

Three opportunities in Russian Agriculture insurance

Revenue, Index, Digitization

Marcel Andriess, St. Petersburg 12 July 2017



Russian Agriculture Insurance



Growth of the Russian agriculture sector continues and stays a top priority for the Russian Government (Program 2013-2020)



Farmers are supported by the Russian State with credits and **insurance premium subsidies** (50%)

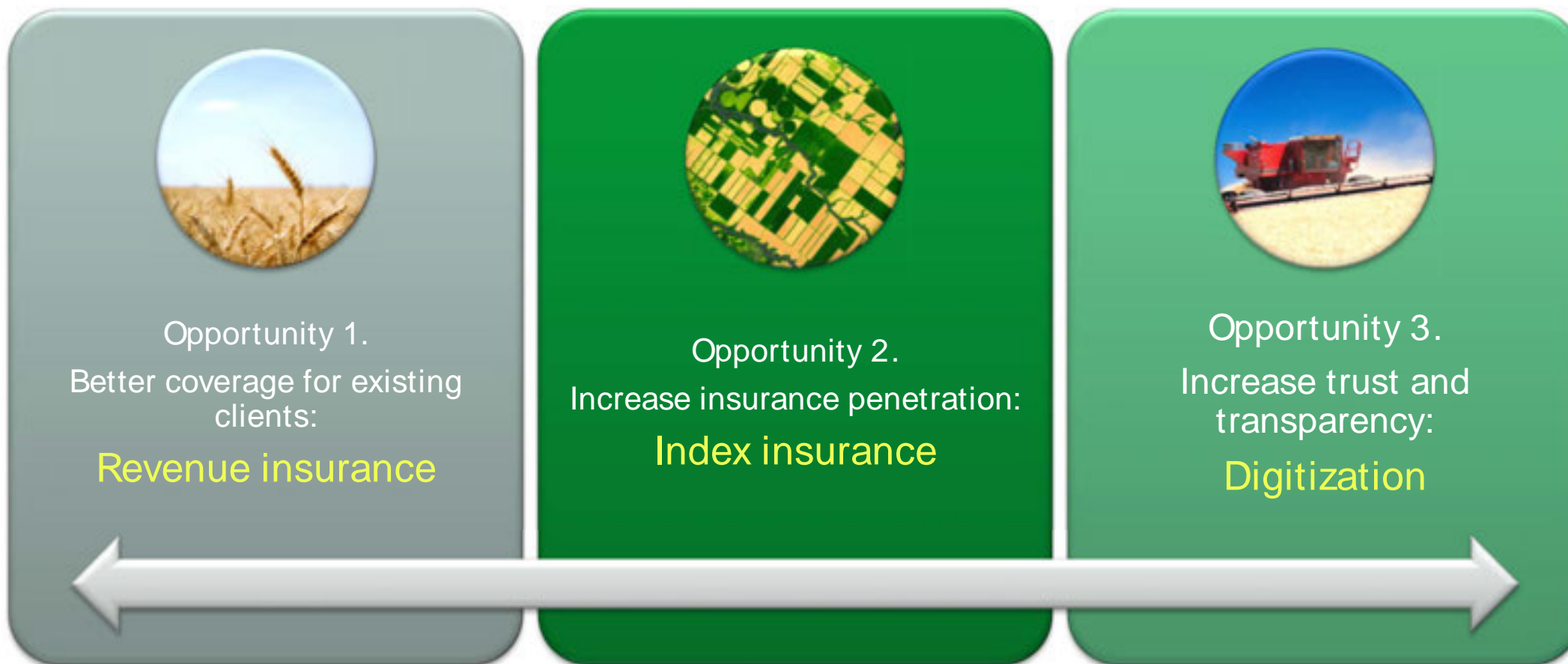


Good progress was made but **insurance penetration** remains low (15%)



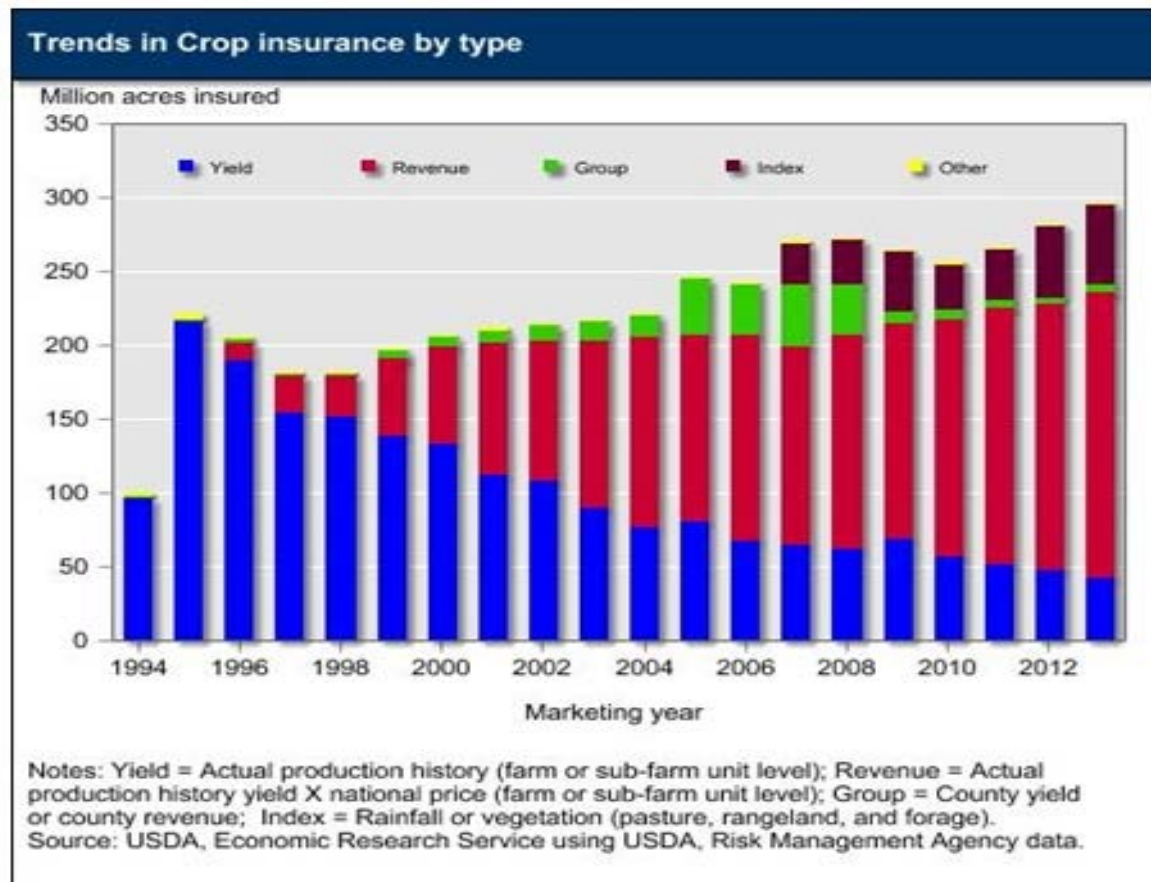
There is a huge opportunity for insurance companies to further **Scale up agriculture insurance**

Russian Agriculture Insurance

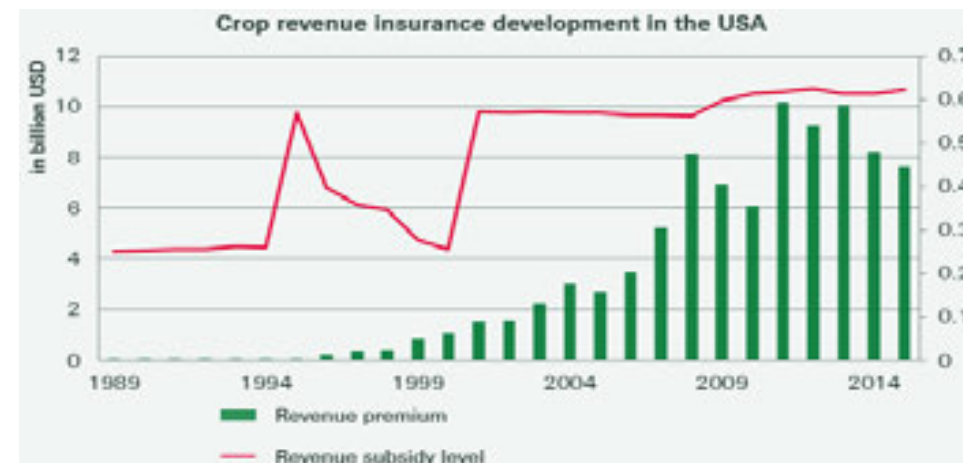


1. Revenue Insurance

Crop Insurance in USA



- 1938 Federal Crop Insurance Corporation
- 1980 Federal Crop Insurance Act - 30% subsidies
- 1994 Federal Crop Insurance Reform Act, coverage 100% subsidized CAT
- 1998 65% subsidy level, MPCI & Revenue insurance

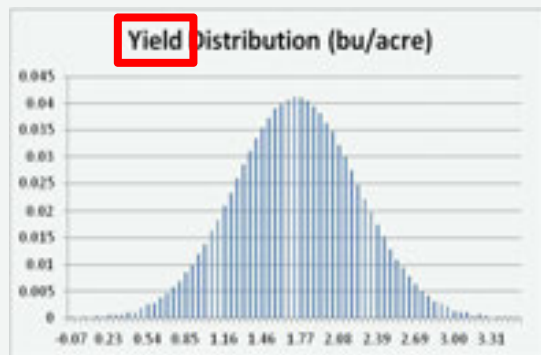


Revenue insurance is under discussion in different Asian countries

Pricing revenue insurance policies

The basic principle

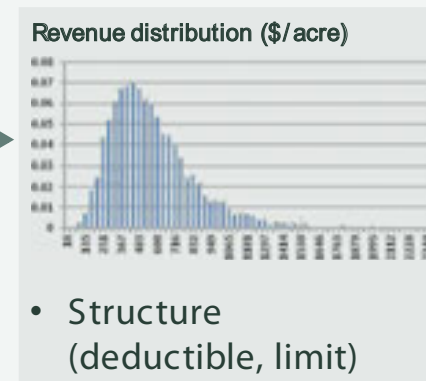
- Historical yield series
- Trending model
- Residuals models



- Actual price of future
- Time to harvest price finding
- Implied volatility
- Option pricing model



Correlation



- Structure (deductible, limit)

Maximum 35% of risk should be price related
Product should be add on to yield insurance

Boundary conditions

- Several conditions need to be fulfilled for a revenue product to be i) quantifiable and ii) attractive to the farmers:

Future exchange market: liquid, relevant, local currency

Understanding dynamics: market actors, supply, demand, stocks

Good understanding of fundamentals: correlations

Sufficiently long yield data series: appropriate spatial resolution

Revenue insurance typically doesn't take into account the quality of the crop

Markets with strong governmental control over crop prices are not ideal for revenue insurance

“Tickers” @ CME

Product	Code
Corn Futures	ZCZ5
Mini-Corn Futures	XCZ5
Chicago SRW Wheat Futures	ZWU5
KC HRW Wheat Futures	KEU5
Soybean Futures	ZSX5
Mini Soybean Futures	XKX5
Soybean Meal Futures	ZMZ5
Soybean Oil Futures	ZLZ5
Oats Futures	ZOZ5
Rough Rice Futures	ZRU5
Black Sea Wheat Futures	BSWU5

Product	Code
Live Cattle Futures	LEV5
Lean Hog Futures	HEV5
Feeder Cattle Futures	GFV5

Product	Code
Class III Milk Futures	DCU5
Class IV Milk Futures	GDKQ5
Non-fat Dry Milk Futures	GNFQ5
Dry Whey Futures	DYQ5
Cash-settled Butter Futures	CBQ5
Cash-Settled Cheese Futures	CSCU5
Product	Code
Random Length Lumber Futures	LBSU5

Product	Code
Cocoa Future	CCPK6
Coffee Futures	KTZ5
No. 11 Sugar Futures	YOV5

Timing: a “ticker” starts to run 15 months before it’s expiry date

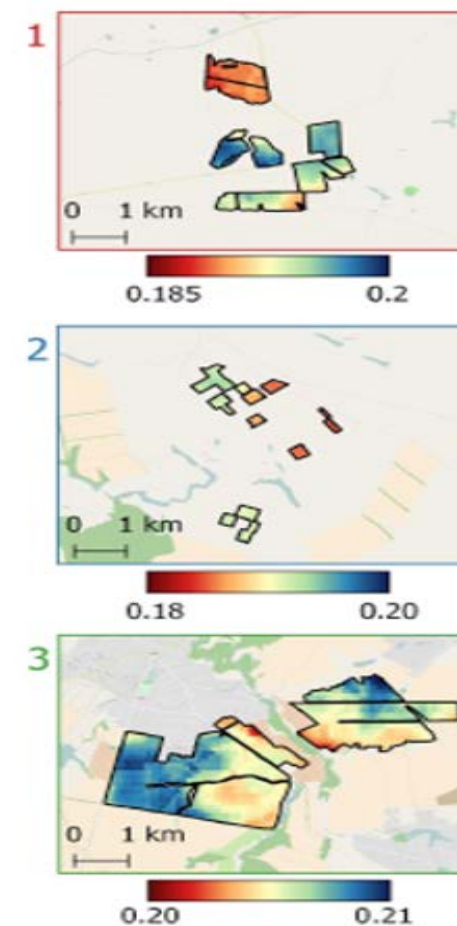
2. Index insurance

Soil moisture

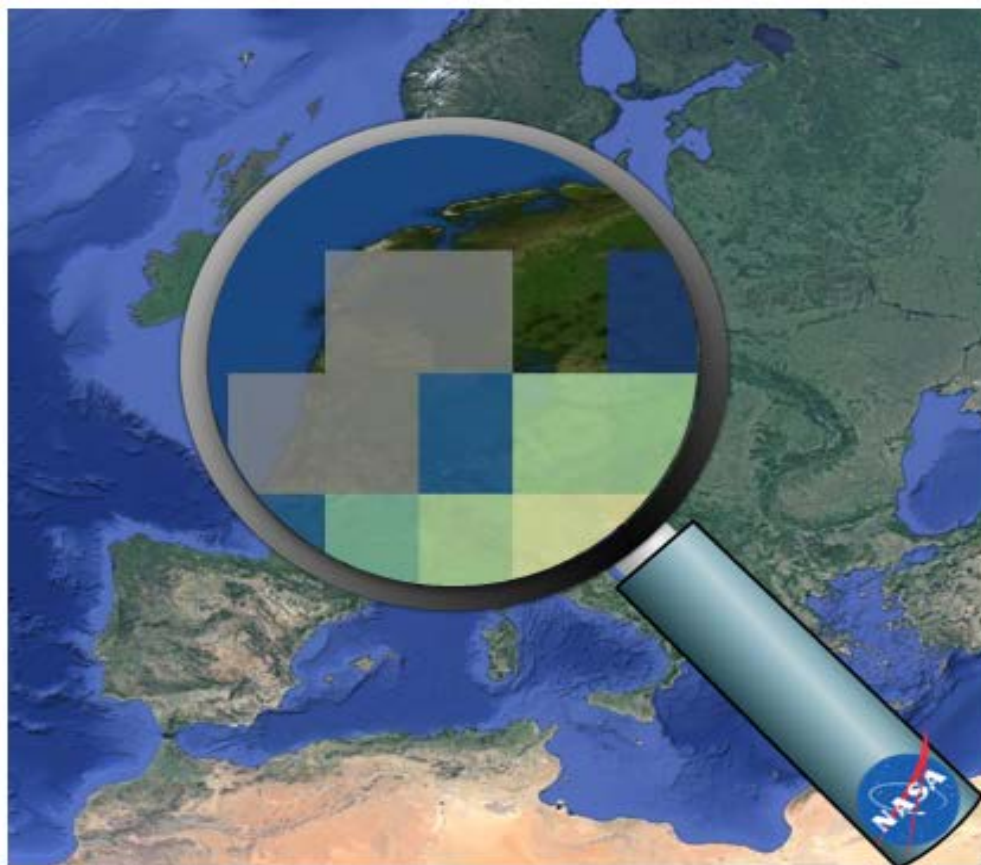
Index insurance for agriculture insurance in Russia?

Drought is the biggest risk in agriculture in Russia

- **Regular regional droughts** results in unpredictable earnings for farmers
- To increase insurance penetration a more **scalable approach** is needed
- Accurate **Soil Moisture** measurements are an ideal base for **drought index products** in Russia

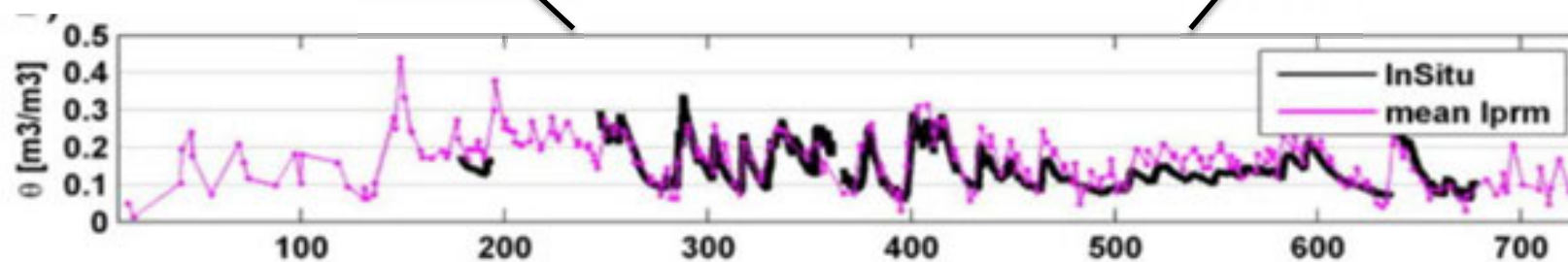
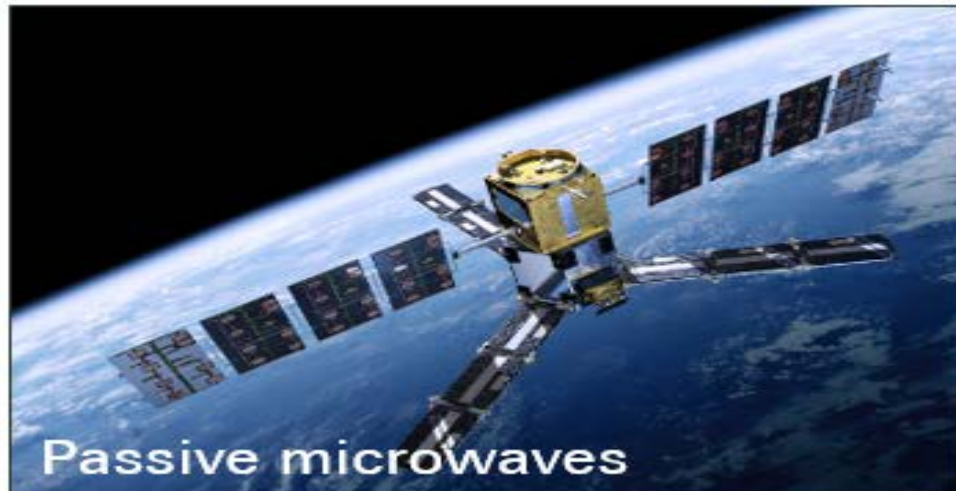


A revolutionary approach to drought insurance



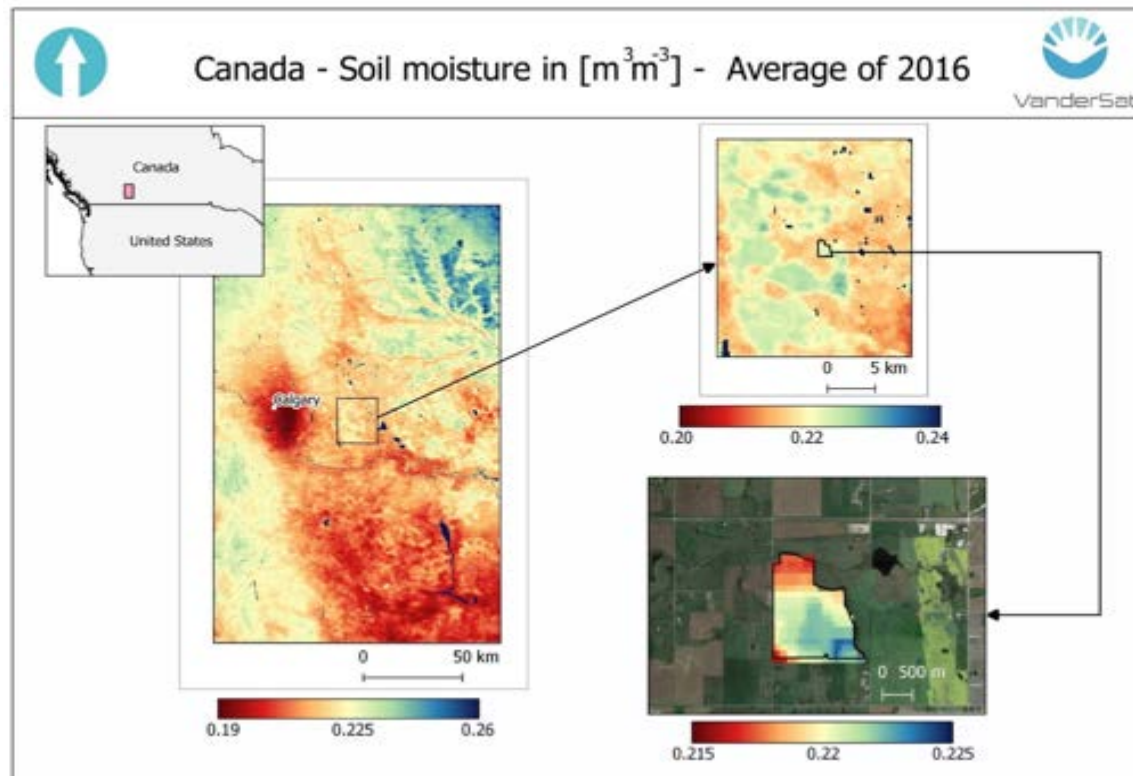
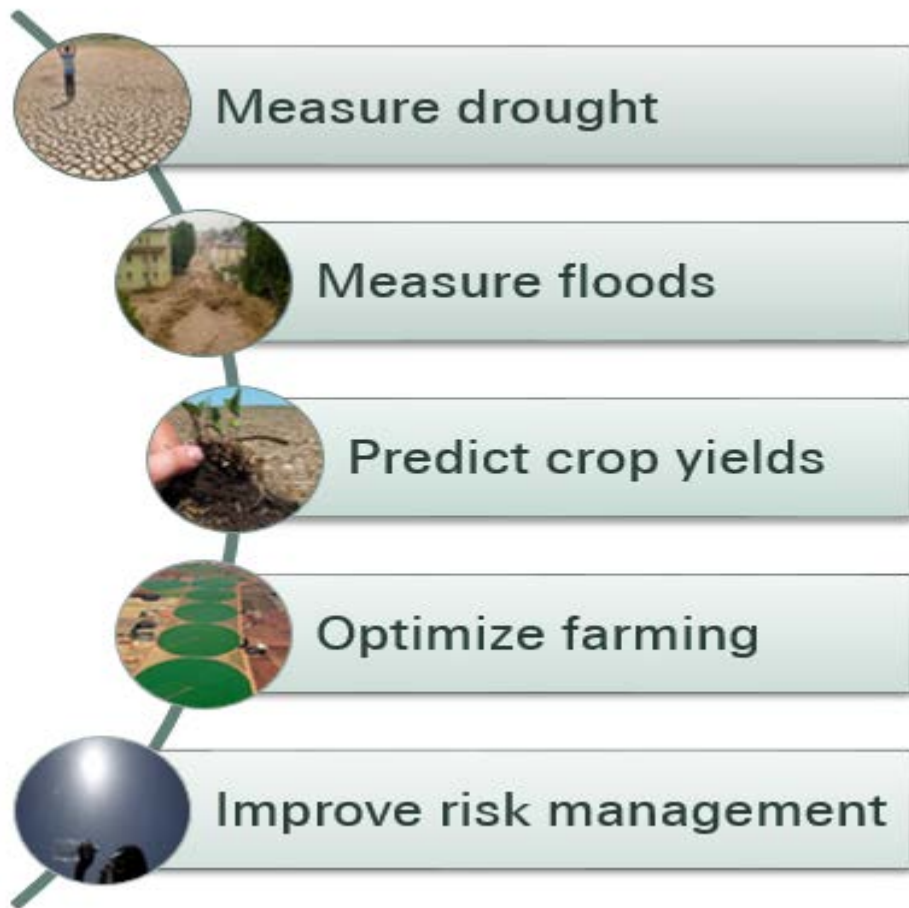
“VanderSat delivers global soil moisture information, near real time on a 100x100m and daily resolution”

How to retrieve soil moisture?

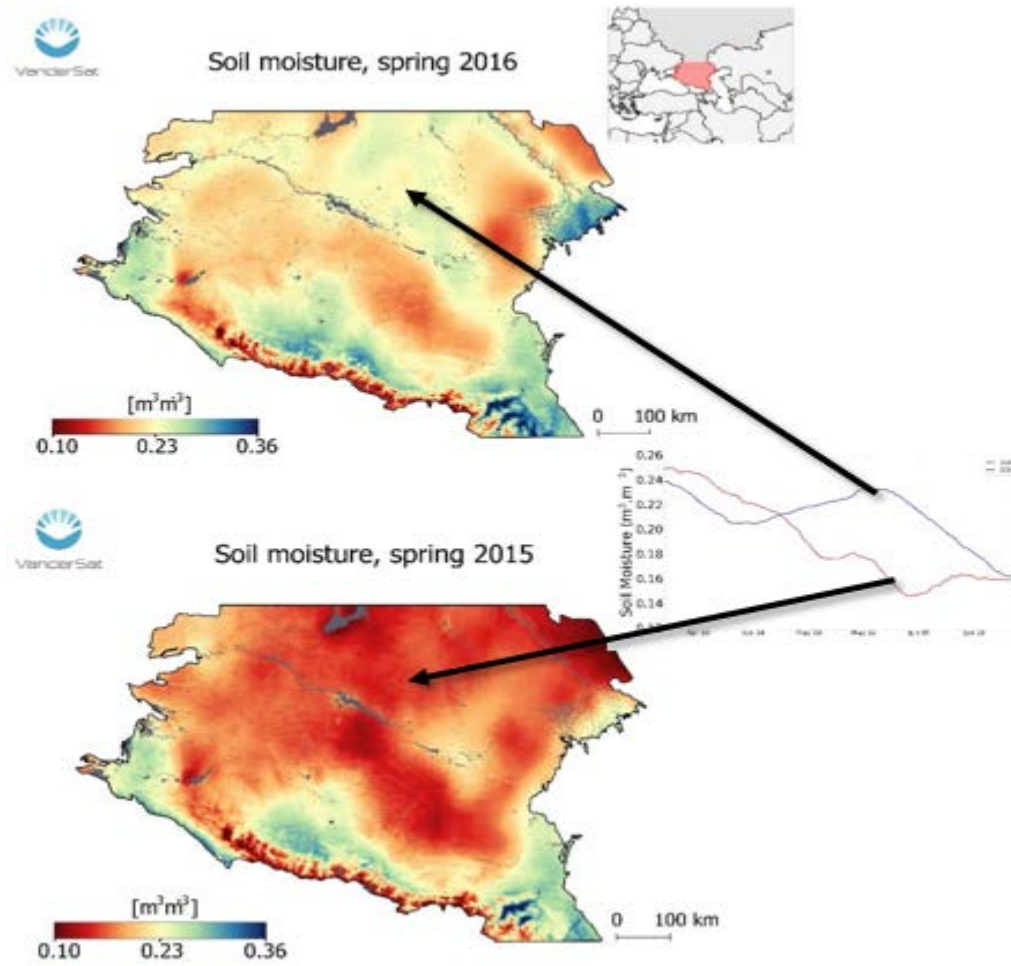


Case study of a catchment in Australia
Van der Schalie et al., 2015: RSE

Why soil moisture is important for agriculture?



What are the advantages of a soil moisture index?



3. Digitization

opti-crop

opti-crop



Crop Growth
Global weekly NDVI maps
and graphs for individual
fields



Soil Moisture
Unique high
resolution daily
measurements



Weather
Precipitation and
temperature history
and forecasts



Index Tracker
Live insights in
parametric
insurance

Google Earth Engine



test opti-crop



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index-tracker



Full transparency
on the insured areas and
regional index parameter
development



Up to date
Daily update of index
parameters and
payout calculation



Efficient
interaction between
insurer and farmers



Pay-out
screen gives direct
access to your index
policy and payout
development

Google Earth Engine



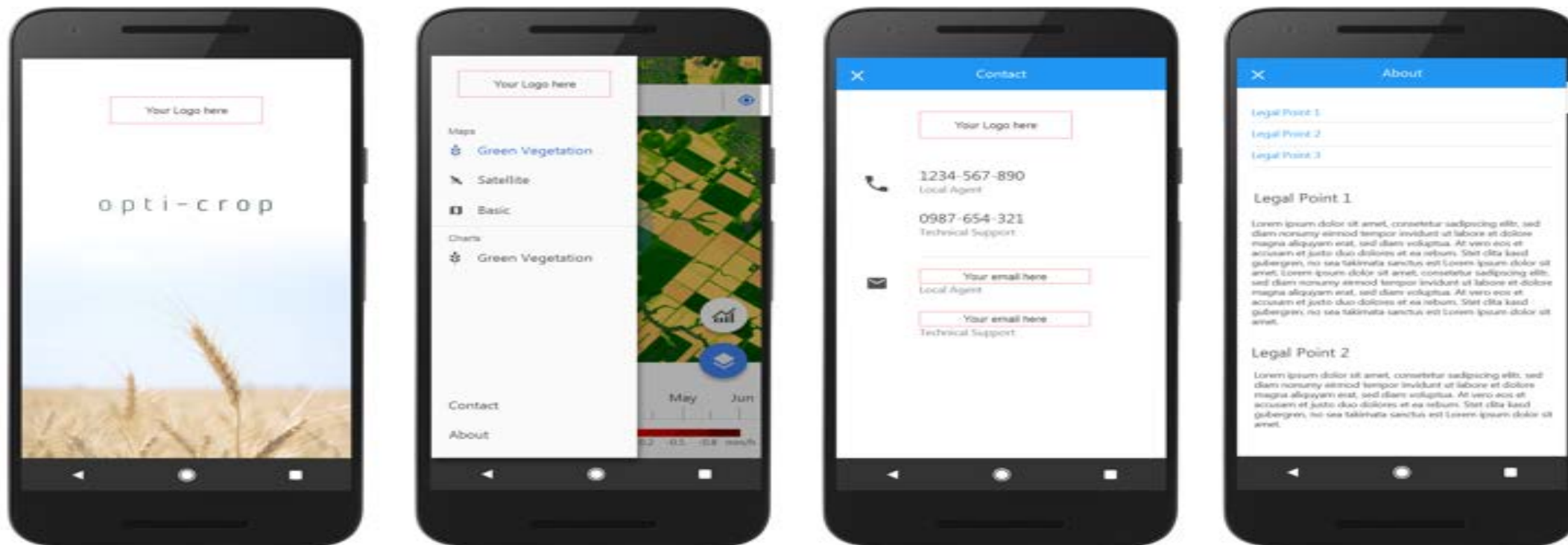
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White Labelling

Your Brand our Platform – boost the visibility of your brand



System Integration

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swissre-a1b1zg0.opti-crop.com/map/ndvi/49.99,30.06/12/d/2017-05-30/s/p



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