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Institute for Agrarian Research

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WORKSHOP
REGIONAL STRATEGIES FOR SUSTAINABLE DEVELOPMENT OF RURAL AREAS AND AGRICULTURE

«INDEX INSURANCE FOR AGRARIAN INDUSTRY»

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Introduction

Currently there are two types of index insurance product:

- *Area Yield Index Insurance* – the indemnity is based on realized average yield of an area such as a country or district, not the actual yield of the insured party. The insured yield is established as a percentage of the average yield of the area. An indemnity is paid if the realized yield for the area is less than the insured yield regardless the actual yield on a policyholders' farm. This type of index insurance required the historical area yield data.

- *Weather Index Insurance* – the indemnity is based on realization of a specific weather parameter measured over a prespecified period of time at a particular weather station. The insurance can be structured to protect against index realizations that are either so high or so low that they expected to cause crop losses. The indemnity is calculated based on a pre-agreed sum insured per unit of the index.

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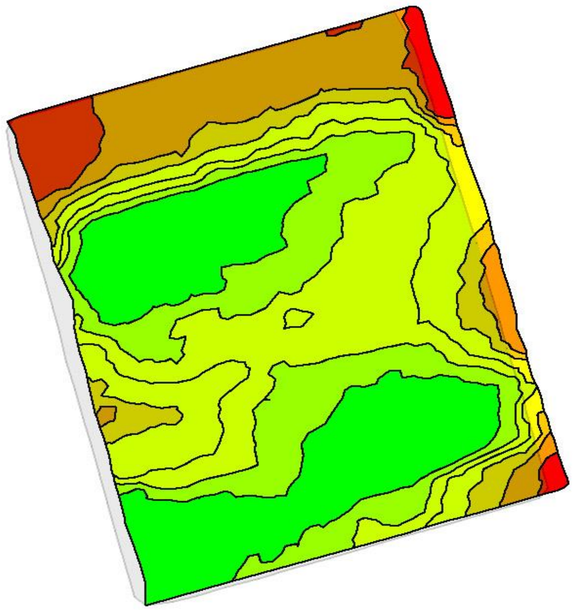
Research trends and perspectives

Cheaper Weather Station - low-cost automated weather station are providing increased opportunities for deficit and excess rainfall coverage, as the costs of denser network coverage.

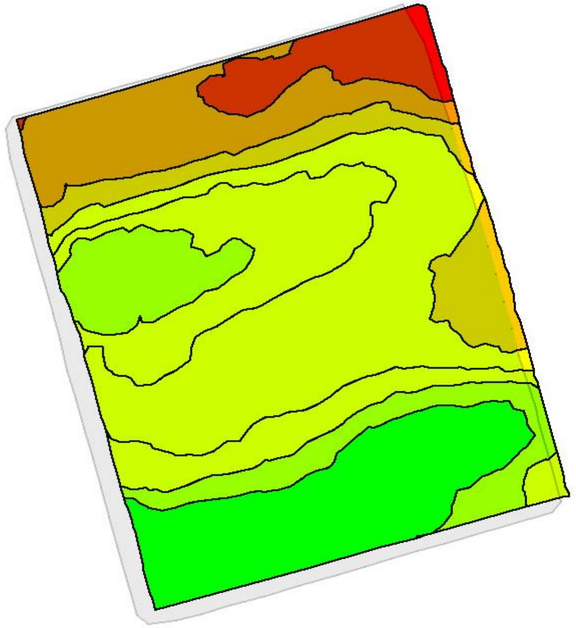
Use of Satellites - satellite imagery coupled with computer models have the potential to measure risk in the region. For instance, normalized difference vegetation index (NDVI), which uses satellites to measure a plants' ability to absorb sunlight, can be used to proxy major droughts in certain regions.
NDVI is already being used in indexation of pasture growth for insurance in Spain, North America (Mexica), Africa (Kenya).

Flood Indexes - specialized satellite imagery and computer model can be used to model flood risk and to show areas that have been inundated by water (and also to monitor inundation periods). The type of flood strongly impacts the feasibility of flood index insurance. Index may be more applicable to river inundation flooding affecting large areas, most challenging coastal flood, and not possible for flash flood.

Bio - mass of winter wheat (GreenSeeker)



April, 26



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Different in agrotechnologies

Potential opportunities for collaboration

ADVANTAGES OF INDEX INSURANCE

If the weather risk in measured through either an observable weather event as weather index, it is possible to transfer this risk from a client to an organization interested in taking on that risk in the from of as heather risk management product. More specifically, a weather risk management product can be an insurance product or a derivative-based product.

Derivative contracts derive their value by looking at an underlying index. They are not necessarily associated with any physical loss and simply base their payouts on the performance of the index.

- Field loss assessment is eliminated
- Reduced information requirements and bureaucracy
- Facilitating access to financial services

CHALLENGES OF INDEX INSURANCE

- *Basis risk defining* (the payout that is based entirely on the index measurement and may be either higher of lower than the actual loss. The level of basis risk is influenced by several issues. First, basis risk is lower when the insured risk correlated – that is, affecting a large geographical area relatively to the same extent and simultaneously. Poorly correlated risks are hail and localized frost. Better correlated risks are drought, temperature, and wind. Second, basis risk is higher where there are local microclimates, different management practices, and different crop varieties – that is, the wheatear risk may be correlated, but its impact is highly variable.

- *Data availability* – weather, agronomic, financial data (historical record of the chosen whether parameter(-s) for pricing purposes and for recording of the parameter (-s) for payout calculations during the period of insurance, as well as historical yield data to assess risk, design, and price the product, if the weather index is to serve as an accurate proxy for loss.

- *Integrity of weather stations* (using automatic reporting systems)

- *Need for producers/insurer/regulator capacity building and education*

- *Research, local adaptation and scalability* (correlation between the weather data and historical yield data in order to find good index parameters)

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Thank you for attention

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