Regional Committees**

- **General Committee**

- **Coordinating Committee**

- **Min. of Finance**
  - Insurance Compensation Consortium (CCS)
  - Private insurers on a coinsurance basis
  - Manager of the coinsurance table (AGROSEGURO)

- **Crop and livestock farmers**
  - INSURED

- **Professional organizations and farming cooperatives**
  - INSURED
Proportion of insurance indemnity in annual income in the winter cereals sector in Spain
Covering drought risk through crop insurances in Spain
Insurance models available in Spain to cover drought risk

- **Index insurance:**
  
  It guarantees damages produced in specific geographic areas according to the reduction in value of a reference level.

- **Yield insurance:**
  
  It guarantees the yield loss for any risk (drought included) to each farm.
The loss guaranteed and the indemnities are established, in areas, using an index or parameter correlated with drought damages.

A guaranteed loss exists if:

\[ Vi < GV \]

The indemnity is determined:

\[ I = f \left( \frac{GV - Vi}{GV} \right) \]

- \( I \) = Indemnity
- \( Vi \) = Value index in the year.
- \( GV \) = Guaranteed value index (average value normal index x cover)
Index insurance: limitations and possibilities

Strong points:

★ Reduced administrative costs.
★ Limits the moral hazard.
★ Simplicity in its design and implementation.

Limitations:

★ It may not be applicable to all kinds of risks.
★ Geographical covers.
★ Anti-selection will be happen.
★ Difficult for farmer’s understanding.
★ Difficult to select the suitable parameter to use.
Index insurance:
Experience on Pasture drought insurance in Spain

- Based on the use of NDVI (*Normalized Difference Vegetation Index*) obtained from NOAA and MODIS satellite images.
- It is used information from historical images covering a 15 years period.
- The cost of the feed for cattle that the farmer has to buy when there is a lack of pasture is guaranteed.
- Cattle, sheep, goat and horse herd’s are insurable.
- 2,000,000 heads of animals have been insured in 2009/10 campaign.
The loss guaranteed and the indemnities are established, in each farm individually, through a survey.

A guaranteed loss exists if:

\[ Yi < GY \]

The amount of the indemnity is determined:

\[ I = (GY - Yi) \times \text{surface} \times \text{price} \]

- **I** = Indemnity
- **Yi** = Final yield obtained in the year.
- **GY** = Guaranteed yield (average normal yield x cover)
Possibilities to establish the farm’s average yield

With geographical information

- Regional historical average yield.

  Yield adjusted factors:
  - Pedological factors.
  - Agronomical factors.
  - Actuarial factors.

- Farm average yield.

With individual information:

- Historical series of yield from farm
Strong points:

- All the risk are guaranteed.
- Anti-selection is eliminated.
- Compensate real damage for each farmer.
- Easy to understand by the farmer.

Limitations:

- Measures must be adopted to reduce the moral hazard.
- High administrative costs.
- Necessary to lay down a procedure for damages valuation.
Yield insurance:
Experience on crop insurance in Spain

1. Implemented for winter cereals, legumes, sunflower, oilseed rape, olives and almond trees, in non irrigated land
2. 70% of the average yield is guaranteed.
   30% of the yield is compensated in case of lack of crop emergence
3. Implemented since 1983
4. The individual yield is established to each farmer, with his own historical information from the last 12 years
5. 2,4 million hectares are insured in 2009/10 campaign.
Lessons learned and conclusions
Insurance developed jointly by private and public institutions provides an effective response to the agricultural sector, but:

- The functions and responsibilities of private and public institutions must be clearly defined.
- Farmer’s associations must participate in the definition and application of insurance.
- Insurance must be covered by a specific legal framework, allowing it a stable development.
Insurance is a proven instrument:

- Able to maintain farmer’s income
- Able to limit the economic impact of agricultural crisis resulting from drought
- Able to be introduced and developed in all countries and for all farming types
- Provide government with a suitable tool for promoting other agricultural policies.
Drought insurance in the context of climate change:

- Crop insurance is, probably, the most efficient instrument for facing drought economical losses, at farmer level.

- Crop insurance should be included as soon as possible in the drought disaster reduction framework, because a certain time is needed for a system in order to become satisfactorily established.
Conclusions

Crop insurances is a good tool to manage drought risk.

Spanish experience shows that is possible to establish an efficient drought insurance, in a crop insurance system framework.

Drought insurance has to be based on the actuarial theory, if we want to be successful.
Thanks for your attention

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