



What Microfinance for Developing Countries' Agriculture?

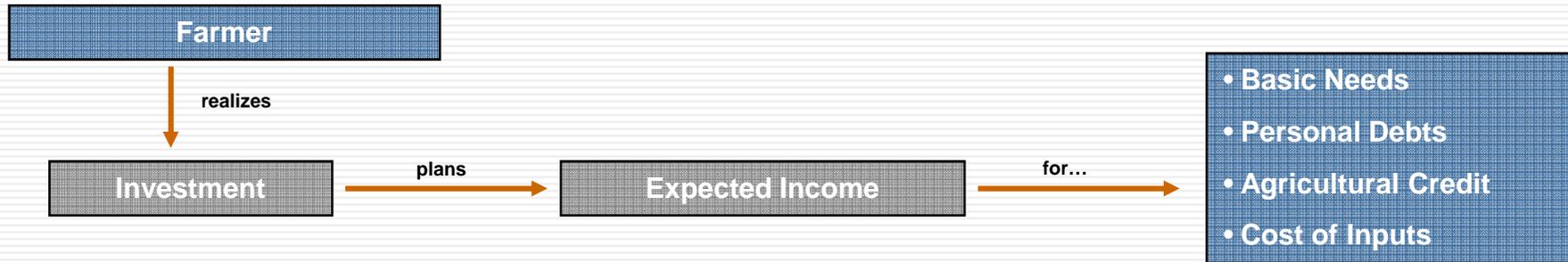
Workshop 3: Managing Agricultural Risk: What Innovative Tools and Procedures

Rural Microinsurance: A Parametric Approach

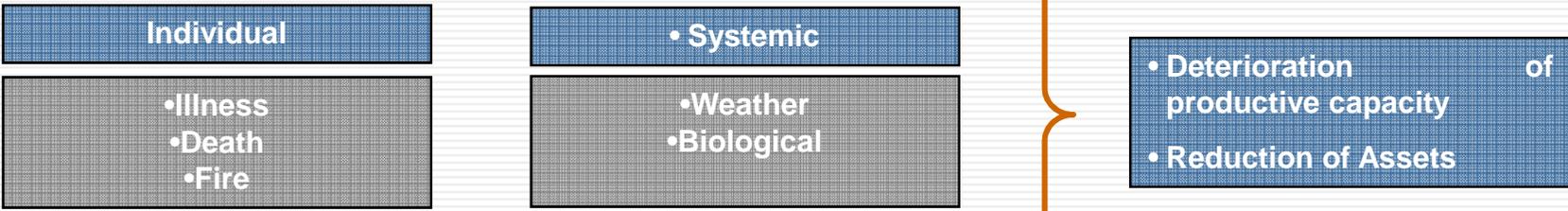


December 4-6, 2007

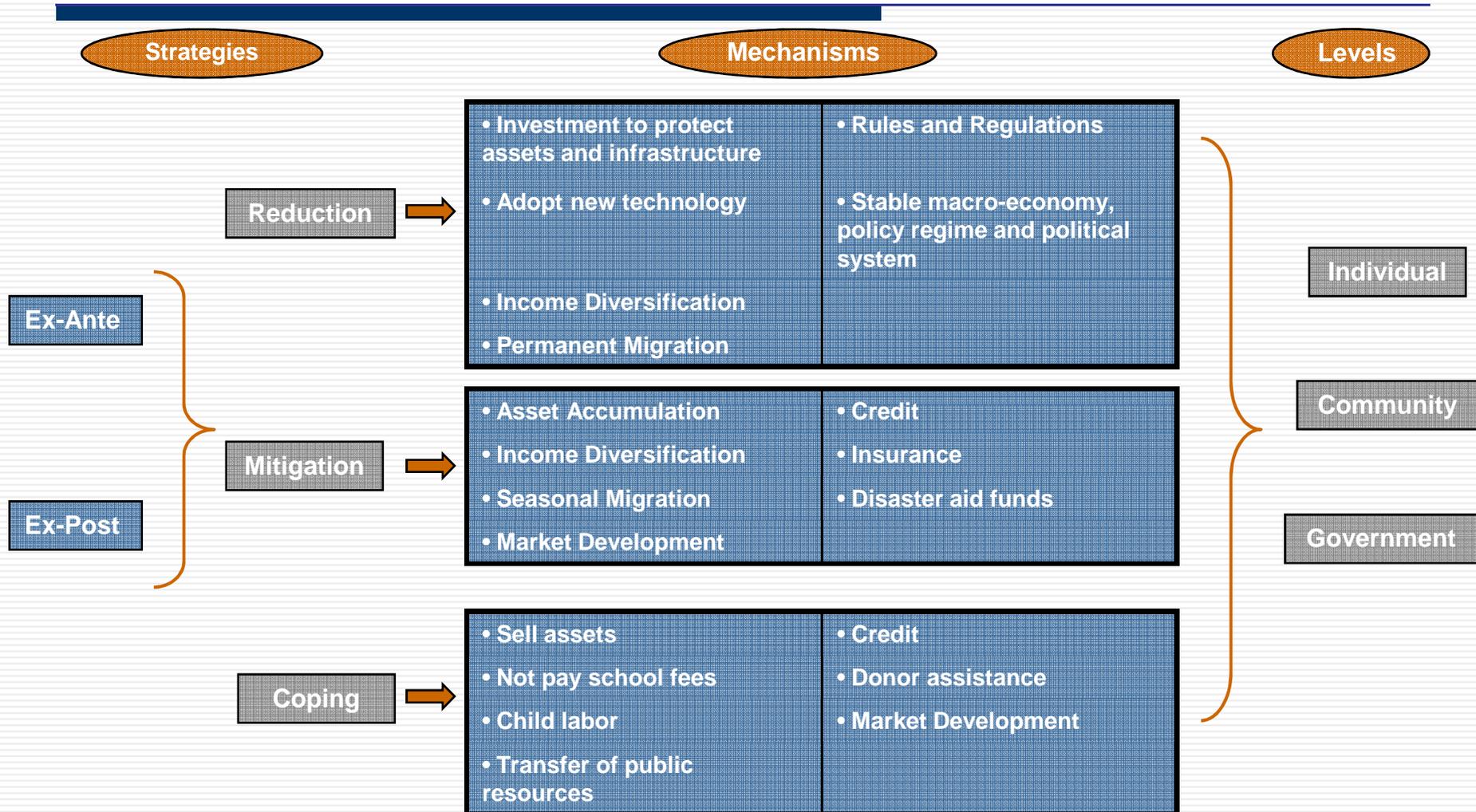
Overview



... Nevertheless, faces up RISKS!!



Risk Management Strategies



Source: World Bank, 1999

Challenges to make insurance affordable to low-income rural population

- Product Design (Adapt to specific needs)
- Risk Valuation (Adapt methodologies, construct data bases)
- Premiums´ Setting (Low costs to farmers)
- Insurance Operation (Mechanisms which generate scale economies)
- Moral Risk and Adverse Selection Problems
- Very low-size of production units
- Major risk is associated to weather phenomena (systemic risk)
- Farmers do not know the advantages to buy an insurance

Parametric Insurance

PARAMETRIC INSURANCE



FEASIBLE ALTERNATIVE

CHARACTERISTICS

• Risk and vulnerability analysis is done in a regional basis



• It becomes possible to establish unique sums insured, premiums and indemnities

• Indemnities are based on specific triggers related to weather variables



• Moral risk and adverse selection problems are reduced

• Loss adjustment in an individual basis is not required



• Operation costs are reduced

Mexico: Context

Characteristics of Agricultural Sector

- In 2006 represented 3.5% of Gross Domestic Product
- Employs 9 million people (25 % of Labor Force)
- Exist approximately 3.3 million of farmers
- It has two main productive cycles: Spring – Summer and Autumn – Winter

- In average, there is seeded 16.1 million hectares in both cycles
- 76% of production depends exclusively on weather
- The most representative crop is CORN

Characteristics of Farmers

1

- High technified producers
- Specialized Farms
- Commercial production
- Obtain profits

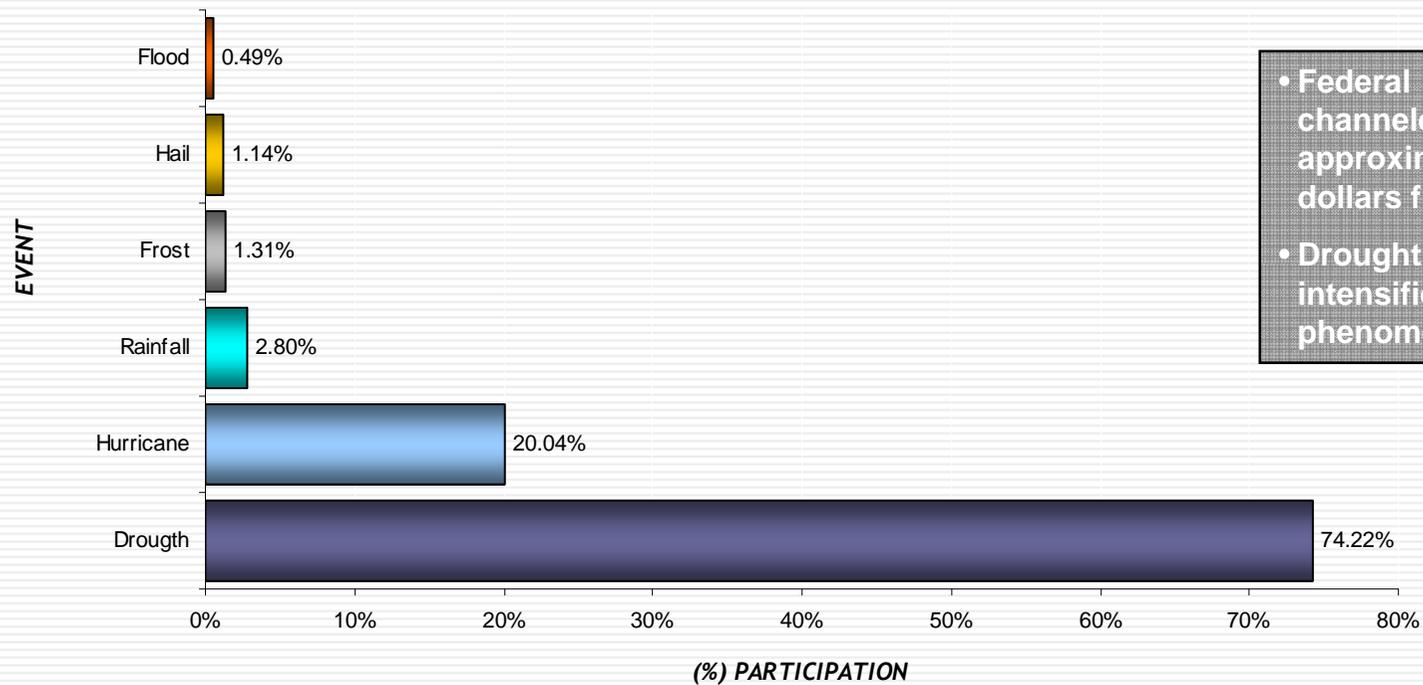
2

- Non technified producers
- Land tenure is less than 5 hectares
- Production for self consumption
- Obtain less than 200 dollars per month

Vicious circle of poverty and low profitability

Mexico: Context

Agricultural production is highly vulnerable to weather events, particularly the excess or lack of rain:



- Federal Government has channeled resources for approximately 411 million dollars from 1995 to 2006
- Drought effects are intensified when the ENSO phenomena is present

Source: Treasury and Agricultural State Departments (1995-2006)

Mexico: Context

The Federal Government in order to attend low income rural population without access to formal insurance created:

1

National Fund for Natural Disasters - "FONDEN"
(Treasury State Department/
1995)

2

Fund to Assist the Rural Population Damaged by Climatologic Contingencies - "FAPRACC" (Agricultural State Department /2003)

DISADVANTAGES

• The costs of catastrophes have been covered exclusively by fiscal resources



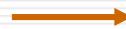
• Generate impacts to national economy

• Do not exist any technical criteria in order to determine the amount that has to be assigned to the Funds



• Difficulty to design risk transfer mechanisms

• There might exist events which cause damages higher than what was allocated to the Funds



• Budget reallocation of different federal programs (Opportunity Costs)

Catastrophic Agricultural Insurance

AGROASEMEX, developed the CATASTROPHIC AGRICULTURAL INSURANCE with parametric characteristics

General Objectives

To protect farmers against drought

To protect financial deviations of federal and local governments

To transfer risk to reinsurance international markets

Technical – Operative Objectives

To manage systemic risks efficiently

To attain transparency and opportunity in the payment of indemnities

To reduce operation costs

To reach a quick assessments of the damages

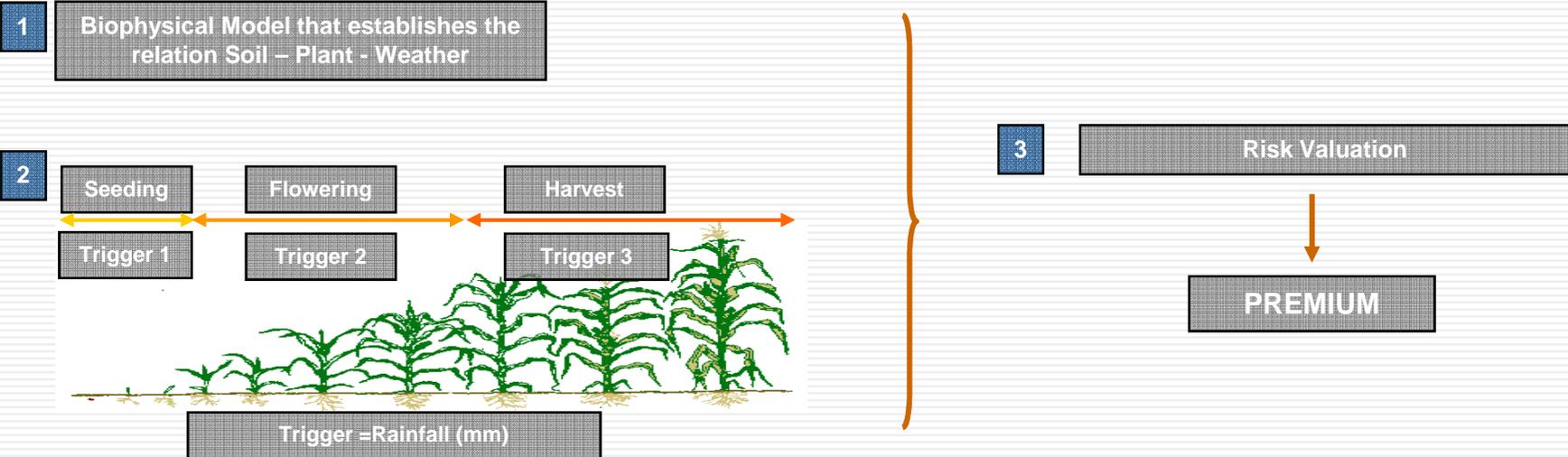
Financial Objectives

To optimize the resources budgeted to face catastrophes

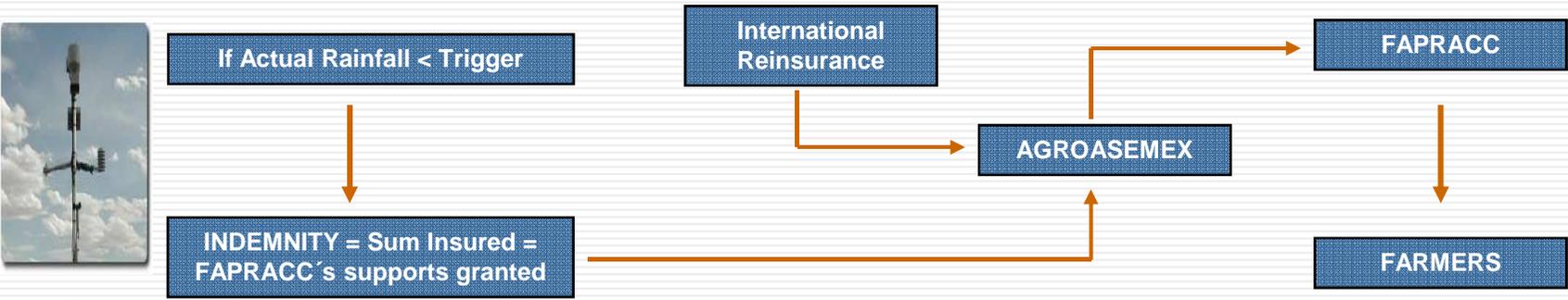
To grant transparency and certainty in budget allocation

Catastrophic Agricultural Insurance

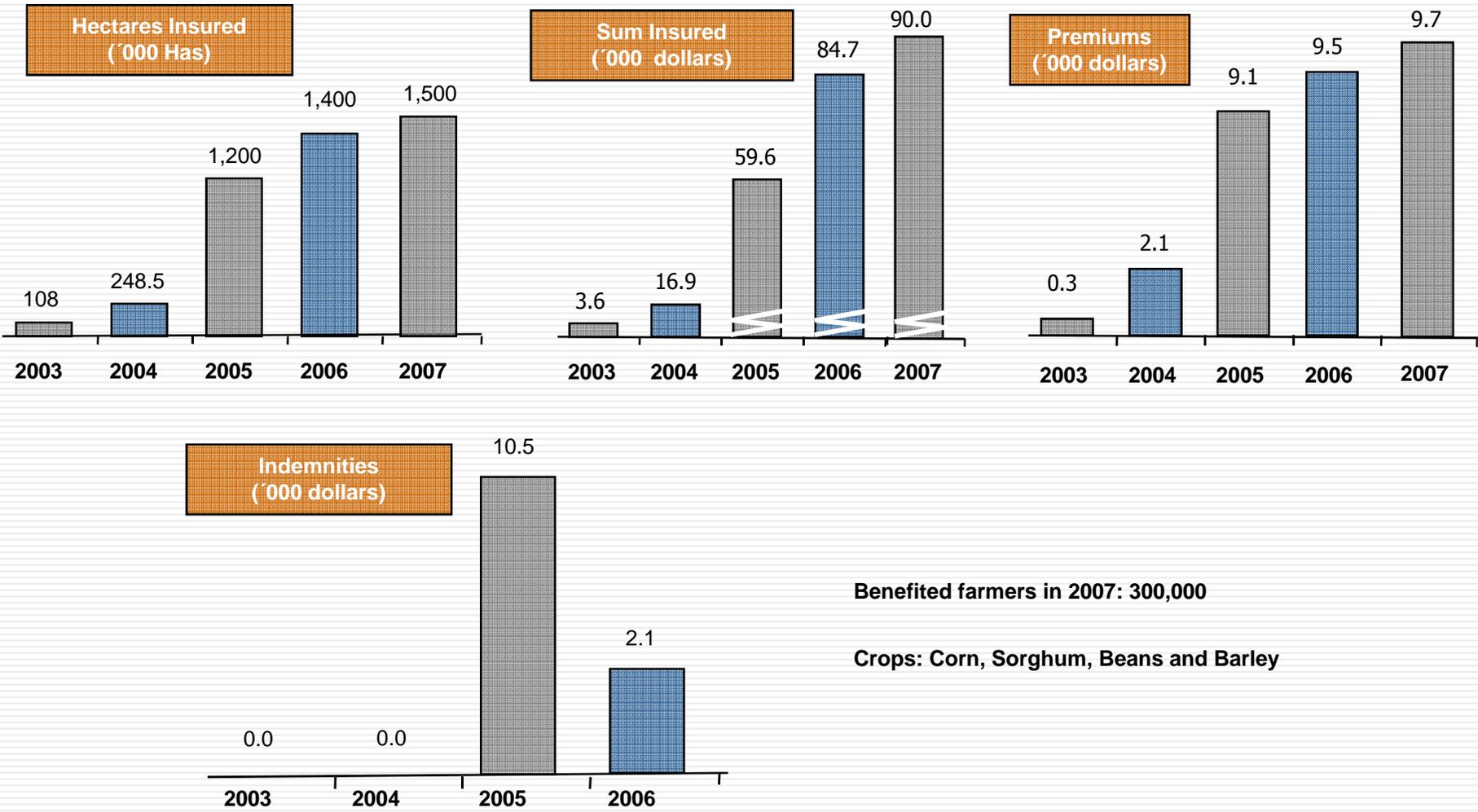
Design



Operation



Catastrophic Agricultural Insurance



Cattle Raising Parametric Insurance

CHARACTERISTICS

- It was constructed under similar concepts as the agricultural catastrophic insurance
- Oriented to cover property damages deriving from the reduction of grass availability for feeding the livestock of small farmers due to the occurrence of certain extreme weather events
- It is based on the use of the satellite technology and specifically in the index generically known as NDVI (Normalized Difference Vegetation Index)
- The insured parties are federal and local governments through FAPRACC
- The operation of the insurance started in 2007, protecting 13.5 million hectares of natural pastureland and benefiting approximately 40 thousand small producers

Conclusions

Parametric insurance represent a low-cost feasible alternative for catastrophic events if there are considered the following issues:

- 1** The weather databases shall comply with the quality standards set forth by the risk taker
- 2** The infrastructure used for its operation might guarantee the availability and opportunity of the information
- 3** The triggers or weather indexes should maintain a direct relationship with the agricultural productive process observed
- 4** It is necessary to use models that can establish the appropriate relation between Weather and Soil with the agronomical requirements of the plants
- 5** Identify agro-climatic areas of homogeneous response

Conclusions

In order to operate the parametric insurance in an individual basis among the poorest farmers, AGROASEMEX is still making the feasibility studies, which first results are:

- 1 To maintain the collective coverage concept, insuring producers at a community level
- 2 Parametric insurance should focus on highly correlated risks with catastrophic characteristics
- 3 To promote the participation of organizations of the social sector in order to benefit from the synergies provided by their administrative structure
- 4 To strengthen the self-management process of the rural population to provide themselves the adequate risk management instruments

THANK YOU

Jesus Escamilla

jescamilla@agroasemex.gob.mx