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# Catastrophe Crop/Livestock Insurance – Mexico Catastrophe Crop Insurance – Peru

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**Workshop: Technological Innovations and Agricultural Micro-insurance  
Program**

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# Catastrophic Crop/Livestock Insurance – Mexico

- Context:
  - ✓ Widespread small scale farmers
  - ✓ Only 0.7 percent of farms have over 100 hectares
  - ✓ 50% of all farms are less than 2 hectares
- Government of Mexico has an insurance program (CADENA) targeting small-scale, vulnerable farmers with no access to credit or insurance.

# CADENA Program

- The Component for the Attention of Natural Disasters (CADENA Program), was launched in 2003 under the Ministry of Agriculture, Livestock, and Fisheries (SAGARPA)
- It uses Macro-level catastrophe climatic agricultural index products as a social safety net product
- CADENA works with formal parametric crop and livestock insurance solutions at a State level

# The CADENA Model

- Two main components:
  - ✓ Ex-ante: Catastrophe Agricultural Insurance (SAC) programs for farmers, livestock producers, aquaculture farmers and fishermen
  - ✓ Ex-post: In States where (SAC) is not provided, direct support (*Apoyo Directo*) compensation payments to farmers for climatic disasters.

# CADENA – SAC (Insurance component)

- State Governments purchase insurance to protect their budgetary allocations to natural disaster compensation for the most vulnerable farmers.
- The State is the Insured, and the premiums are financed by the Federal (75-90%) and State (25-10%) Governments
  - ✓ Supply comes from private commercial insurance companies and parastatal reinsurer Agroasemex
  - ✓ All indemnities would go directly to the State Government.

# CADENA – SAC (Insurance component)

- Program provides a minimum level of compensation to smallholder farmers to put them back into production following a major catastrophic event.
- The State Governments are responsible for identifying the planted area of each crop or the number of animals in each municipality they intend to insure
- It is the responsibility of the State Government (or SAGARPA) to distribute the indemnities to the farmers in the affected areas

# CADENA-SAC eligibility criteria

- Farmers without any other form of agricultural insurance and
  - ✓ Less than 20 hectares of annual crops
  - ✓ Less than 10 hectares of perennial fruit crops
  - ✓ Less than 60 Livestock Units

# CADENA – Programs and products

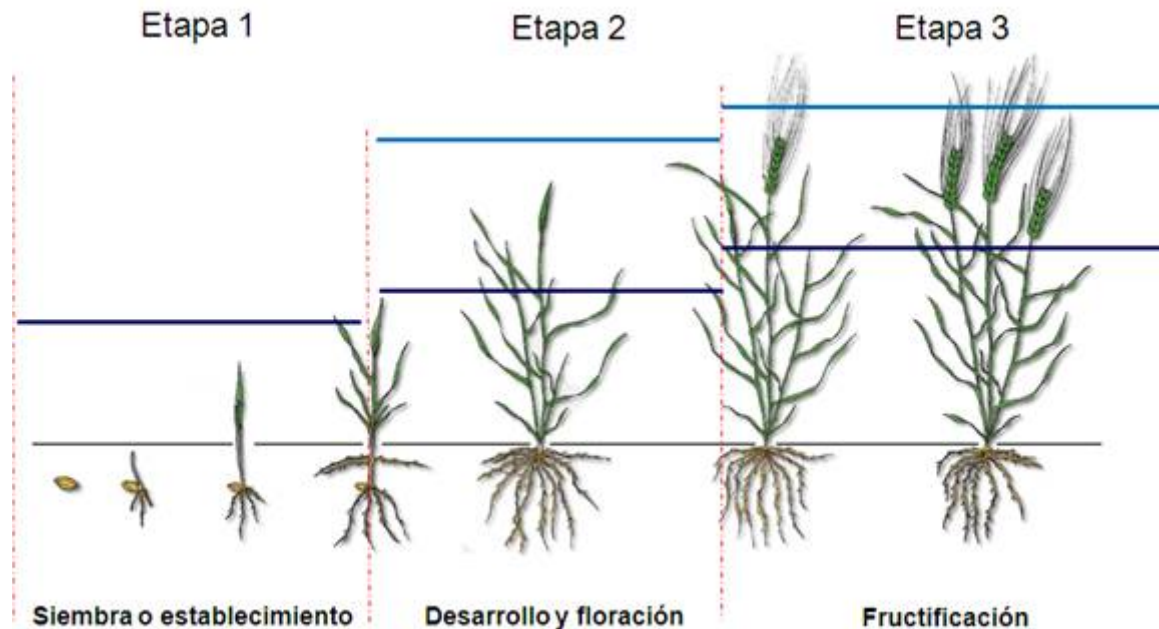
No.	Type of CADENA Catastrophe Insurance Program	Basis of Insurance and Indemnity	Insured Perils
1	<b>Parametric Crop Weather Index Insurance</b>	Weather Indices measures at ground stations	Drought, excess rain, flood, hurricane wind storm
2	<b>Crop Area-yield Index Insurance</b>	Area-Yields measured by in-field loss assessment	Comprehensive Multiple-peril
3	<b>Livestock-Pasture NDVI</b>	Satellite measured NDVI Index	All perils which reduce pasture growth (mainly drought)
4	<b>Traditional Livestock</b>	Decreased forage and extraordinary weight loss in animals	Drought

Source: CADENA Catastrophe Insurance: A Social Safety Net for Small-scale Farmers in Mexico (World Bank - October 2013)



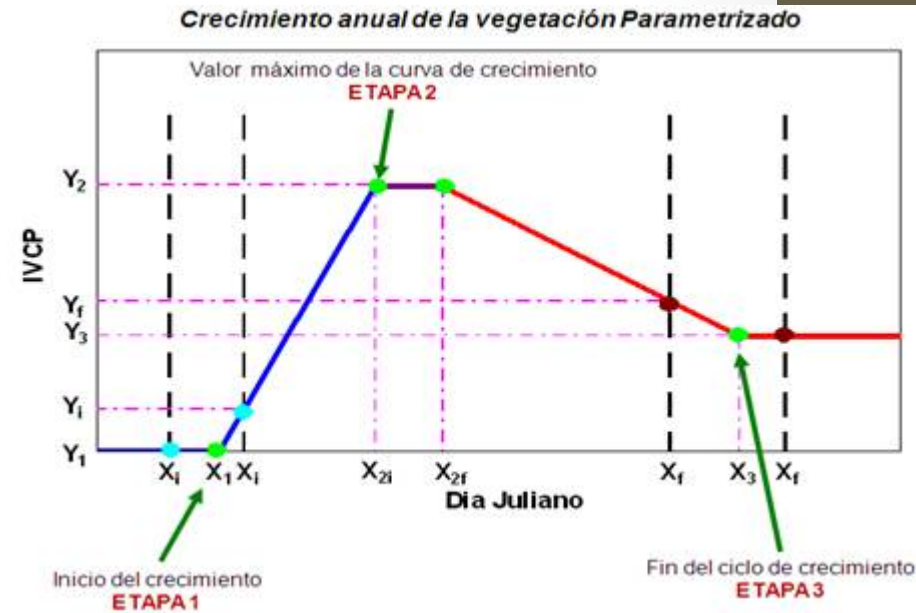
# Weather index-based insurance

- Risks: Drought, excess rain
- Specific triggers for each weather station/crop stage/index
- Full payout if index triggers at any stage
- Payout: \$1500/Ha. for annual crops (US\$80)

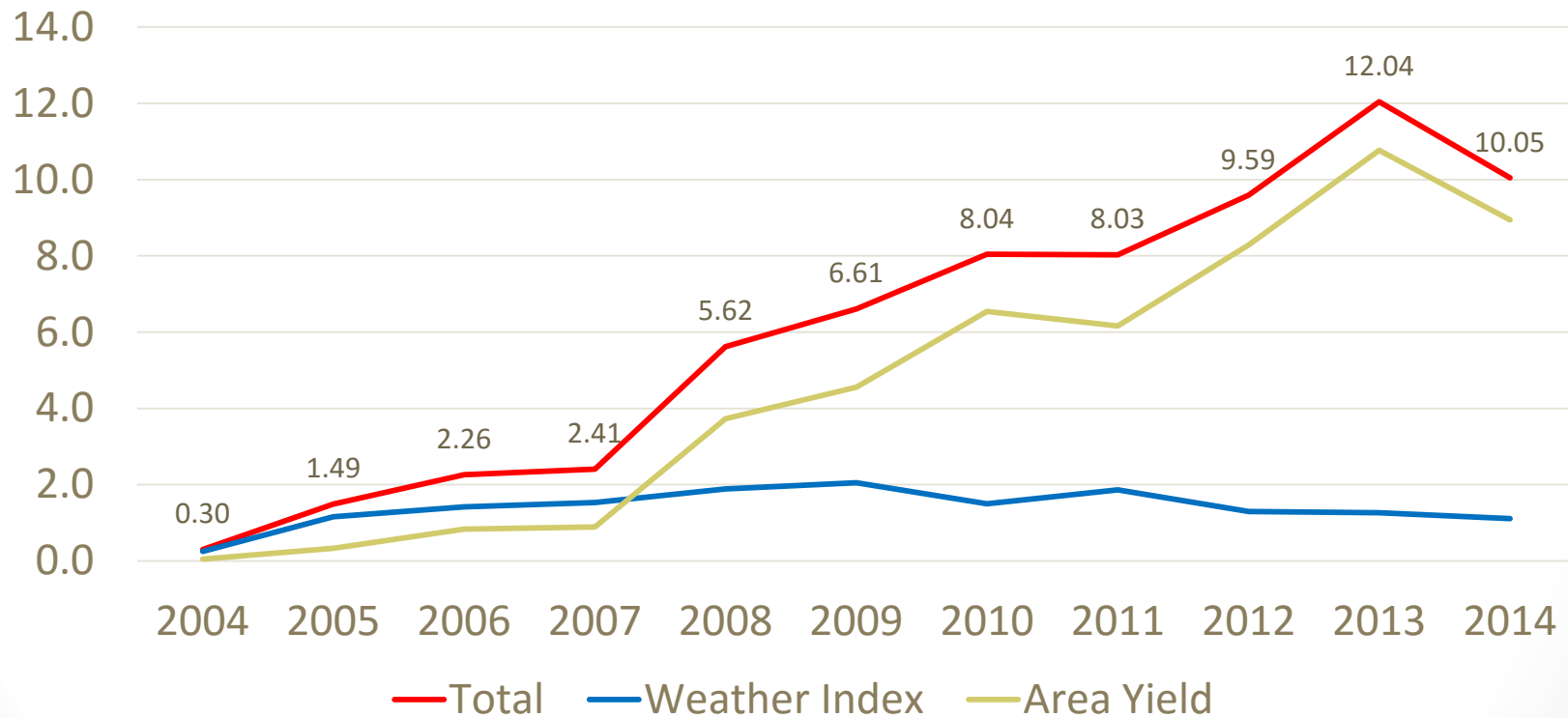


# Livestock insurance: NDVI

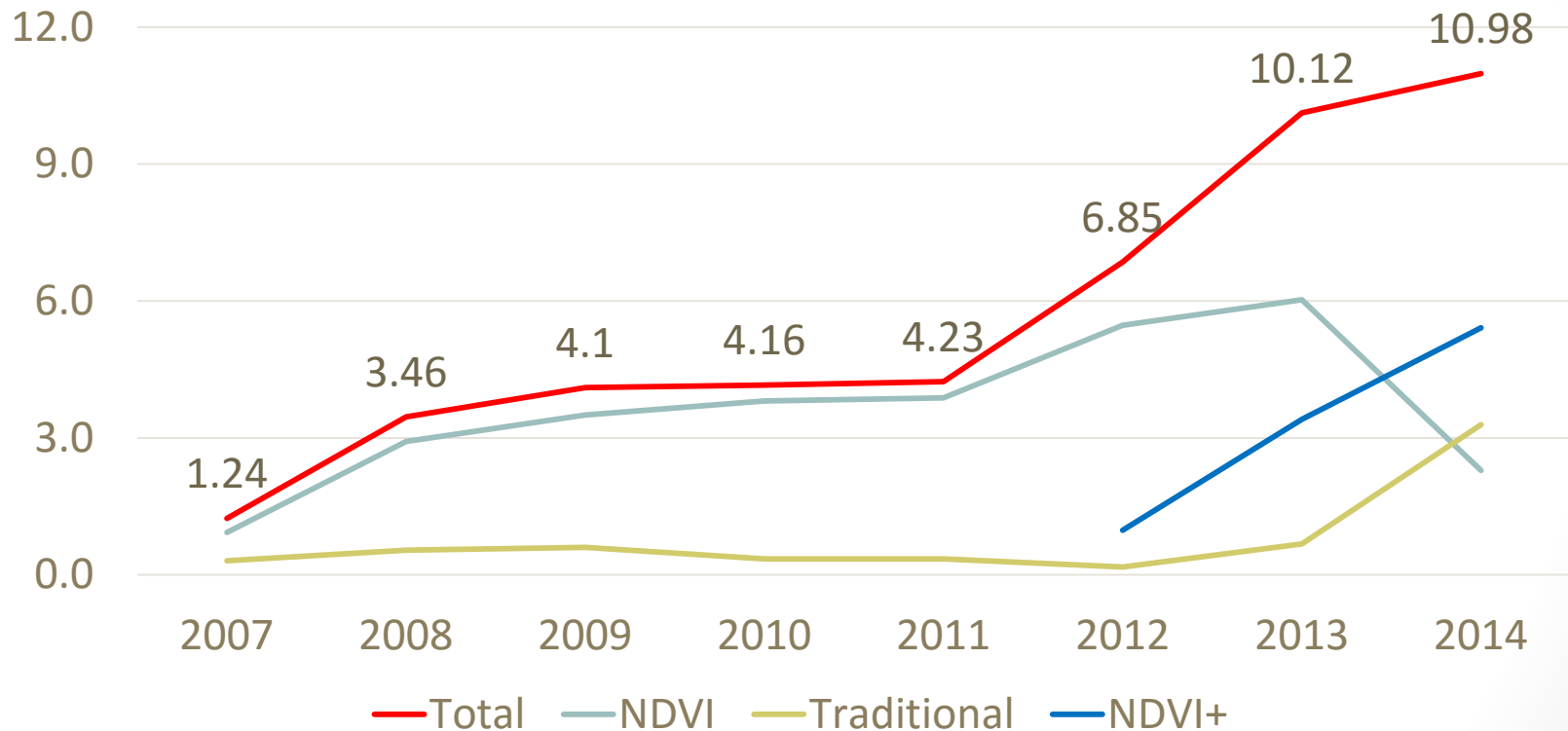
- Risk unit: Municipality
- Phase I: Delay in the growing season -> 20% of sum insured
- Phase II: Area under the curve during growing stage (40 to 60 days) -> 50% of sum insured
- Phase III: Area under the curve until end of cycle -> 20% of sum insured if not triggered before, otherwise 100%



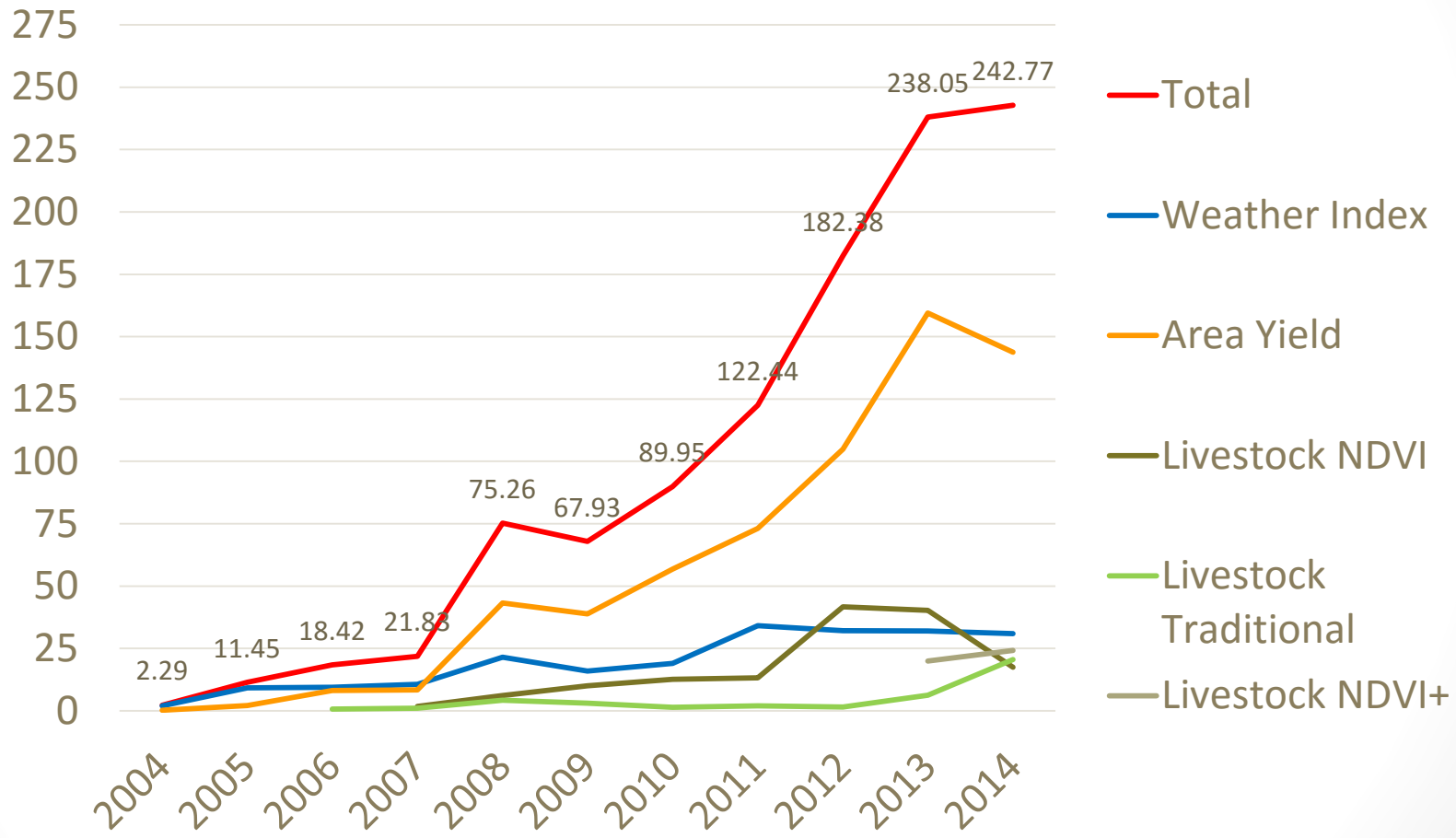
# Crop Insurance - Area Insured (Millions Has.)



## Livestock Insurance - Animal Units Insured (Millions)



## Premiums (Millions US\$)



# Catastrophe Crop Insurance – Peru



# Peru: Context

Sectoral GDP

8% of National GDP

Ag labor  
force

25% of labor force

Small scale  
farms

81.8% farmers with less than 5 Has.

8.8% between 5 to 10 Has.

4.5% between 10 to 20 Has.

4.9% between 20 or more Has.

Perils

Landslide, drought, flood, frost, excess rain  
(El Niño).

# Peru: Context

Agricultural land

4 Millions Has.

Farmers

2.2 Millions.

Farmers with  
credit

8 %

Rainfed farmers

64%



# Catastrophe Crop Insurance – Peru

## Basic description

Target population	Small – subsistence farmers in poorest areas
Risks	Drought, frost, hail, heat, excess rain, flood, winds, pest and disease, landslides
Product	Area yield index Insured yield: 45% of “expected”
Subsidies	100%
Coverage	439,000 farmers (23% of total) 500,000 Has. (12.5% of total)

# Catastrophe Crop Insurance – Peru

## Basic description

Sum insured	US\$ 165 / Ha. (all crops)
Premium	US\$ 18 (10.9%)
Financial inclusion	45,714 new bank accounts

# Catastrophe Crop Insurance – Peru

Central  
Government

- ✓ Provides premium subsidies (100%)

Ministry of  
Agriculture  
(MoA)

- ✓ Sets the sum insured per Ha.
- ✓ Selects crops and insured locations

Regional  
Governments

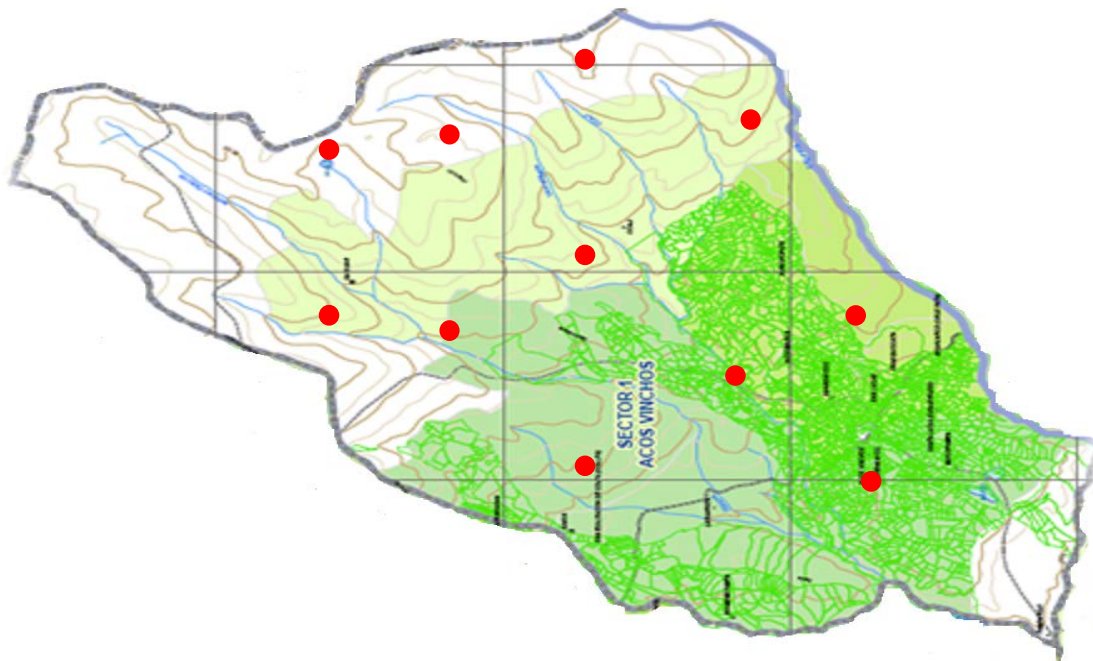
- ✓ Coordinates with MoA program planning, monitoring and supervision
- ✓ Elaborates list of beneficiaries

Private  
insurance  
company(s)

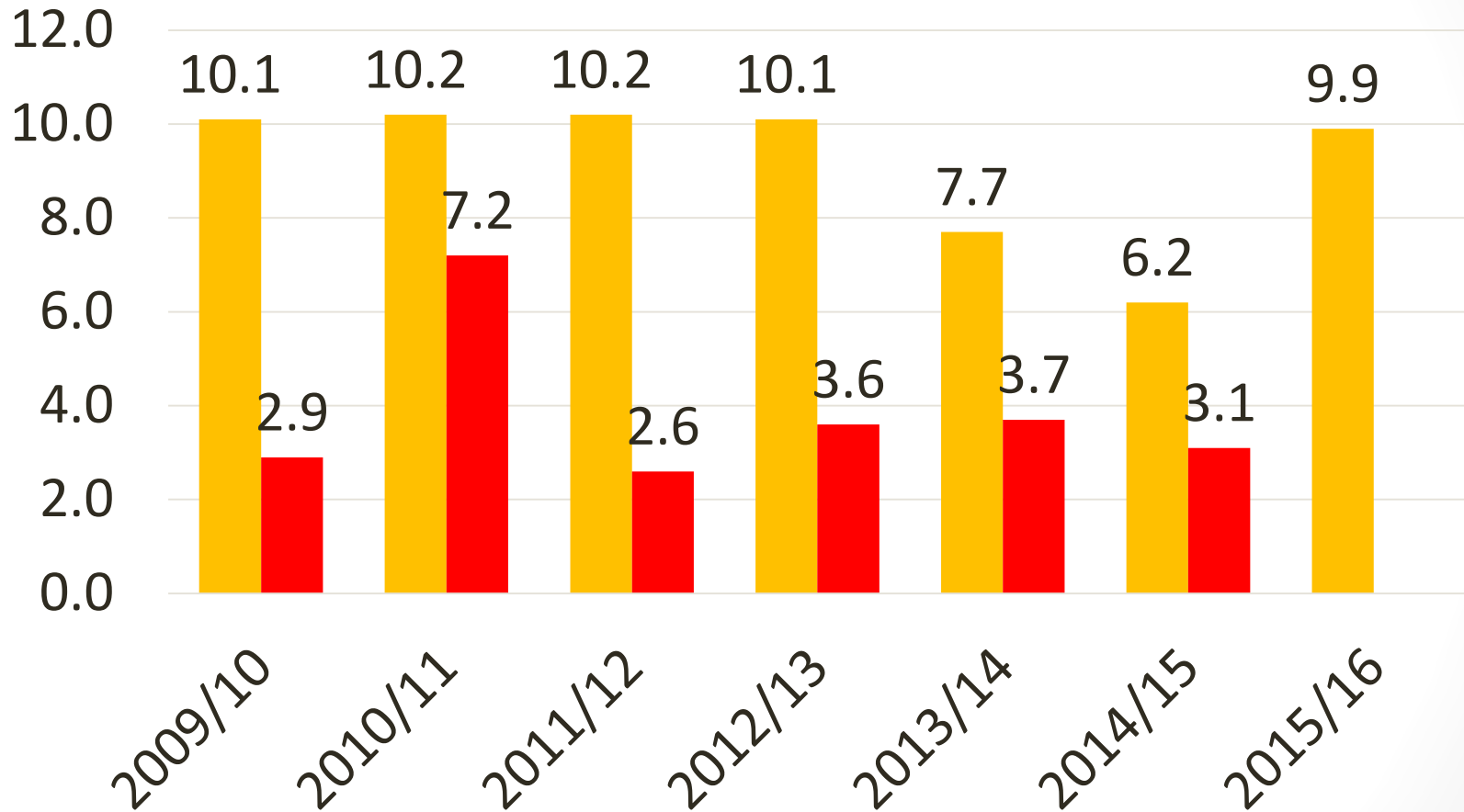
- ✓ Absorbs risk
- ✓ Indemnifies farmers in case of catastrophe

# Index estimation

- ✓ In each insured district 11 sample locations are randomly selected
- ✓ At each location yields are estimated.
- ✓ If the average yield is equal or less than 45% than the average historical yield (5 years) => compensations



## Premiums and Compensations (US\$ Millions)



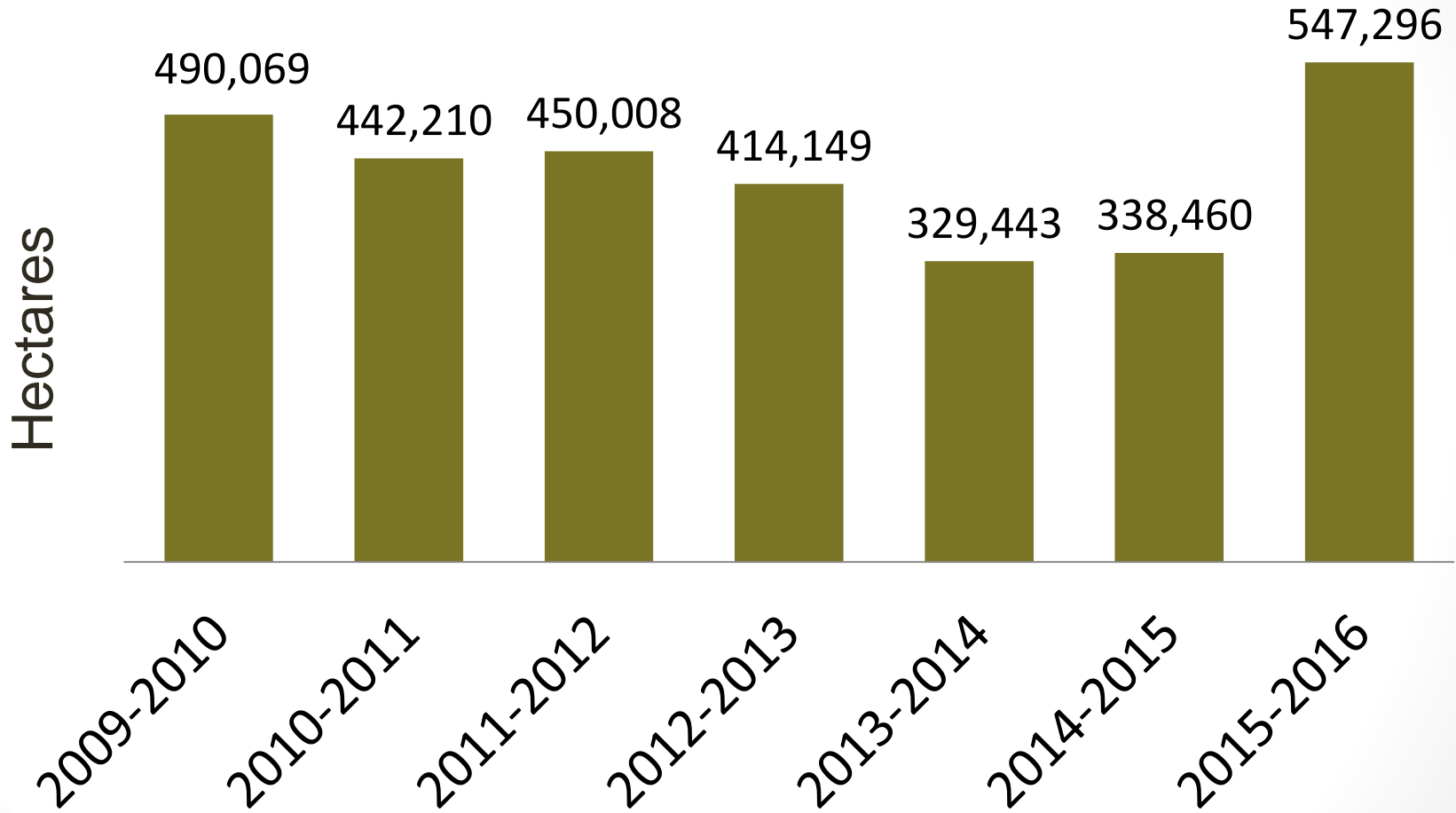
■ Premiums US\$ Millions

■ Compensations US\$ Millions



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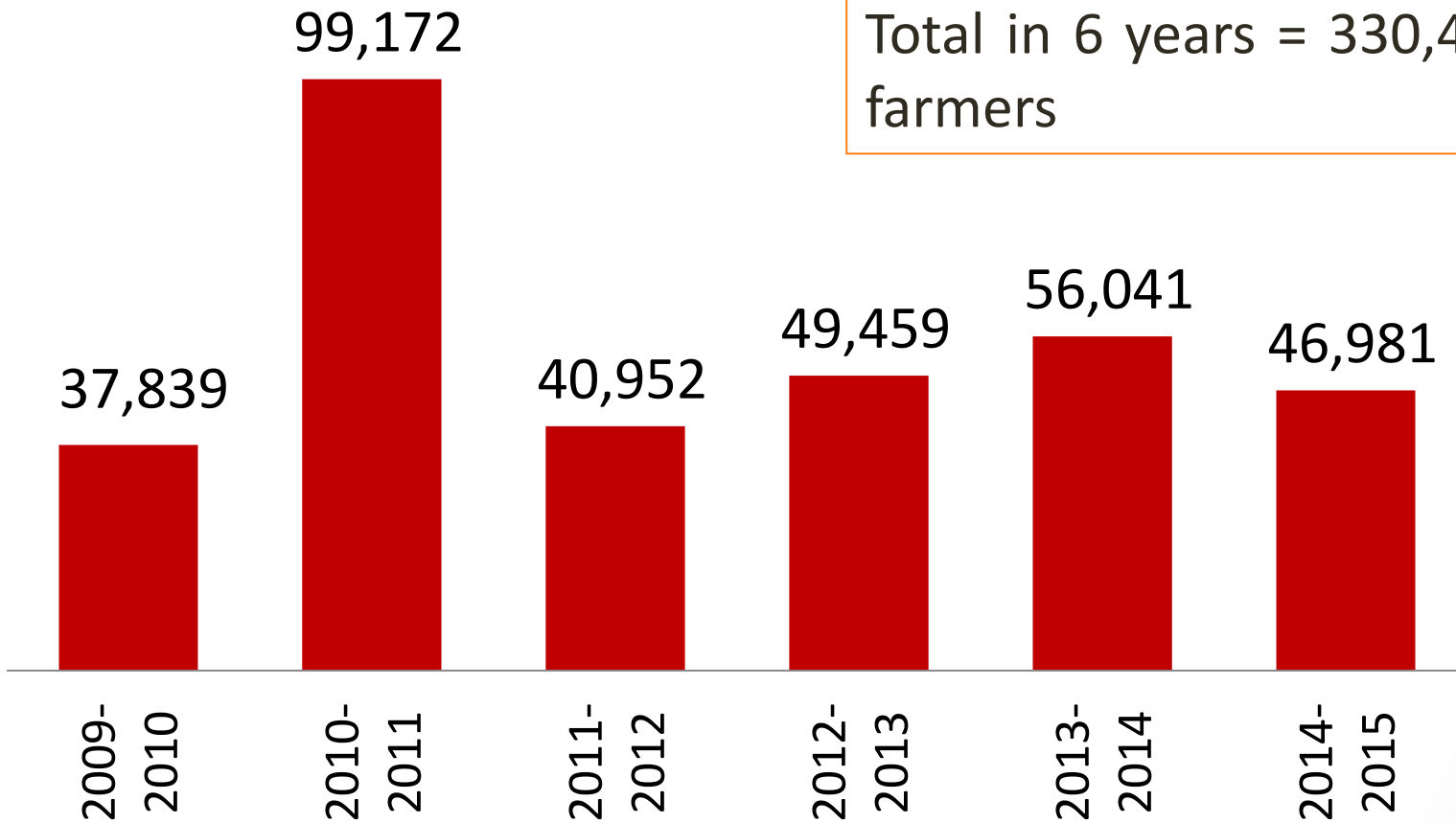
## Insured Area (Has.)



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# Number of indemnified farmers

Total in 6 years = 330,444 farmers



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THANK YOU



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