

Parametric insurance as a tool to optimise management to reduce environmental impacts of cropping on the Great Barrier Reef

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Australia's National Science Agency



Great Barrier
Reef Foundation

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Australia's Great Barrier Reef

344,400 km² in area

2,300 km long

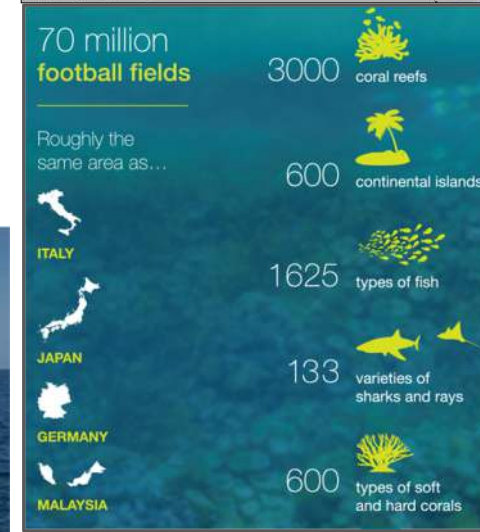
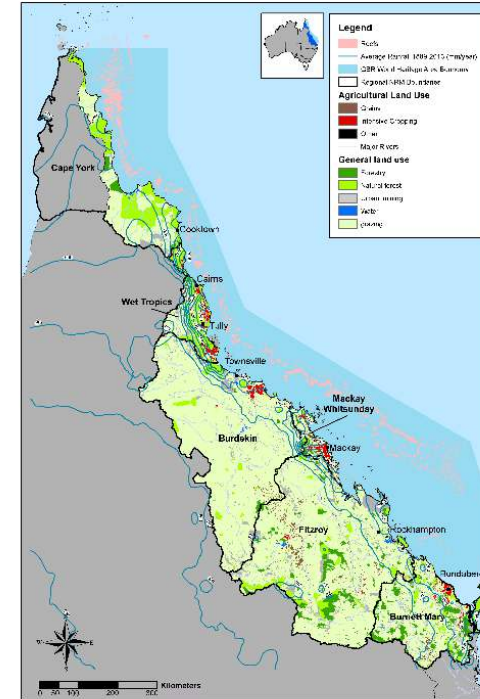
424,000 km² catchment area

World Heritage listed in 1981

Value ~\$6.5B yr⁻¹

Threatened by

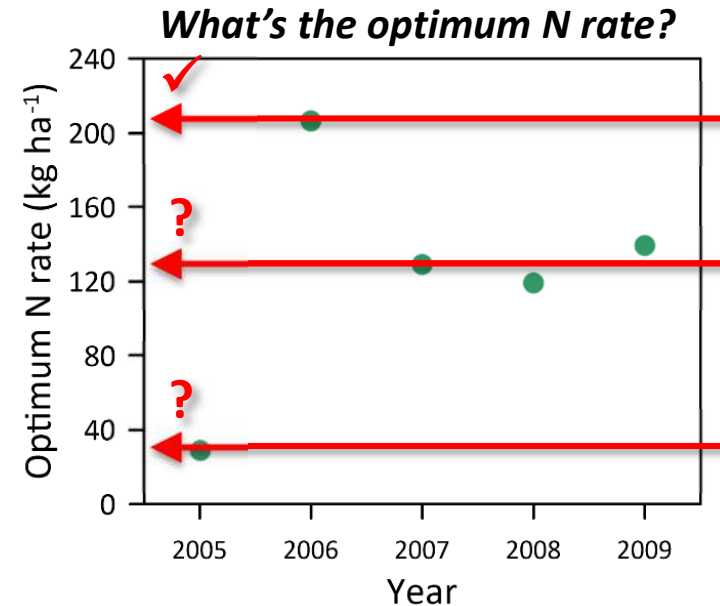
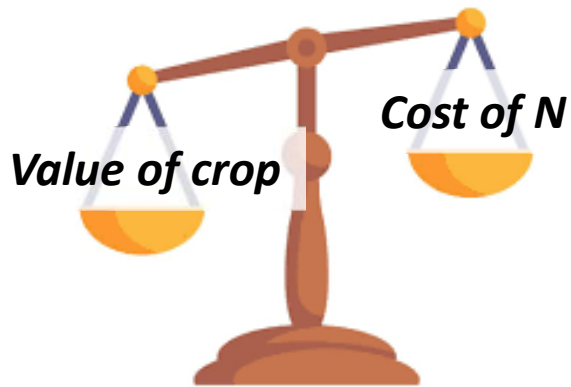
- Climate change
- Agricultural pollutants
 - Sediments
 - Pesticides
 - **Nitrogen (N fertiliser applied to sugarcane)**



Great Barrier Reef Marine Park Authority



The N management challenge in high value crops



- Optimum N rate uncertain
- N managed to reduce production risks \Rightarrow *environmental impacts*
- *Is insurance an alternative to manage risks?*



“Insurance structures 101”

Indemnity:
Based on verifiable losses

- ↑ ‘Real’
- ↓ Inefficient, costly



Parametric:
Based on an “index” that is closely correlated to agricultural production losses

- ↑ Efficient, cheap
- ↓ Strength of correlation

APSIM
predictions as an index

Agribusiness insurance
Insure your crops with a Weather Index Insurance solution

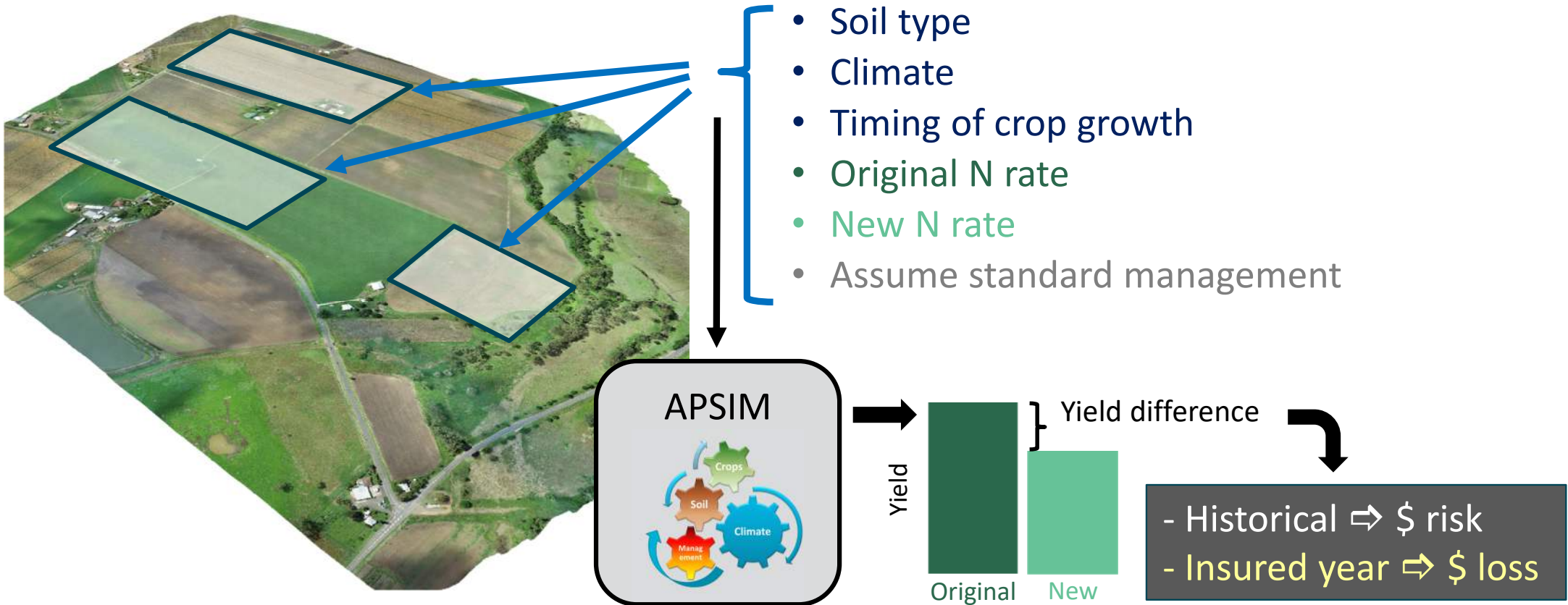
Start your journey with us today
CONNECT WITH US

What Weather Index Insurance offers
A new way to safeguard your crop revenue. It's designed to protect you from adverse weather events when your crop is most susceptible. For broadacre growers this might be protecting against frost at flowering or wet weather at harvest.

Why choose Gallagher
Weather Index Insurance is a new crop protection product

Parametric insurance for N risk – the concept

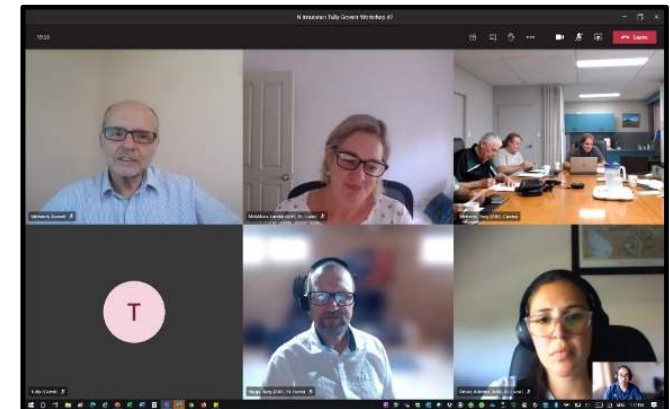
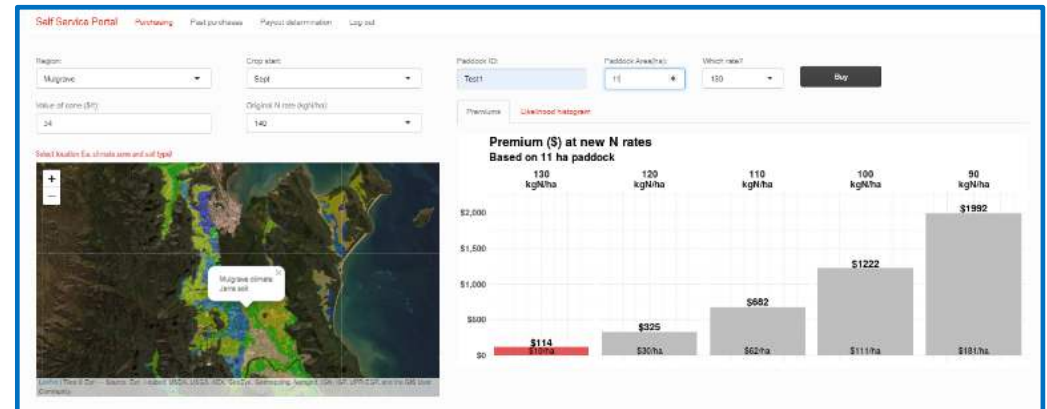
Prediction of risk at quasi-field scale



'Market validation' workshops

Farmers 'buy' mock insurance product through Self Service Portal

- Reactions of participants
 - *Exit surveys (anonymous)*
 - *One-on-one semi-structured surveys*
- Data on
 - *Purchases in the Self Service Portal*
- Outcomes from 'cash flow' analyses assuming policies 'bought' over past 50 years
 - *Farmers*
 - *Insurers*
- Outcomes for Great Barrier Reef



Average outcomes – 100 mock policies ‘bought’

Farmers

- \$48.82/ha premiums
- \$28.79/ha payouts
- \$28.28/ha saved N costs
- **\$8.25/ha better off**
 - › **\$0.21M/yr over 25,600 ha***

Great Barrier Reef

- **19 kg/ha less N applied**
 - **97 t/year less N discharged from 25,600 ha***
 - › **\$19.4M/yr avoided public funding**

Insurance

- underwriter

- \$34.61/ha net revenue
- \$28.79/ha paid out
- **\$5.82/ha ‘cash profit’**
 - › **\$0.15M/yr over 25,600 ha***

- broker

- **\$6.09/ha revenue**
 - › **\$0.17M/yr over 25,600 ha***

**25,600 ha = 40% of cane lands in Wet Tropics or 8% of total cane lands*



Conclusions and opportunities

Parametric N Insurance

- Implicit financial incentive – avoided costs
- Commercially efficient and potentially sustainable
- Farmers and advisors see value
- Insurance a (new) path to improved environmental performance

What next?

- Cotton
 - Reduce GHG footprint
- Grains
 - Protect against low yields
- Rangelands
 - Improved stock and soil management



N Risk Insurance...

⇒ Launched 1st June 2022

- Wet Tropics

⇒ Expanded footprint 2023, 2024

- Wet Tropics, Herbert, Mackay

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Search for “Nitrogen Risk Insurance”

wtw Nitrogen Risk Insurance

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Welcome to the WTW Nitrogen Risk Insurance program developed specifically for Queensland's sugarcane farmers to provide peace of mind by covering the risk of yield shortfall from reducing Nitrogen rates. Optimising nitrogen application at times of high fertiliser costs is an important business consideration for farmers.

The Nitrogen Risk Insurance program is available in 2023 to sugarcane farmers for ratoon crops in specified sugarcane growing regions from Northern Cairns to Southern Tully, Herbert and Mackay. Farmers can insure one, some, or all their blocks providing complete control over the buying decision. The program covers ratoon crops harvested from June to December. Purchases must be made by the last day of the month before the crop is harvested with cover commencing on the 15th day of the following month.

To assist in generating a quote that is tailored to your crop we have created the Indicative Quote Tool which is launched by clicking on the **launch tool arrow** below. This tool is designed to help you pinpoint your crop region and soil type accurately and provide an indication of cost for Nitrogen cover.

Click here to launch quote tool →

When you are ready to purchase insurance click on the **Get a Quote** button below. If you would like to learn more about Nitrogen Risk Insurance click on the **Find Out More** button below.

Nitrogen Risk Insurance

Get a Quote

Find Out More