NOT IF, BUT HOW

Munich RE

Modeled yield index – farmscape

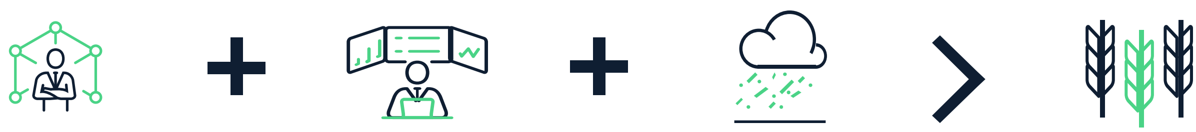
Financial instruments to protect agricultural companies against economic losses due to poor crop yields at farm level

Munich Re is a market leader in assessing and mitigating financial risks caused by natural catastrophes, weather variability, crop yield fluctuations and adverse price movements.

What is a modeled yield index?

Modeled yield indices combine crop models with weather, climatic and environmental variables to compute yield. They solve for issues of conventional parametric insurance like long wait times, poor quality and resolution, or complete unavailability of data to match the client's crop exposure.

How does it work?



Risk exposure
Client's input about risk locations, crop types and farming practices

Third-party yield models
Independent agricultural yield models and soil data

Weather data
Third-party information on weather

Modeled yield index
In-season yields calculated in real-time

Where and for which crops is it available?

All major cash crops (e.g. soybean, corn, wheat) in North America, Europe and Latin America.
In Brazil, the modeled yield index is as well available for sugarcane.

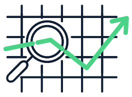
Who can benefit?

Any participant within the agricultural value chain, in particular large producers as well as grain offtakers, mills and crushers, input suppliers, banks, investment funds, and other processors, who possess sufficient data at the field level.

What data is needed from you?

To get started, we only require the field locations and the crops you intend to plant. The following information will enhance the results: expected yield planting and harvesting dates, seed variety, farming practices (such as tillage versus no-tillage), and nitrogen levels applied. If this information is not readily available, do not worry. We can assist in filling the gaps.

What's in for you?



Smart
Protect the revenue of your agricultural operations in ways which were impossible so far

Flexible
Tailor the index to match your unique risk exposures and financial needs

Transparent and fast
In real-time, receive a payout based on independent third-party models and your risk profile and farming practices

Effective
Protect your cash flows, profits or your balance sheet

How is payment triggered?

Payment is triggered if the modeled yield, at the end of the crop's season, is below the expected yield.
The Payout = Expected yield x coverage level x tick size (pre-agreed indemnification per 0.01 ton of yield loss)

Example of product definition and associated performance

Cropland	5,000 ha (provided by the client)	**Modeled yield***	**Payment to client (USD)**
Crop	Soybeans non irrigated	10,5	0
Maximum cover	4,000,000 USD	9,5	0
Expected yield	10t/ha	8,5	500,000
Covered yield	9t/ha (= 90% coverage level)	7,5	1,500,000
Yield limit	5t/ha	6,5	2,500,000
Exhaust	4t/ha (any yield below this point is not covered)	5,5	3,500,000
Tick* value and size	10,000 USD per 0.01t	4,5	4,000,000

*Indemnification per 0.01 ton of yield loss

*yield of the current season modeled by third-parties

For more information visit our website:

www.munichre.com/crop-yield