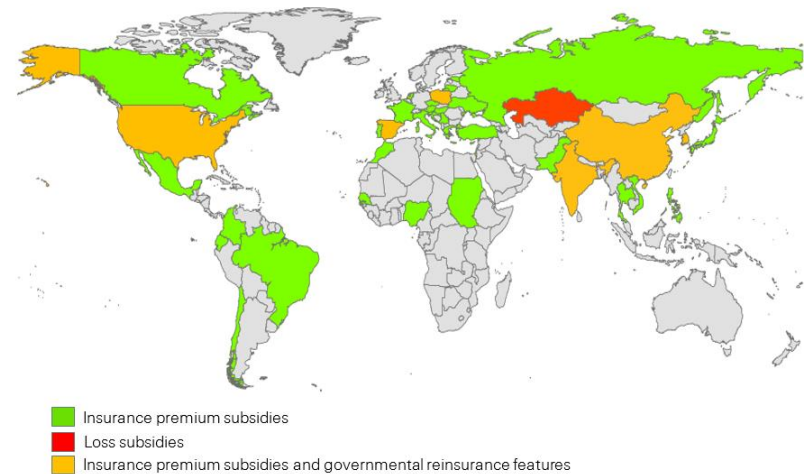


Parametric Insurance

Serbian Insurance Days November 2018, Arandjelovac
Christian Kreuzer, Mira Kiridžić-Bügler

Different types of crop insurance systems can be observed

1. Fully private w/o public support
 - Example: Germany, South Africa
2. Private insurers offering crop insurance with state subsidy
 - Example: France, Italy, Serbia
3. Companies with a regional monopoly/state support
 - Example: Austria, China, Canada
4. Pool systems initiated by the insurance industry with state support
 - Example: Spain, Turkey
5. Standard insurance product, sold via different companies
 - Example: USA



Cover concepts in Agriculture

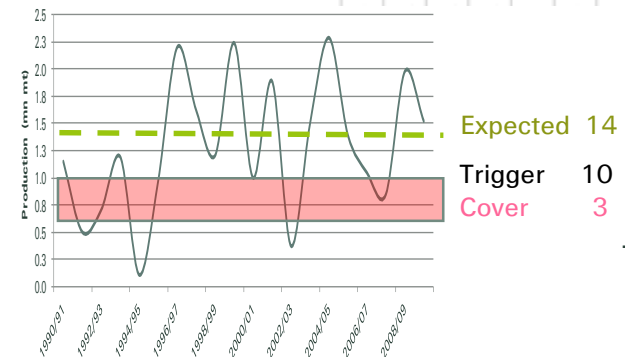
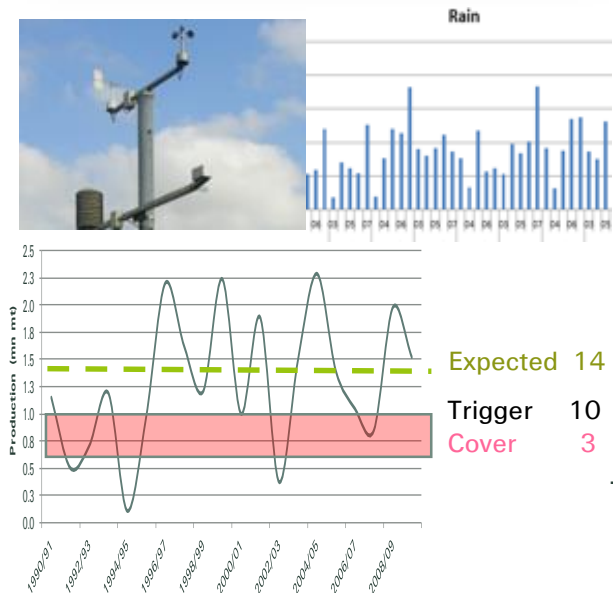
- Indemnity-based insurance

- ⇒ traditional type of insurance
- ⇒ single risk assessment and individual loss assessment (claim payments based on actual loss at insured unit level)
- ⇒ two subclasses: (1) named peril, (2) multiple perils (incl. revenue)



- Index insurance

- ⇒ payouts are not based on individual yield losses but on an independent measurement (index) correlated with field losses:
 - weather index (rainfall, temperature, ...)
 - area-yield index (average yield per geographical unit)
 - remote sensing index (e.g. NDVI for crop and livestock)
- ⇒ useful for wide spread and systemic perils with a steady loss development (i.e. drought, frost)
- ⇒ not useful for hit-or-miss perils (i.e. hail, flash floods)



Parametric insurance

Simple, predictable, fully transparent with few exclusions

- **Parametric insurance** is a type of insurance that settles on a pre-agreed, simple measure (the "**parameter**" or "**index**").
 - Pay out depends on the **occurrence of a triggering event**, regardless of the actual loss.
-
- An **independent third party** (e.g. USGS for earthquake) determines the intensity of the event and hence the impact on the claim.
-
- The insured purchases a **maximum pay out cover** from the insurer. The premium depends on the chosen limit as well as exposure of the insured.
 - The pay out on a parametric product is unlikely to be exactly equal to the financial loss of an insured and the difference is known as "**basis risk**".



"Simplification is the ultimate sophistication" Leonardo Da Vinci

Parametric insurance value proposition

Make your insurance solutions fast, flexible and affordable



Fast

access to cash



Flexible

usage of cash



Affordable

no claims process
low limits



Parametric insurance makes sense **when traditional insurance is not accessible or affordable**



Parametric insurance acts as a **complement to traditional insurance**



Parametric insurance offers **immediate pay out for emergency cash relief**

Earthquake “shake vouchers”

Simple, transparent customer journey

Quote and purchase

Insurance Co. SE

Location Information

Province	Shenzhen	Region	Grouping
Covers Zone	CHN35	Selected Risk Type	Earthquake

Quote selection

Option	Premium	Max Payout
Option 1	€11,000.00	€11,000,000.00
Option 2	€13,000.00	€13,000,000.00
Option 3	€15,000.00	€15,000,000.00
Option 4	€17,000.00	€17,000,000.00

Payment volume

Claim trigger

Reporting agent

- **U.S. Geological Survey** for rest of the world
- **INGV** for Italy

Pay out

Dear Insured, your Earthquake policy has been put under observation.

According to the coverage details, you are eligible for a claim of \$ XYZ. To confirm, reply YES.

YES

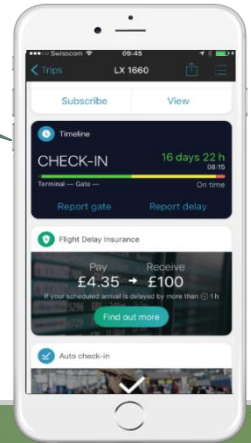
Claim of \$ XYZ towards your policy id has been credited to your account.

Flight Delay Insurance

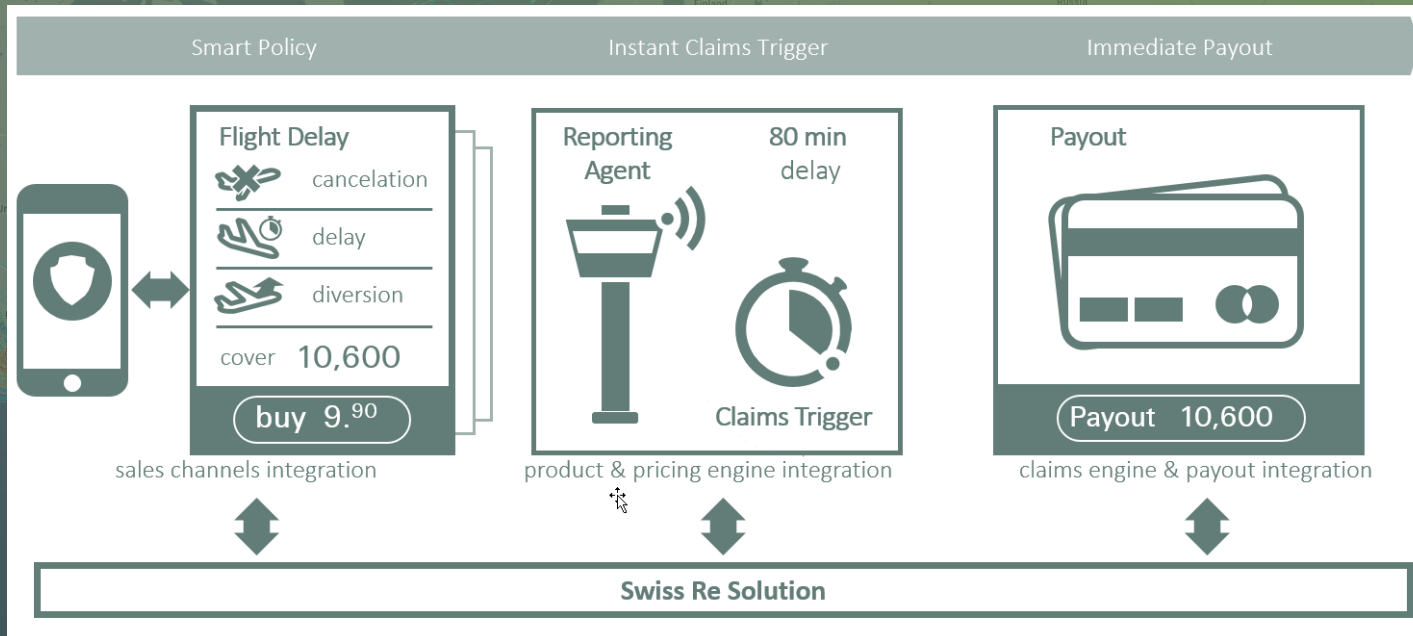
Short delays/cancellations/diversions — as low as 30 minutes delay



Flight delay live in UK

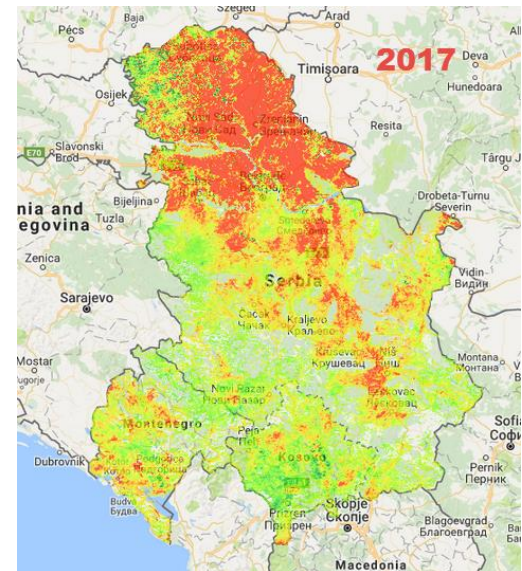
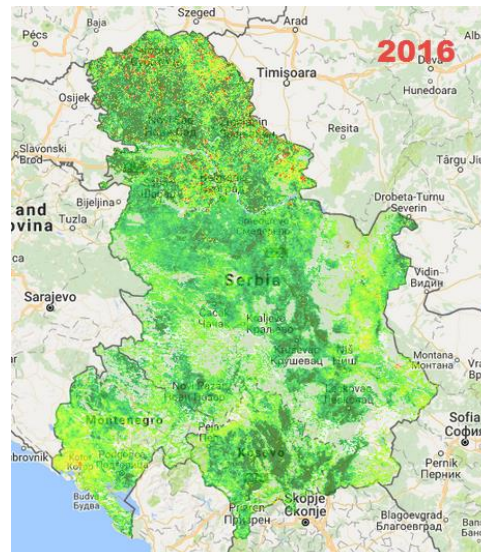
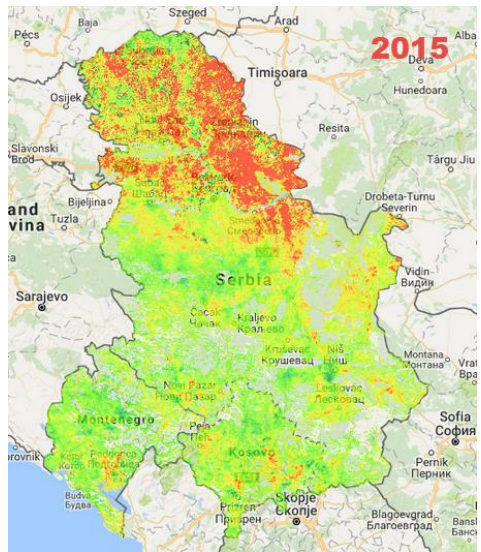
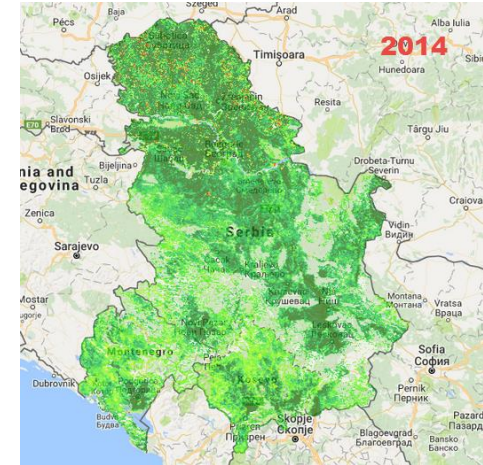
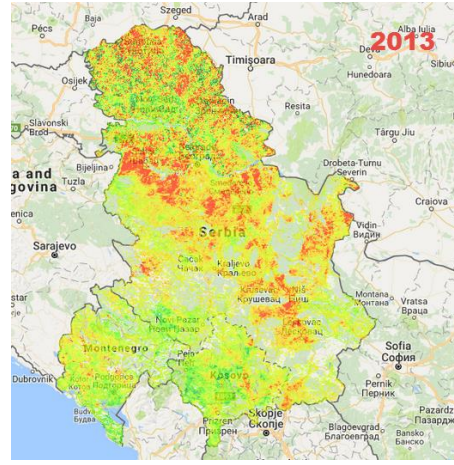
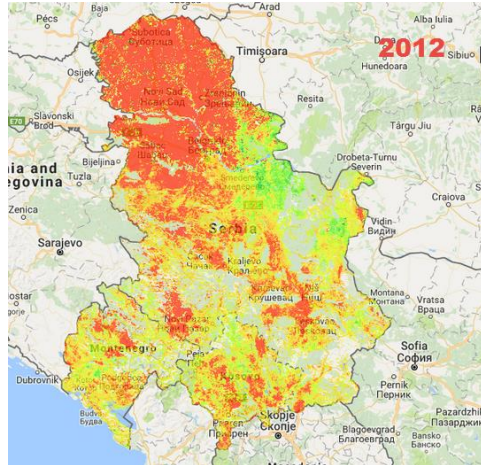


Flight delay live in China



Drought insurance

Drought in Serbia



Serbian Agriculture Insurance



The agriculture sector stays a **priority** for the Serbian Government



Farmers are supported by the Serbian State with credits and **insurance premium subsidies** (40%)



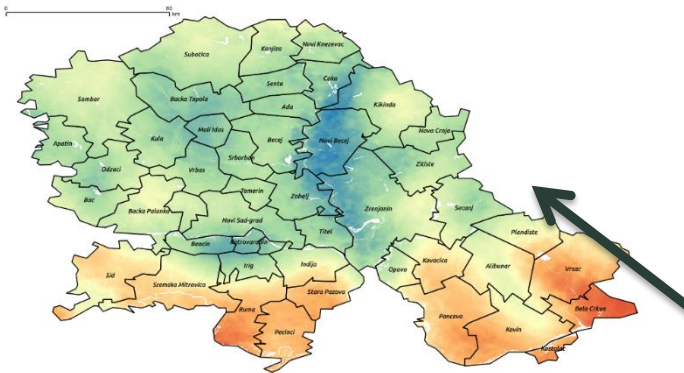
Insurance penetration has increased but **drought** stays largely **uninsured**



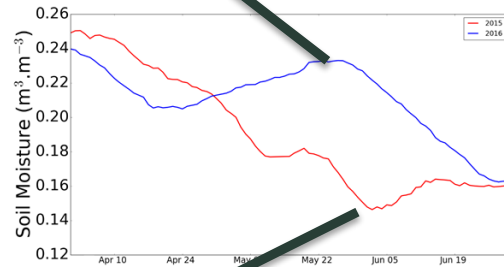
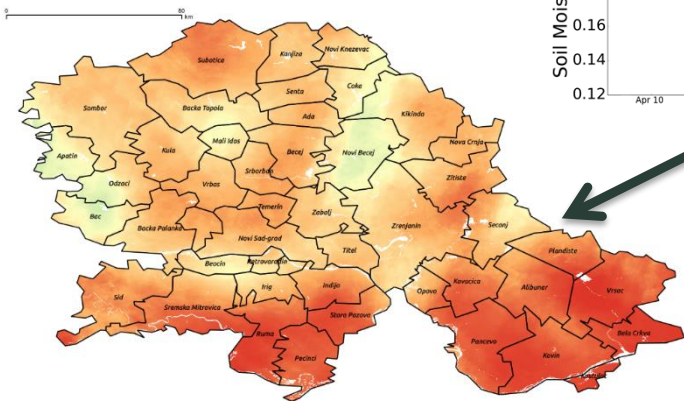
There is a good opportunity for insurance companies to further **scale up agriculture insurance** by covering drought

Soil moisture Index

Soil moisture July 2018



Soil moisture July 2017



Soil Moisture

Excellent correlation with crop yields

Daily observations

Cloud free (passive microwave)

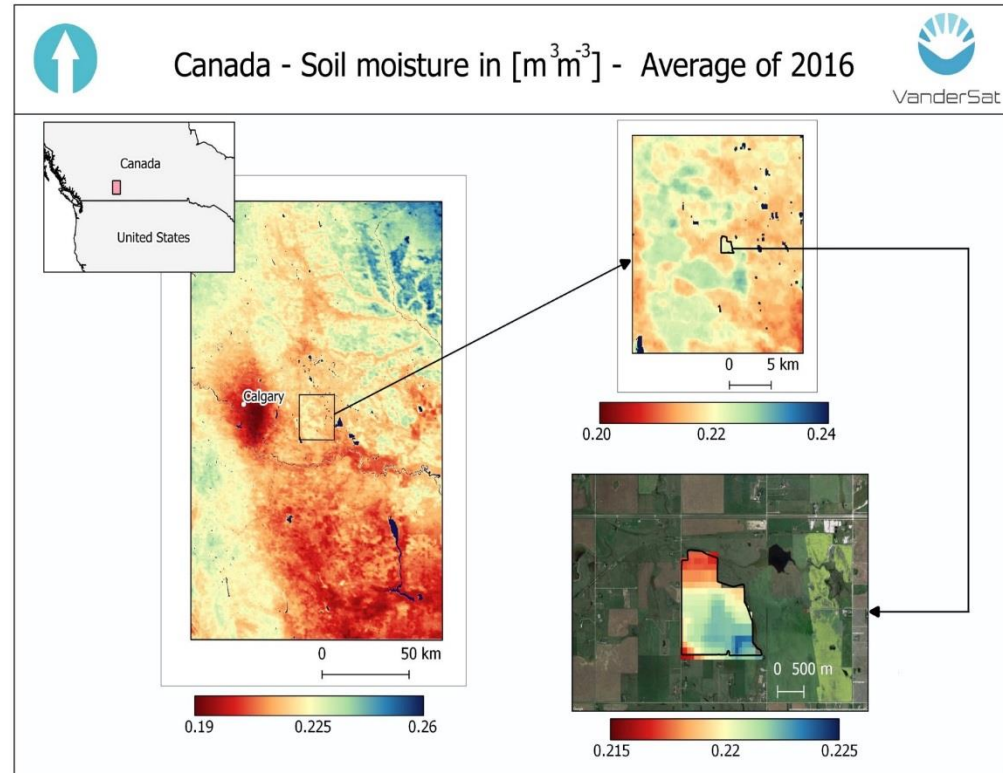
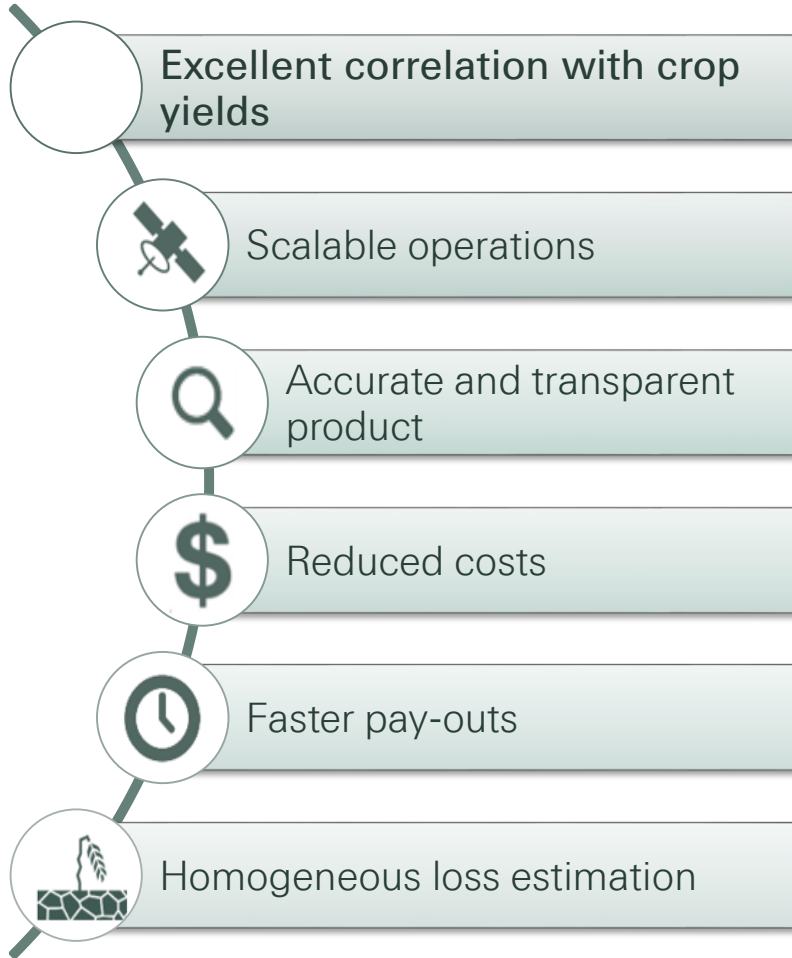
100 meter resolution

30 years history for Soil Moisture

Independent of crop and farming practise

Can be used for excess of rain losses

What are the advantages of a soil moisture product?



Crop index insurance

NDVI grassland Index in Mexico



A **NDVI satellite-based** vegetation index that indicates insufficient amount of grass and covers the supplementary **fodder costs** incurred for cattle farmers.

Google Earth Engine



test opti-crop



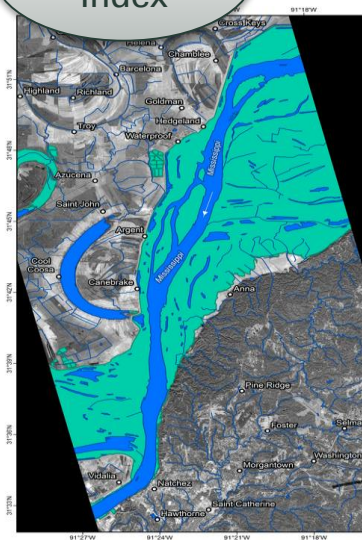
goo.gl/EdnrUR

Flood Index China (Heilongjiang)

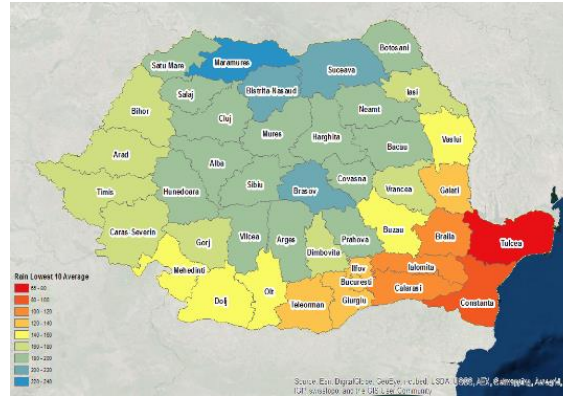


SAR Technology can map **flooded areas** on demand independent of weather conditions.

Flood Index



Weather Index Romania



A weather station drought index that indicates insufficient rainfall and covers the crop loss for corn and barley

Drought Index



Drought Phase 1		Drought Phase 2		Drought Phase 3		Hot days	
From	15. Feb	From	11. Apr	From	21. Jun	From	15. Feb
To	10. Apr	To	20. Jun	To	31. Aug	To	31. Aug

Your contacts at Swiss Re



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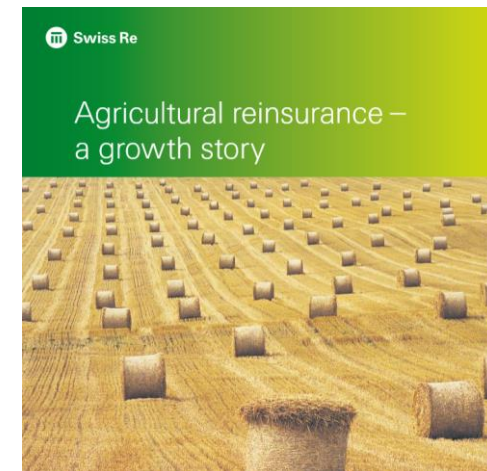
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E-Mail: Mira_KiridzicBuegler@swissre.com

Further reading under
www.swissre.com



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