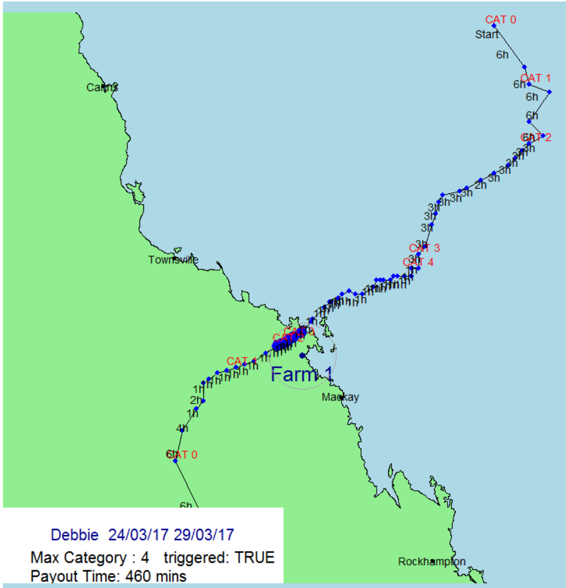
Drought and climate adaptation program

# Case Study 1

## Key Facts

| | |
|---|---|
| **Farm / Industry:** | Sugarcane |
| **Risk:** | Cyclones |
| **Location:** | Yalboroo, Central Queensland |
| **Solution:** | ‘cat-in-a-box’ Index-based Insurance |




## Farm Profile

The farm is located approximately 70km North West of Mackay in Central Queensland. The 140-hectare dry land farm yields around 9,000 tonnes of surgarcane per year. High rainfall and mild temperatures typify central Queensland weather, with the farm identifing cyclonesand the associated rainfall as the biggest weather risks

## Risk

A major risk for farm businesses in this region are cyclones. The cyclone season officially runs from November to April, and on average 4.7 tropical cyclones affect Queensland per year.

in March 2017, Cyclone Debbie caused widespread damage to the region’s sugar industry. The wind caused extensive lodging and in some cases snapped the sugarcane off; this resulted in 25% to 30% losses through the region. The associated rainfall also caused widespread damage.

## Action

After consultation with the farm, a ‘cat-in-a-box’ cover for a category three or above cyclone was priced based on the farm location and the shape of the cyclone (usually circular) as defined by the farm. To best position the farm in the box, the centroid of the circle was set 25 km above the location of the farm.

**‘Cat-in-a-box’**

A ‘cat-in-a-box’ is a simple weather index trigger mechanism which depends on the physical parameters of the event. In the case of cyclone risk, the location of the farm within a specific geographic zone (box) and its category as it enters the zone. If these are met, the transaction triggers, resulting in a claim payment.

## Result

- **Indemnification Zone (box):** Centroid located 25km north of farm with a 50km radius.
- **Policy Period:** 1 December 2018 to 30 April 2019.
- **Policy Trigger Event:** Any cyclone which reaches category three or above while within the indemnification zone during the policy period.
- **Payout:** If a policy trigger event occurs, this policy will pay the full policy limit assigned to the indemnification zone in which the trigger event occurred.
- **The Rate on Line (ROL):** 10.6%

The policy developed for the farm is bespoke to its needs but transferable throughout the region for cyclone cover. Cyclones through this region are frequent; this is reflected in the ROL of 10.6%. The ROL indicates that if the farm wanted $100,000 cover, the premium of that policy with that limit would be 10.6% of $100,000, i.e., $10,600. The amount the policy pays out is scalable to the size of coverage wanted or needed for the farm to offset the impacts of the disaster, but the ROL is consistent; 10.6% of the policy limit.

## Demonstrated

Cyclone Debbie resulted in approximately 25% decrease in yield potential due to crop damage and crop loss, equating to aproximanlty a 2250 tone loss. While earthworks to recover the farm was roughly $200 per hectare.

Using a generic cane price of $37.45 per tonne, this equates to a financial impact of $129,999. If the farm wanted to offset all of this financial impact with the above 'Cat in the Box' the farm could have done so for $13,779.49.

It is more realistic that the policy limit would be lower than the total financial damage possible. Farms generally can withstand some of the financial impacts of crop damage and crop loss in a cyclone. The recovery cost to fit the farm and restore it to pre-event state (earthworks, irrigation equipment, pump damage etc.) is a more realistic and approachable policy limit. For this example, the policy limit might be about $35,000, therefore the premium will be $3,710.

## Historical Impacts

The followingcyclones have passed through the indemnity zone:

| Name | Date | Maximum Category |
|---|---|---|
| TC Debbie | March 2017 | 4 |
| Ita | April 2014 | 1 |
| Dylan | January 2014 | 2 |
| Ului | March 2010 | 3 |
| Kerry | February 1979 | 2 |
| Otto | March 1977 | 1 |
| Dawn | March 1976 | 1 |
| Ada | January 1970 | 3 |