



°CelsiusPro

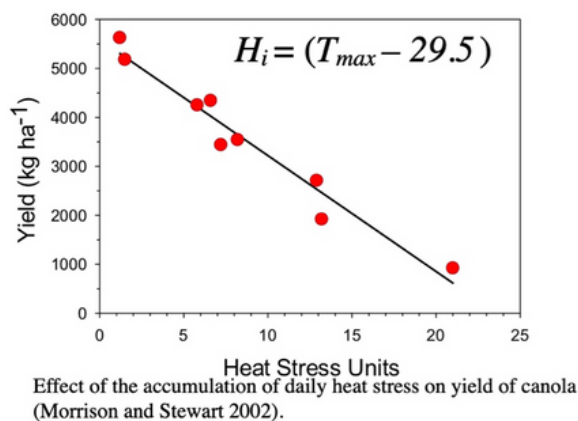
CANOLA HEAT STRESS

Weather Certificate for Australian Farmers

Heat stress on canola crops is a serious risk for Australian farmers.

Canola is an important crop for Australian Farmers. Domestic growers supply more than 2.5-3 mmt, or between 15-20 percent of the world's trade reaching out to Europe, China, Pakistan, Japan, and other international markets. At today's price of \$739/t+ this represents \$2.85 billion worth of income. It is a serious crop. Securing this return for farmers comes down to farm management skills and the weather. The weather's input is critical and hedging the weather will help secure the return.

Adverse weather conditions, such as drought, excess rain at harvest, and high and low temperatures can all influence yield. Heat stress is one adverse weather event that can cause significant yield loss. AAFC research scientist Malcolm Morrison in Canada found that yield loss for canola plants would start to occur when temperatures during flowering exceeded 29.5 C. (<https://www.youtube.com/watch?v=nvYGMJ7qVfQ>). The more heat stress units, the greater the yield loss, in fact, he found that 4% of yield was lost per heat stress unit. Put simply, if during this risk period, you had two days where the maximum temperatures were 32° the farmer's yield lost would be 20%. (32° - 29.5° = 2.5; 2.5 x 2 days = 5units)



More specifically, heat stress 2 weeks after the first flower and then 2 weeks after flowering has ceased are critical for yield. Temperatures over 25°C, 27°C and 30°C, during this 45-day risk period in Australia is detrimental to the sterility of the plant and thus yield. Given the high price of canola and the high input prices it is crucial that growers look to protect yield where they can. (Angadi et al. 2000), Gan et al. (2004)

CelsiusPro has developed a parametric weather certificate that is triggered when the daily maximum temperatures pass 25°C, 27°C or 30°C. The hotter it gets per day over the risk period the more the cover pays.

Please read the next page for an example.

Example:

| | |
|----------------------------|--|
| Farm location: | Wagga Wagga (Lat: -35.05 Long: 147.15) |
| Crop: | Canola |
| Production Cost: | \$450/ha over 1000ha sown = \$450,000 |
| Yield to Breakeven: | 0.96t/ha |
| Expected yield: | 1.33t/ha |
| Risk period: | 1st August through 15th Sept (45 days) |
| Rational: | Heat stress starting at 50% of flowering time through to mid podding |

The grower wants to hedge yield loss if the temperatures went over 27° on anyone day. So, if he had a day of 29° it would represent 2 heat stress units with a potential yield penalty of 8%. He decides that each heat stress unit will be worth \$50,000 with a maximum loss of \$500,000. Premium is 7% of the sum insured. The policy is set 30 days prior to the 45-day risk period.

At the end of the risk period:

Scenario 1 - the maximum temperature was not greater than 27° the cover would expire with no payout, yet the farmers received the expected yield.

Scenario 2 - the maximum temperature on one day was 29° which represents two heat stress units with the potential yield loss of 8% or 0.106t/ha. The payout would be \$100,000 which is approximately the same as the monetary value of the yield loss based on historical prices of \$750/t.

Scenario 3 - the maximum temperatures recorded 28°, 29° and 30°. The number of heat stress units totalled 6 so potential yield loss was 24% or 0.32t/ha. The payout would be \$300,000 which is approximately the same as the monetary value of the yield loss based on historical prices of \$750/t.

All parameters can be changed to suit the farmer expectations and perceived risks. Premiums range from 5% - 10% of the sum insured. Temperatures are measured via BOM grid or Weather Station.

[Request a Quote](#)

Next Steps

So, where to now? If you like what you've read or have any further questions please get in touch.

Email: info@celsiuspro.com.au

Phone: 9994 8009

From here we can confirm or refine your Cover and process respective payments.

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Additional Services

Data Settling Agents

Using our access to national weather data CelsiusPro can settle any data disputes or anomalies.

Weather Certificates and Nat Cat Solutions

Get cover from adverse Nat Cat and Weather events such as cyclone, drought, excess rain, or extreme temperatures for any business.

Business Resilience and Sustainability

CelsiusPro, with over 2000+ climate-related Assignments, 500+ Clients in 50 countries can provide a simple to understand and easy-to-read Climate Change - Business Resilience and Sustainability Report which will assist Companies and Directors in discharging their climate change disclosure obligations and liabilities.