Final Report - Climate Monitor, June 2022.

DCAP 2.1 - DAF #7 Project

"Climate Monitor - an online interactive Horticulture focussed climate interrogation and analysis tool to drive improved horticulture supply chain climate risk decision-making and enhance adaptive capacity to climate change impacts".

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Project Team Members – Dr Neil White, Principal Scientist, Horticulture and Forestry Science, DAF Qld; Peter Deuter, Horticultural Consultant, PLD Horticulture & Yiru Chen, Horticulturist, Horticulture and Forestry Science, DAF.

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Queensland Government

Summary

The DCAP Climate Monitor Web-tool is publicly available on the Queensland Governments' Long Paddock website. Throughout the last 12 months the DAF #7 Horticulture Team has worked and liaised closely with our collaborating Queensland fruit and vegetable producers as well as National Supply Chain Managers, in order to understand their needs and to develop and test the unique Climate Monitor Web-tool. Input, comments, discussions and feedback from other primary industry sectors was also taken into consideration when developing Climate Monitor, ensuring broad cross-industry relevance and appeal. Climate Monitors' location (farm) specific climate analysis capability is equally valuable to broadacre cropping (e.g., sorghum, wheat, chickpeas, cotton) and cattle operations, where knowledge of planting windows (maximum and minimum temperature), as well as heat stress factors are major drivers of animal performance, as well as crop yield potential and profit.

Climate Monitor allows the user to select a chosen location (within Australia) then easily analyse and graph rainfall, minimum and maximum temperatures for all available years, calculate thermal time (chill and heat units based on the users selected base temperature) and graph temperature thresholds for their chosen location.

Temperature is a **critical driver of horticultural product quality, yield** and **income** potential. Take for example a horticultural producer or supply chain manager who needs to avoid production locations and planting times that they know will reduce yield and quality. Savvy sweet corn producers know that locations and times of the year that have a high probability of experiencing more than 3 consecutive days above 35^{o}C during the crops' "silking phase" (pollination) will have a high probability of suffering severe yield loss.

Climate Monitor allows horticultural business managers to refine and improve their business decisions, such as planting dates, crop choice and variety, to maximise their chance of harvesting a high-quality crop by identifying their optimum crop growth time slots, locations and micro-climates (see Appendix 1).

Climate Monitor supports business managers to prepare management interventions in advance by comparing current climate records and additional BoM 5day forecast data with historical "norms". Users can easily analyse and review, if and how climatic conditions have changed in their current growing locations. Users can research alternate "ideal" production locations and move their production footprint to invest in those – should they decide it is financially beneficial.

Climate Monitor:

- Turns Australian Bureau of Meteorology (BoM) weather and climate data into easily useable information, to improve horticultural and agricultural business managers' knowledge and management decisions.
- Quickly turns location specific, current and historical climate data, into easily understood graphics, filling knowledge gaps to improve business decisions.
- Will bolster Queensland industry resilience to climate variability and climate change impacts by delivering locally focussed, science-based analysis via the Queensland Government Long Paddock website.
- Uses SILO climate data and turns pages full of columns of numbers into easily interpreted graphics, allowing easy comparison of current climate variables with previous climate records, to support better business decisions.

- Analyses and graphs rainfall, minimum and maximum temperature for all available years, calculates thermal time (chill and heat units) and is able to retrieve and graph crop specific critical temperature thresholds for the crop and farming location that interests the user.
- Graphically shows the year-to-date climate variables compared to previous years.
- Is equally valuable to broadacre cropping (e.g. sorghum, wheat, chickpeas, cotton) and grazing operations, where knowledge of planting windows (maximum and minimum temperature) as well as heat stress factors are critical drivers of potential yield and profit.
- Allows users to optimise the timing of critical farm inputs and supports strategic investment decision-making, while taking climate change impacts into consideration.

Throughout the last 12 months the project team has engaged, discussed and sought ideas and input from our collaborating Lockyer Valley and Granite Belt farmers and supply chain managers. The team has also engaged with leading Granite Belt apple, pear and strawberry growers, including their unique climate analysis needs (e.g., Chill Hours) within Climate Monitor and raised their awareness of the Queensland Governments' DCAP initiative.

Climate Monitor prototypes were demonstrated and refined using feedback from our four local face-to-face Industry forums, and in response to comments and suggestions made during one-on-one personalised demonstrations and location analysis assessments. Our June 2022 Lockyer Valley and Granite Belt industry Climate Monitor live demonstration sessions proved very popular and were attended by many local growers, a number of staff from **Growcom**, staff from USQ's **Future Drought Fund Hub**, a new local reseller and an **AusVeg Industry Development Officer** (IDO). Just days after our Granite Belt meeting the Granite Belt IDO made contact and requested, we run a second special demonstration of Climate Monitor at the Granite Belt Growers Assn end of season function. This live demonstration to over 30 attendees from a range of horticultural businesses generated much interest and further extended local awareness of the DCAP initiative.

Our collaborators

The DAF #7 team have in the last 12 months actively engaged with vegetable growing businesses in the Lockyer Valley and Granite Belt regions as well as with nationally significant Queensland based supply chain managers. Additionally we have engaged with, presented, discussed and listened to apple, pear and strawberry growers in the Granite Belt. We have also discussed Climate Monitor features and analysis capability with cross-industry groups. We have presented live demonstrations to Growcom and Future Drought Fund officers.

Many of our vegetable business collaborators have production systems in multiple locations across Queensland and in some cases also have directly owned interstate production farms and/or contract growers in other states and locations. Several of the larger production operations we collaborate with are vertically integrated. They own and manage large scale packhouses and packing and distribution centres in Queensland and interstate. Several strawberry businesses operate in the Granite Belt during the summer and in the Glasshouse Mountains area throughout the winter. These businesses supply fresh and prepacked fruit & vegetables to the large supermarket chains and wholesale markets throughout the East Coast of Australia. A number of these businesses have already requested a Climate Monitor analysis of an alternate production site where they are considering establishing a second SE Queensland farm.

More details on our collaborating businesses are contained in our two other DAF#7 2021-22 Final reports (Refer to the Experimental Forecasts & the *HortCarbon Info* Final Reports).

Project output highlights and accomplishments.

Since July 2021, we have thoroughly reviewed and investigated the "climate analysis" needs and wants of Queensland horticulture and agricultural industry business managers. This information was used to devise, develop and test the interface, analysis options and outputs of Climate Monitor. Comments and feedback from "live demonstration sessions" were used to continually improve the Web-tools capability.

We have:-

- Included all high quality BoM weather stations as well as access to the 5km interpolated grid. This allows data analysis at any user chosen location in Australia.
- Included the ability to compare up to 3 locations in a single analysis.
- Enabled users to compare and contrast, historical temperature, analyse temperature thresholds and review and compare heat units (potential growth rate) and chill hours.
- Included rainfall analysis – both annual and seasonal.
- Responded to industry requests and developed and included evaporation analysis.
- Demonstrated and discussed with industry what climate factors they needed to analyse and the best output format.
- Climate Monitor was featured in the July DCAP Ag eNews.

Project impact.

Climate Monitors' features and analysis power have been highlighted during live demonstration sessions at our 4 interactive local meetings, demonstrated at the recent Granite Belt Growers Annual Meeting, explained to Healthy Land and Water meeting attendees and used during individual, business focussed, one on one sessions.

The project team have already fielded and responded to 6 individual location comparison requests from interested Queensland businesses. Three of these appear in Appendix 1.

A National supply chain production manager is very interested in using Climate Monitor to compare and contrast existing and potential new grower supplier locations – in order to "smooth out" current supply gaps and overlaps.

This practical agricultural industry focussed work, has empowered Queensland businesses to harness, and better and more easily use thousands of existing localised climatic records to their advantage. The simple user interface and easily understood graphical output are key features.

External and cross-industry interactions

- Peter Deuter introduced Climate Monitor to local farmers and resellers at Gatton and Boonah community meetings in October and November 2021 as an invited speaker for the Healhty Land and Water initiative.
- David Carey contributed to a USQ mango industry focussed project, explaining that the analysis power of Climate Monitor would support their work & benefit the industry.
- Neil White recently conducted a one on one Climate Monitor demonstration for a National supply manager, the feedback from this business was very valuable.
- Climate Monitor was demonstrated and explained to USQ Staff, Growcom staff and two Ausveg IDO's in June as part of the Granite Belt Growers Ass'n Annual Meeting

Climate Monitor - functionality overview.

The "Welcome Screen" introduces and explains the DCAP Web-tool.

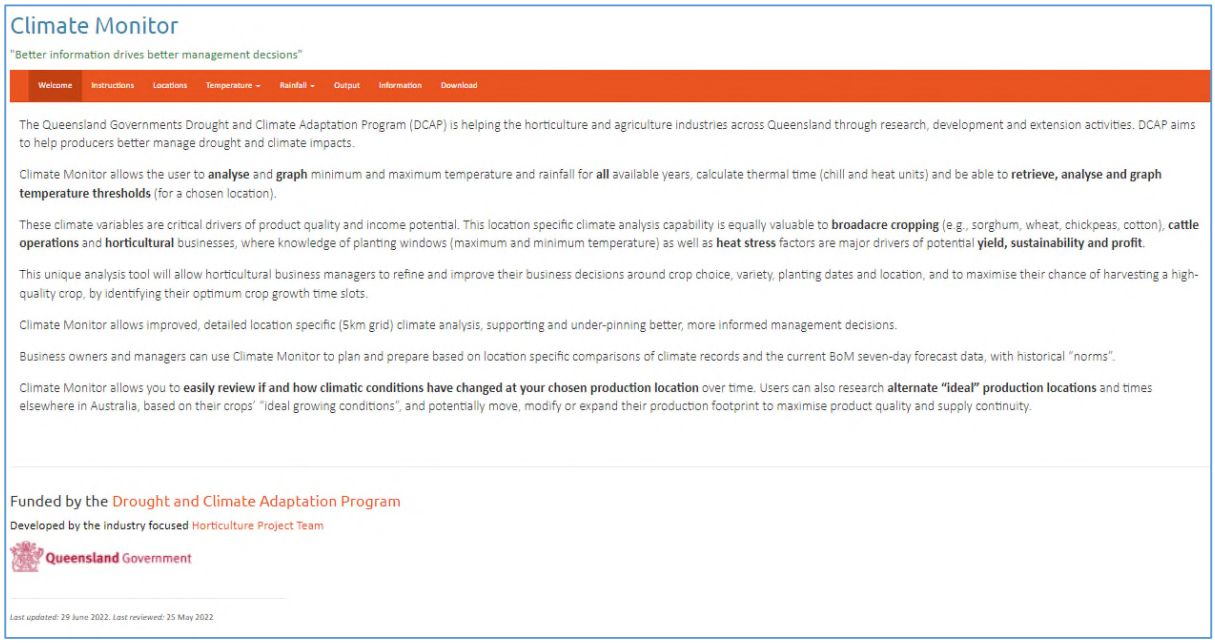

Figure 1. Climate Monitors' welcome screen highlights the DCAP initiative and explains the aim and capability of the web-tool.

Instructions.

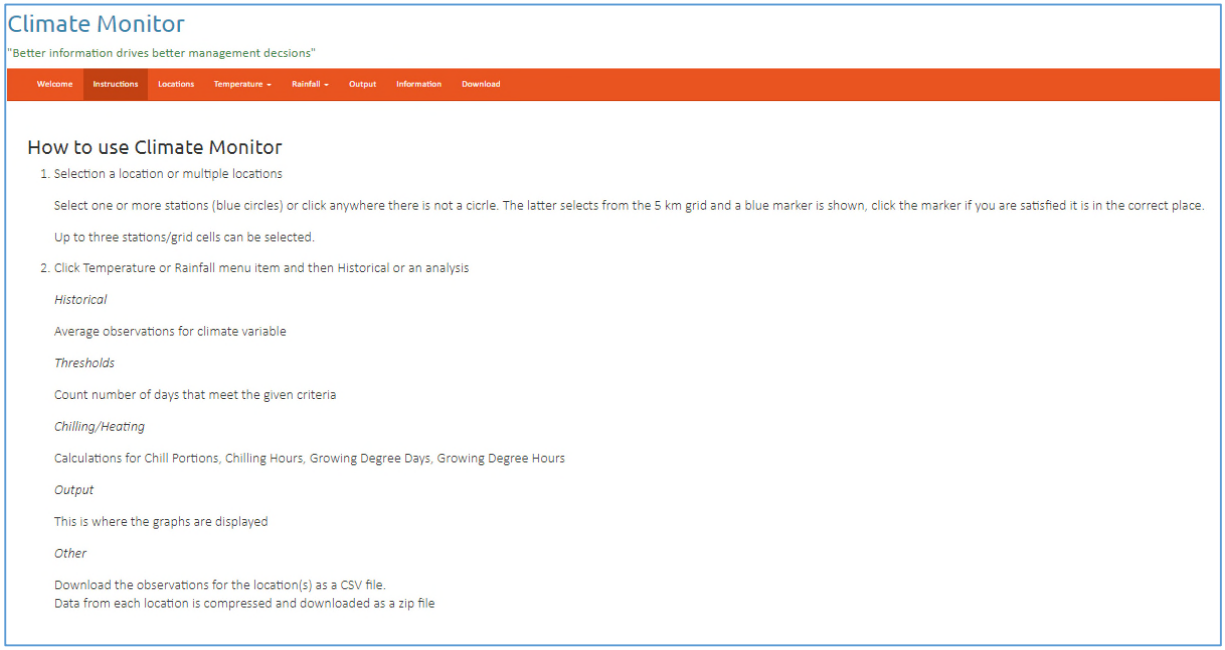

Figure 2. The Instruction Screen explains how to conduct a location analysis.

The locations tab.

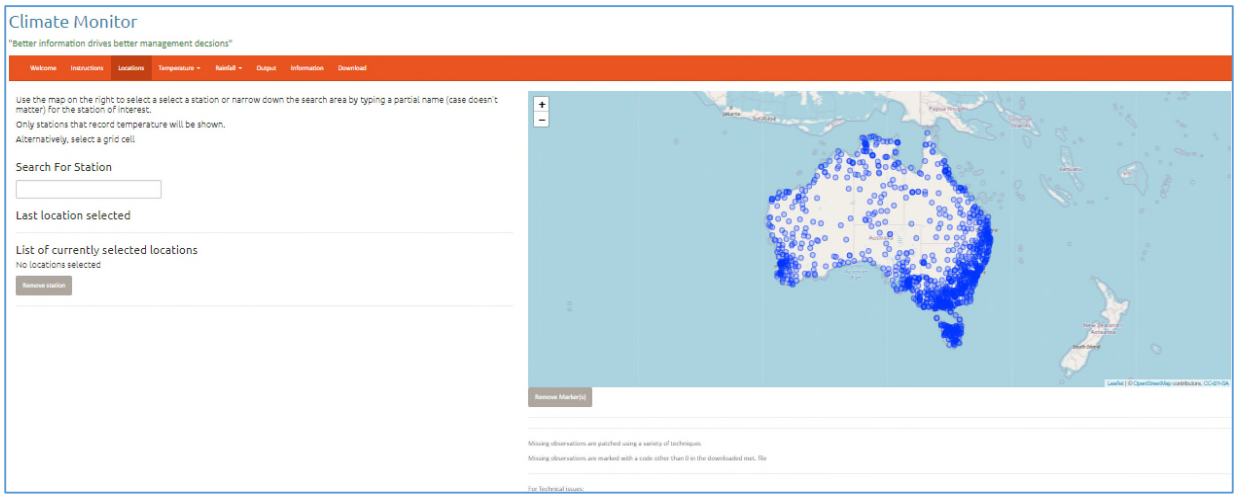

Figure 3. The Locations tab allows the user to type in or select their chosen location or locations (up to 3 high quality BoM weather stations or grid (5km^2) locations can be compared).

Compare two locations - e.g. Kingaroy & Murgon (historical range).

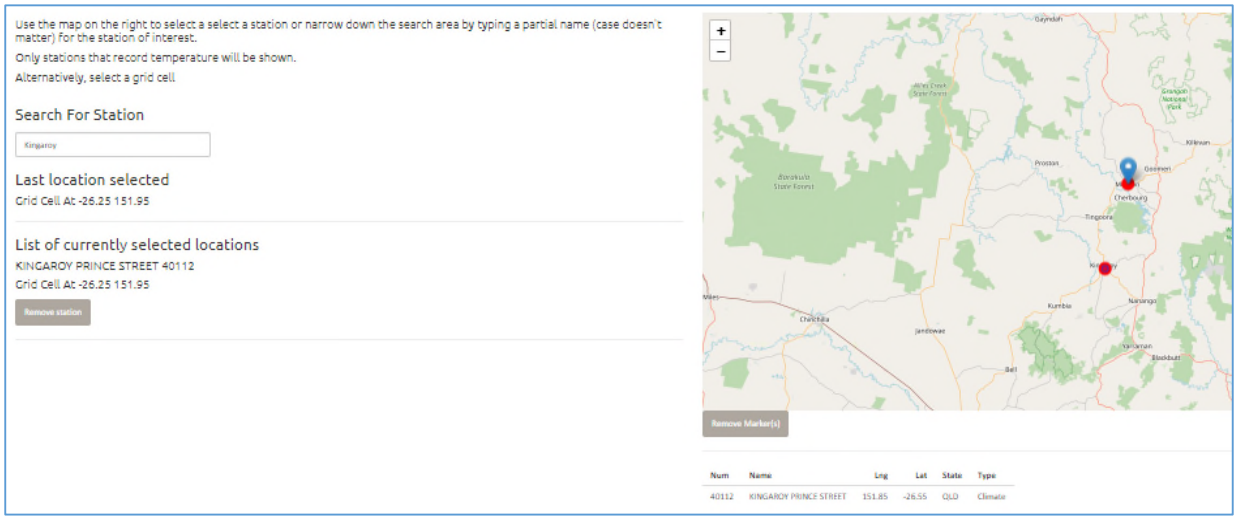

Figure 4. The user selects a location (or locations) by choosing a BoM station or marking a chosen map site.

The user then chooses the weather parameter they wish to learn more about. e.g. -Temperature, then which temperature analysis type (Historical/ Thresholds or Chill/ Heat). Below is an example of an Historical analysis.

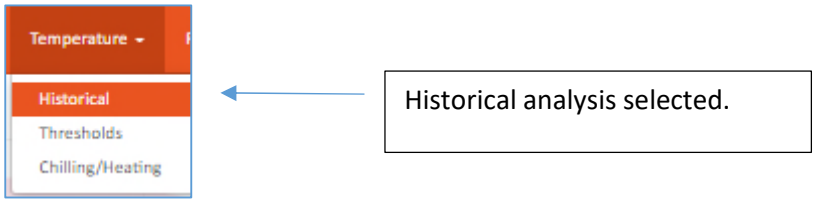

Figure 5. The Temperature Tab has several sub-options.

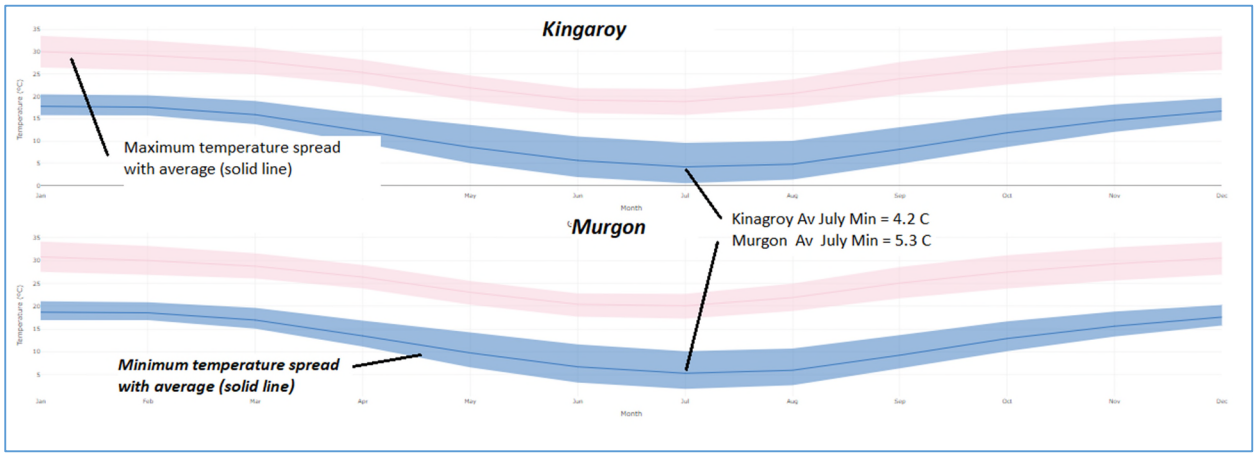

Figure 6. Graphic of a requested historical temperature comparison. On the Web-tool screen - rolling the mouse displays the actual data (July average figures typed for this report).

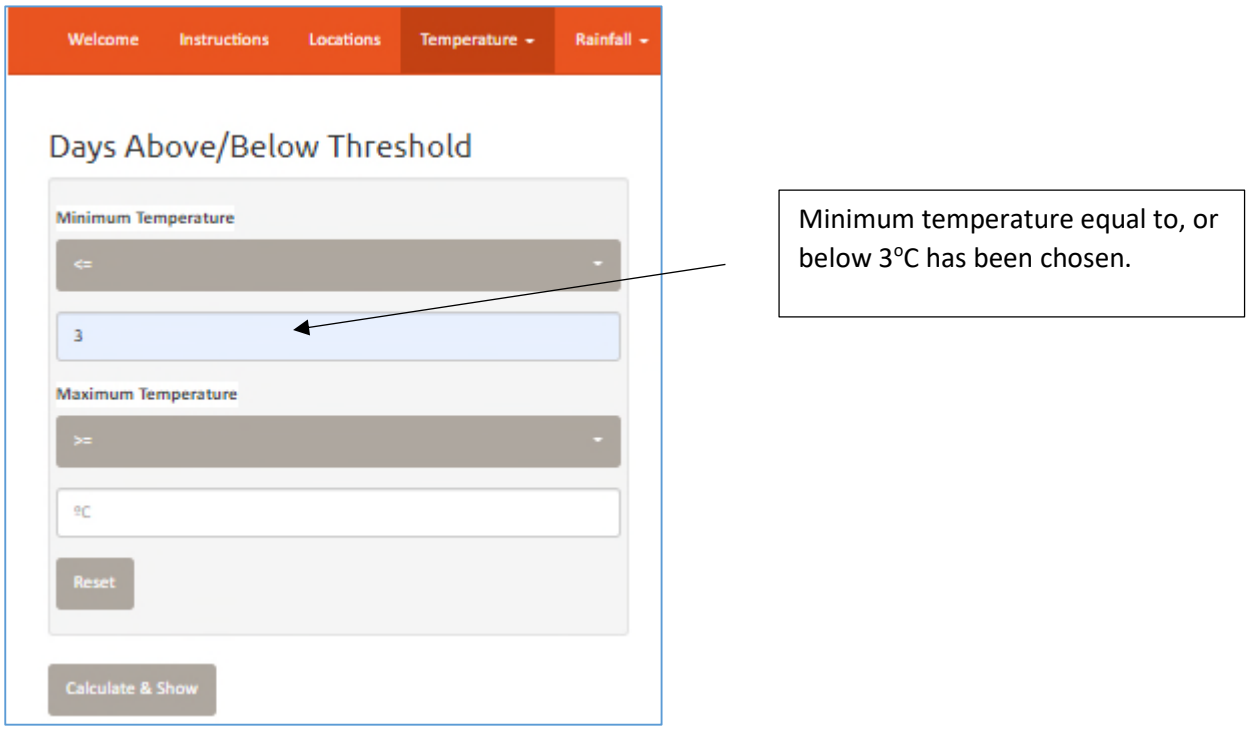

Figure 7. The user has chosen to analyse minimum temperature and number of days = or < 3°C.

Above is a "screenshot" of the Temperature tab, [Thresholds optional analysis]. In this Tab the user can analyse minimum temperatures or maximum temperatures (above or equal to a specific temperature they choose or below and equal to that threshold). Here the user has selected the number of days in every available year where the temperature has been equal to, or below 3°C (in this example). The output results apear in the graph below. In this example the chosen locations for comparison were the UQ Gatton BoM weather station and the Cambooya township (on the Eastern Darling Downs). Gatton is a winter vegetable production area, while Cambooya is a summer production location. The colder winter temperatures in Cambooya reduce plant growth rates and the higher number of cold days mean vegetable quality is inferior in Cambooya in winter, compared to Gatton. The vertical axis shows the number of days at the chosen location that were 3°C or colder for each month and all years. **Importantly** the vertical axis scale for all compared locations is **displayed with the same scale, allowing quick, easy comparison**.

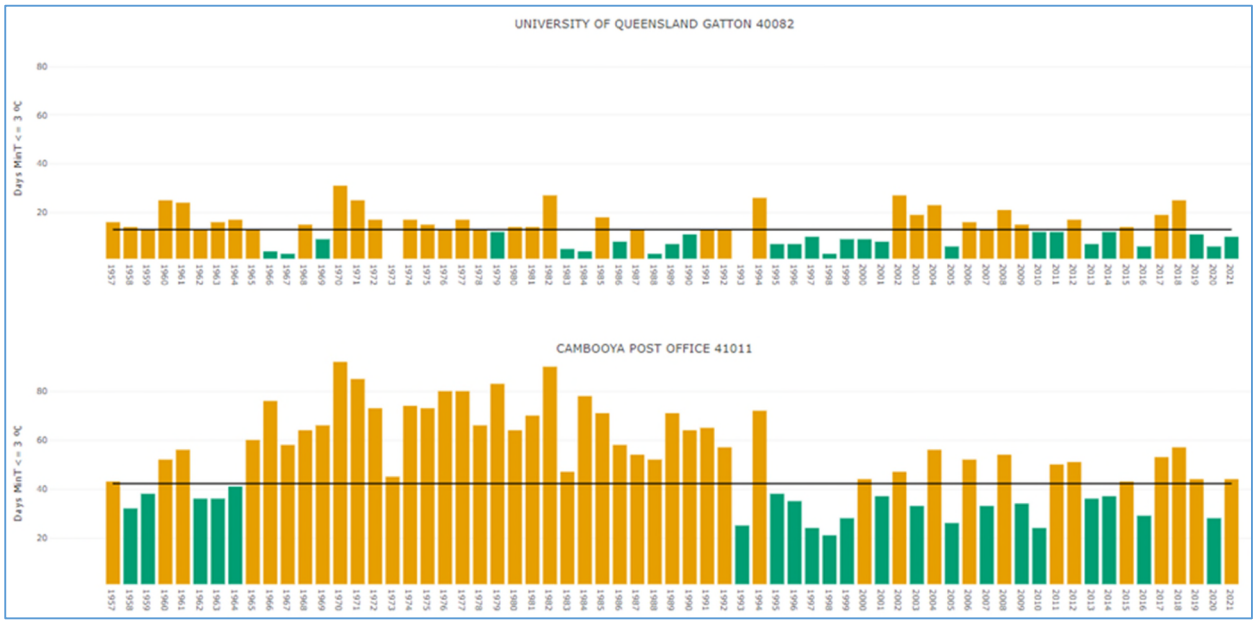

Figure 8. The results of the analysis are displayed with overall mean (horizontal black line) for the location. When done on line, the actual yearly total days number is displayed to the user as they move their mouse across the graph.

This analysis shows why a major Queensland salad growing and packing business farms in the Lockyer Valley through winter, not at their Cambooya farm. They use the Cambooya farm in summer to maximise year round quality – it's just too hot for the leafy crops in the Gatton summer. This business moves location to match best crop growing temperatures to maximise yield, quality & shelf life.

A Climate Monitor comparison of days above 34° C (below), clearly shows this difference.

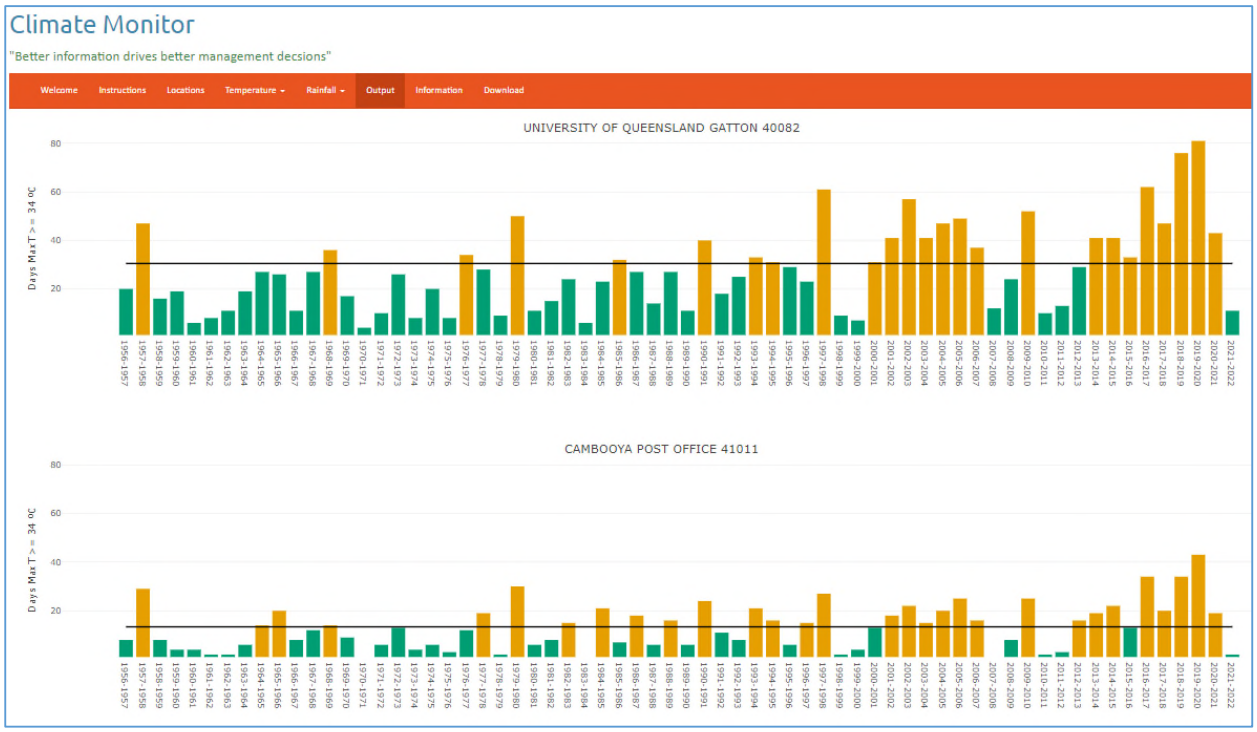

Figure 9. Climate Monitor used to compare days that reached 34^{0}C or above in the two farming locations.

Climate Monitor is a powerful and useful tool allowing a grower or supply chain manager to compare and contrast locations, looking for the specific climatic conditions they know they require to grow a

quality crop. The grower or manager can compare their current location and conditions with any other location they choose to analyse. They know what and when they can best grow at their current location, so they can easily compare and decide if an alternate location is viable, or offers the opportunity to extend their production window.

Temperature Tab - Chill or Heat (growing degrees).

The final temperature tab analysis option allows the user to analyse, compare and track Chill and Growing Degree days or hours. This is a measure of temperature based growth potential, using a base temperature chosen by the grower who knows from experience at which temperature the crop starts to perform at its best.

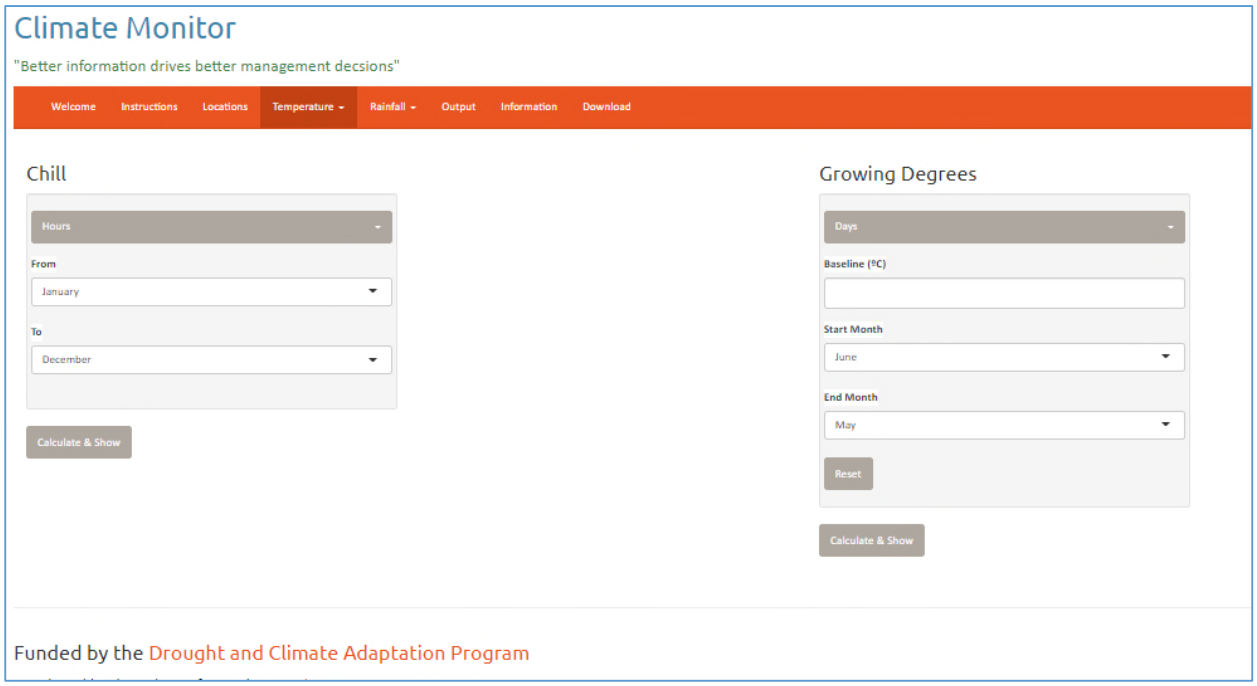

Figure 10. Above is a "screen shot" of the Chill & Growing Degrees analysis sub-options.

A Granite Belt apple or fruit grower may be interested in analysing Chill (say this year to-date compared to previous years). A capsicum or tomato grower may be interested in growing degree calculations based on days or hours above a base temperature which they choose - say 20°C.

A cotton or sorghum grower may be interested in the number of days above say 25°C at their farm or another location they may be interested in comparing or leasing.

Rainfall tab.

Annual or Seasonal rainfall at a location or up to three locations can be compared at the same time. This is valuable and useful information for a business wanting to expand or even just lease country in another location. The user can compare annual data, single months, or an entire season.

In **response to recent industry** feedback the ability to analyse **evaporation has** also **been included**.

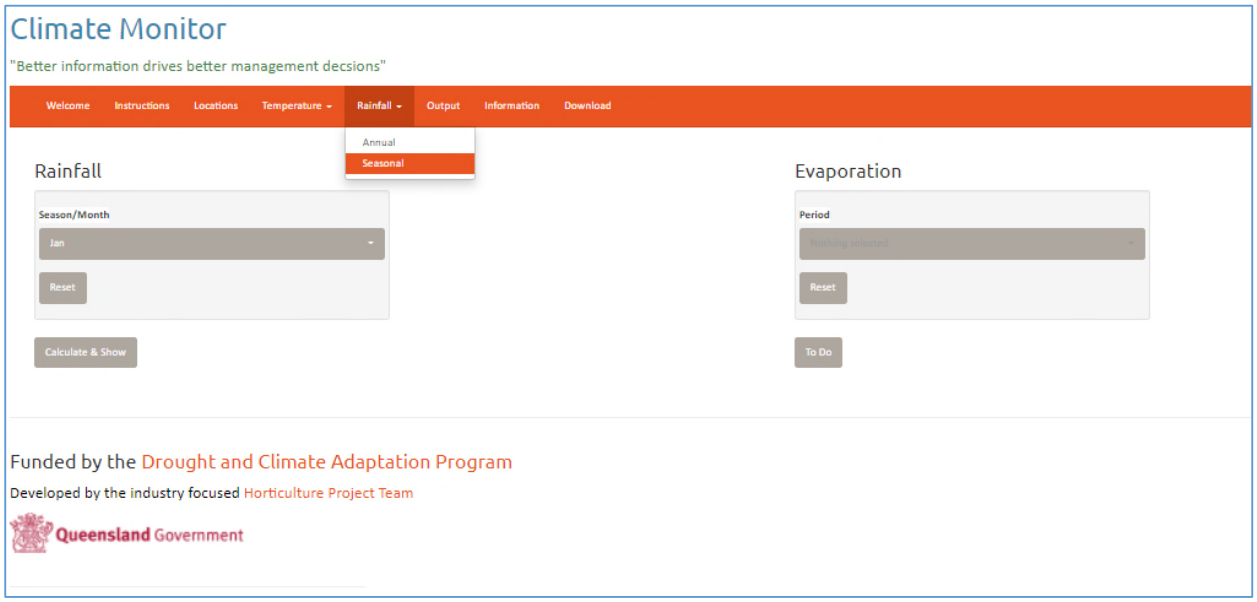

Figure 11. The rainfall tab presents the user with extra analysis options.

Information tab.

Climate Monitor also contains an **Information tab that offers a link to relevant BoM temperature, rainfall and forecast products** that are valuable to agricultural business managers.

Climate Monitor is user focussed, also allowing easy access to relevant current Australian forcast information.

This tab also includes a handy link to other sites of interest.

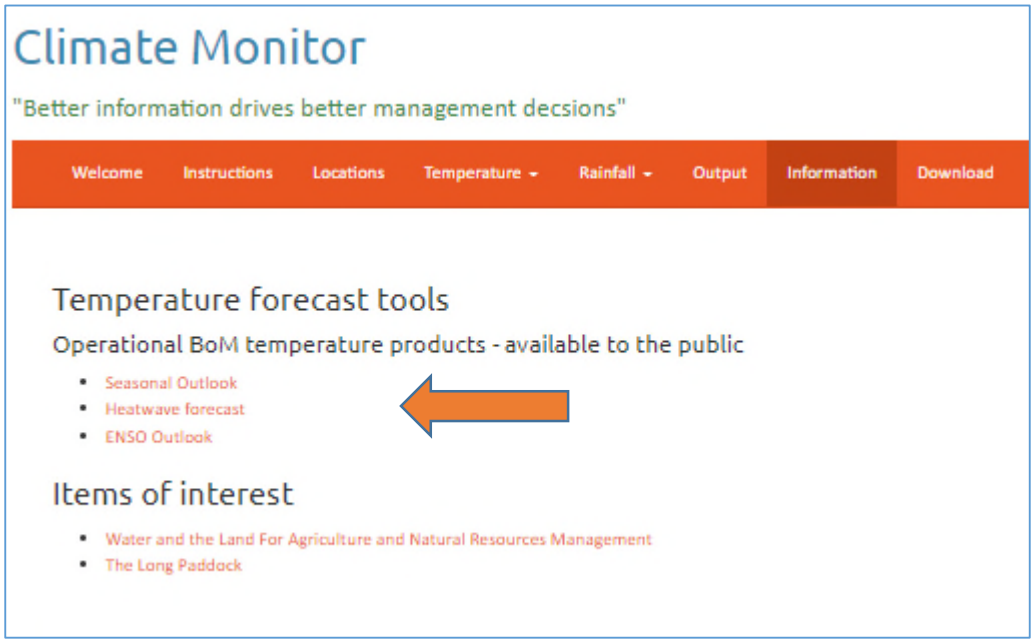

Figure 12. Climate Monitors' Information Tab provides easy access to relevant Australian forecast products.

Climate Monitor – what do collaborating businesses think?

Throughout the last 12 months, the DAF #7 Horticulture Team has worked and liaised closely with our collaborating Queensland fruit and vegetable producers as well as National Supply Chain Managers in order to understand their needs, and to develop and test the unique Climate Monitor Web-tool.

During each of our Lockyer Valley and Granite Belt face to face industry meetings this year (2 at each location) we have shared and discussed the latest version of Climate Monitor and asked for "full and frank" feedback and suggestions. This process, coupled with individual demonstration and feedback sessions, has informed and improved Web-tool development.

Below are the graphed electronic anonymous survey responses gathered at our recent May 2022 (Granite Belt) face to face, live demonstration session.

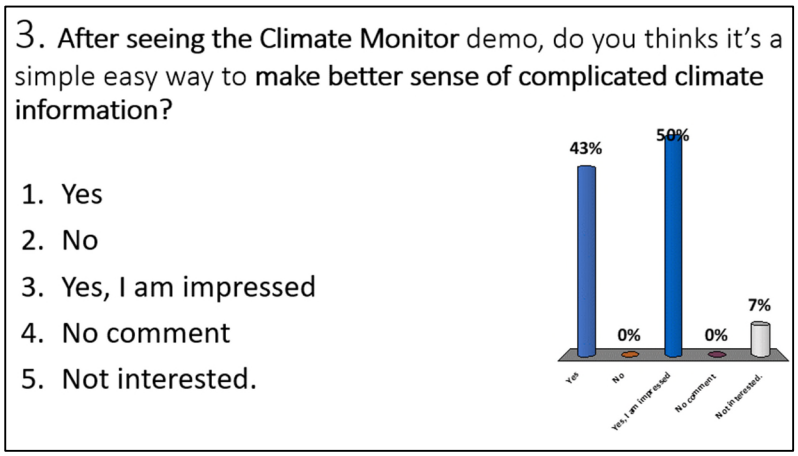

Figure 13. Granite Belt business managers feedback after the live demonstration.

On the night we also asked these business managers if there was another climate variable they wanted included in Climate Monitor. We suggested 3 extra climate parameters that we thought may be of interest (based on previous grower feedback). The voting results are below.

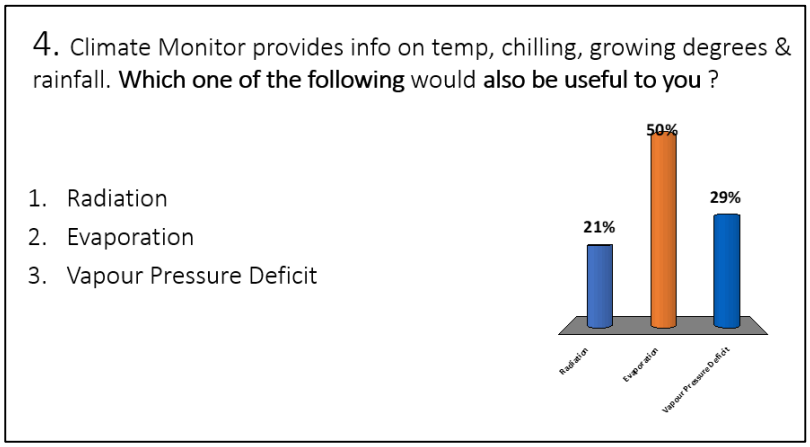

Figure 14. Opinion on the additional climate parameter the Granite Belt group thought should be included.

After seeing the live demonstration of the "final prototype" Climate Monitor at the Granite Belt meeting in mid-May, were industry interested in using it?

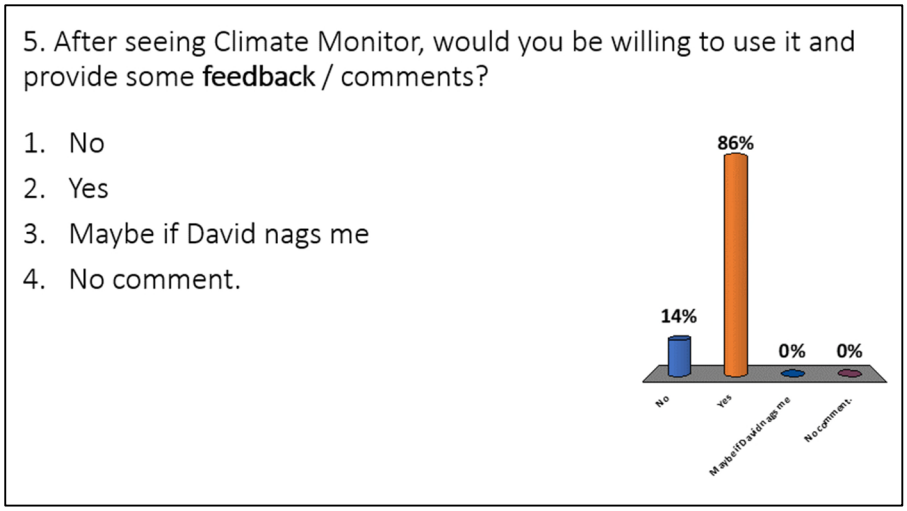

Figure 15. Granite Belt meeting responses to the "would you use it?" question.

Enthusiasm levels and positive comments were also high at the Lockyer Valley meeting but no specific Climate Monitor survey responses were collected at the Lockyer Valley meeting, which was held two weeks before the Granite Belt meeting. A slightly earlier iteration of Climate Monitor was "demonstrated live" at the meeting. Survey questions at that Lockyer Valley evening centred more on HortCarbon Info feedback.

Climate Monitor is cross-industry ready.

Climate Monitors' location (farm) specific **climate analysis** capability is **equally valuable to broadacre** cropping (e.g. sorghum, wheat, chickpeas, cotton) **and cattle operations**, where knowledge of planting windows (maximum and minimum temperature) as well as heat stress factors, are major drivers of animal performance, yield potential and profit.

Project staff have already utilised Climate Monitor to analyse and compare production locations and climate variables for a number of commercial operators that have approached staff since seeing a live demonstration. Several of these Climate Monitor location comparisons are described in Appendix 1.

Climate Monitor is publicly available on the **DCAP website.**

The Project team would like to thank the Queensland Government,

the DCAP Manager & the Steering Committee for funding this work.

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Appendix 1.

Climate Monitor - analysis, real-life decision support request # 1.

After seeing the new Web-tool demonstrated at a recent meeting, a business manager had an idea. He was interested in comparing and contrasting monthly temperature ranges and extremes at two locations within the Granite Belt production area.

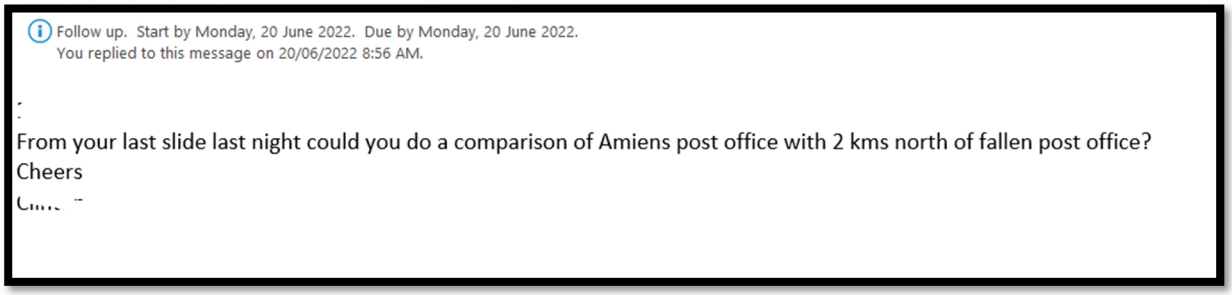


Figure 16. Business managers' request for information.

The grower farms in multiple Queensland locations and currently leases several farms on the Southwestern side of Stanthorpe. He was interested in leasing more land locally and was aware of a farm with adequate water on the North-eastern side of Stanthorpe, near Dalveen, but had no knowledge or information how the temperatures and seasons in that area compared to his existing production site.
After asking around locally he "thought" it would be slightly warmer in winter at Dalveen, with less frosts but similar summer temperatures.
We used Climate Monitor's "historical analysis" capability to analyse and provided an accurate factual analysis of the two farm locations the grower requested.

Project staff highlighted the July and December Median temperatures at both locations and emailed this information to the business manager – providing certainty, so enhancing his knowledge and improving his decision making.

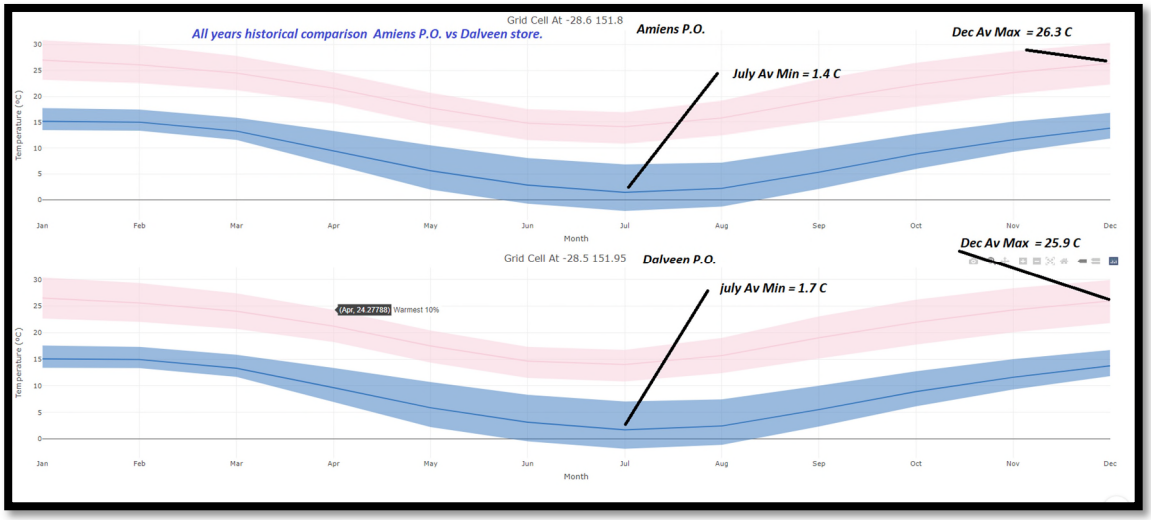


Figure 17. Climate Monitors' detailed analysis and graphical display of the temperature range each month, in all years at the requested farm comparison locations.

Climate Monitor – analyses years of ***complex climate data*** *and provides* ***accurate, easily understood graphical information*** *as requested by the user.*
Complex data is analysed and graphed – ***allowing informed science-based decisions****.*

Figure 18. The two farming locations are only 25 km apart, but the climatic and growing conditions between the two farms are quite different. These differences will impact crop quality and yield potential. Climate Monitor analyses, quickly highlights and quantifies these differences.

Thanks to Climate Monitor - the business manager now had better information and could make a better, more informed decision.

Climate Monitor analysis - real-life decision support request # 2.

Climate Monitor location analysis request - Granite Belt compared to Willowbank, SE Qld.

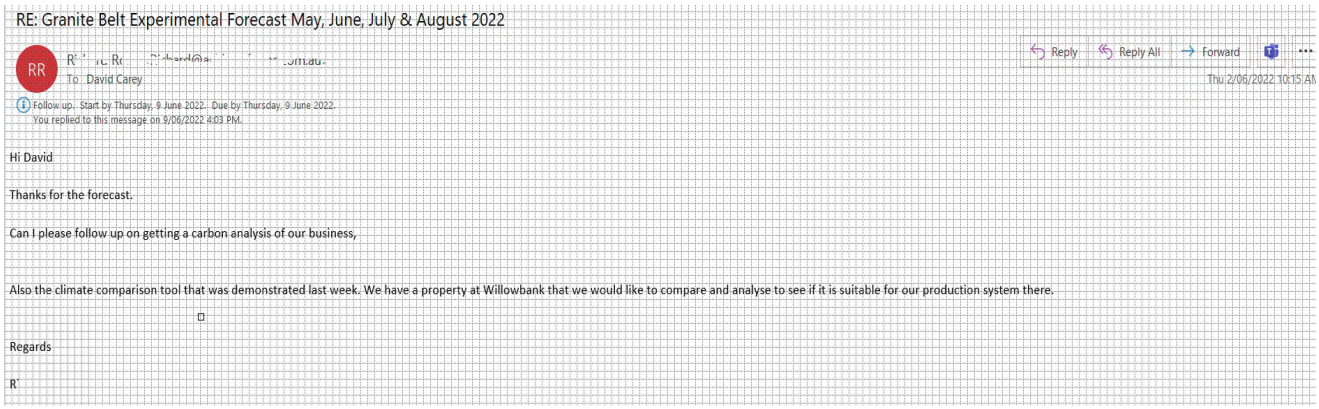


Figure 19. Grower request email.

This business manager was interested in comparing two properties, an existing Granite Belt farm and an available leasehold farm (with good water supply) to potentially extend and lengthen her current horticultural production window.
The email request (above) was followed up by a telephone discussion to better ascertain what sort of information the business manager was interested in.

Accessing, downloading and then working out how to arrange, analyse and interpret the relevant data is usually a **complex task**. This task is even more difficult (almost impossible) if you want to analyse a location that is not very close to an existing BoM weather station.
Climate Monitor makes this analysis possible. The user chooses the location or locations of interest, then can decide on the climatic variables (temperature, rainfall, evaporation) and also select thresholds of interest – then view the easily understood graphical output.
Climate Monitor accesses any location Australia wide. 5 km^2 gridded data is derived by interpolating the BoM station records. The gridded datasets are provided by the Qld Dept of Environment and Science (DES)
(Weblink: https://www.longpaddock.qld.gov.au/silo/gridded-data/).

(A) - Temperature.

The business manager wanted an overall comparison of the two farms climates. She was interested in how the Granite Belt 'home farm' average annual temperature range compared to the Willowbank lease property.

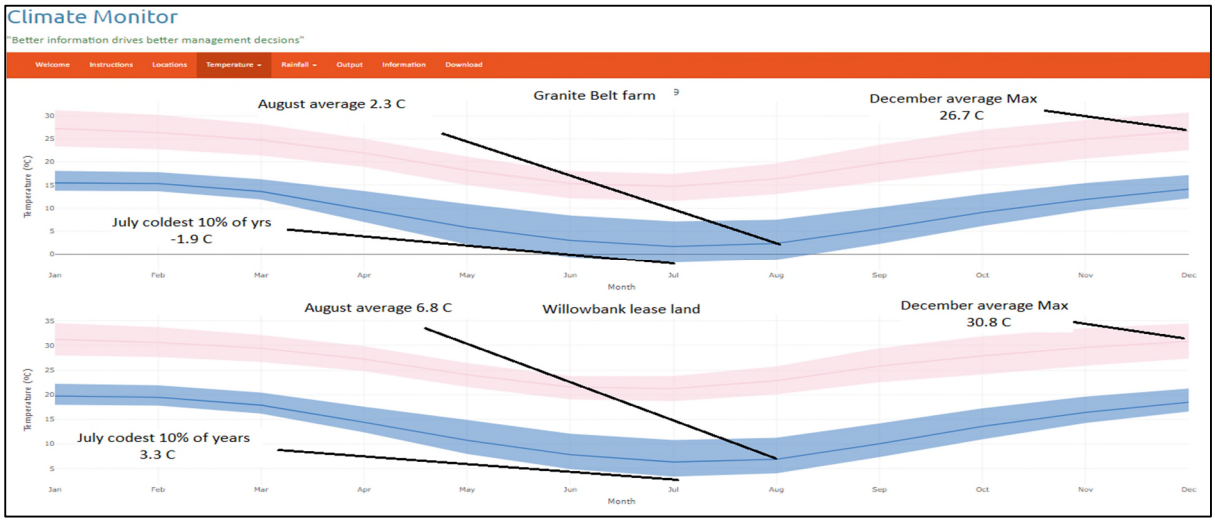


Figure 20. Granite Belt and Willowbank location compared all years and months with key months nominated by the grower labelled.

The Granite belt is cold in the winter months, and currently the farmer ceases production in late April or early May, as cool temperatures slow/stop plant growth and quality drops dramatically. The analysis above (as labelled) confirms that the Willowbank location is considerably warmer (5.2°C on average) in July in the coldest 10% of years on record. The August average minimum temperature is 1.1°C warmer and most importantly the graph displays that early spring temperatures at the Willowbank location warm up considerably faster than the Granite Belt farm. Through the summer, the Willowbank location is hotter [30.8° C compared to 26.7°C]. There is potential to produce vegetables later into autumn and earlier in the spring at the Willowbank location. The business could extend its production season, maintain its supply of high-quality products, and maintain the productivity and earning potential of its harvesting staff – currently reliant on the Granite Belt farm.

The business manager was also interested in seeing a comparison of the growing profile of the two locations. She requested an analysis of the occurrence of days that achieved her "ideal" growing temperature envelope of 10°C to 33°C.

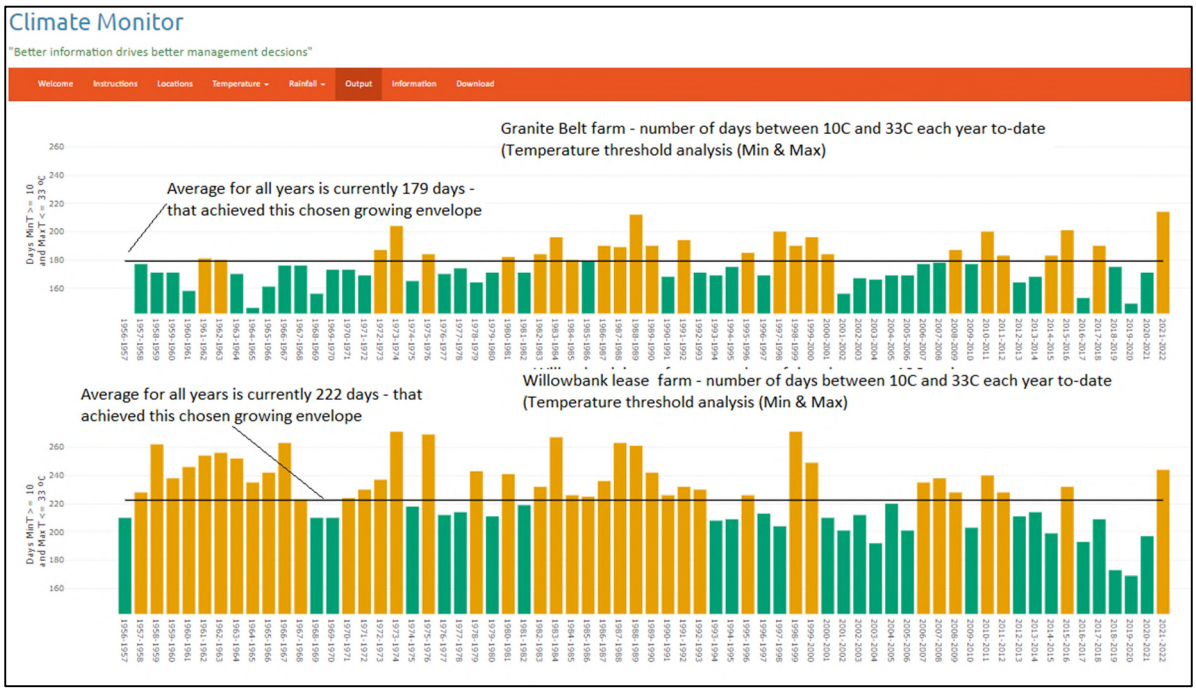


Figure 21. Number of days at both locations in all years when a 10°C minimum and a maximum up to 33°c was recorded.

The grower selected minimum and maximum Threshold analysis ("growing temperature envelope"), underlines the warmer profile of the Willowbank location.

(B) - **Rainfall distribution**.

The business manager was also interested in the total rainfall history of the Willowbank location compared to the Granite Belt production farm. "I am interested in totals and the spread of rain through the year".

Figure 22. Historical annual rainfall comparison at the two farm sites.

Climate Monitor rainfall analysis can be carried out in a manner that suits the user, annually (above), for a chosen season or for a chosen month.

The business manager was very pleased see the Climate Monitor results and is seriously considering her next step.

Did the business manager sign the lease?

Once Climate Monitor is available on the DCAP (Hort) Long Paddock **site, we suspect she and the other business partners will run additional, more detailed comparisons, before making a final decision.**

Climate Monitor analysis, real-life decision support request # 3.

In February, this year a Wholesale Market agent emailed the Project Leader and asked if he was able to access monthly soil temperature data for Bundaberg and Gatton from the BoM historical dataset. The Wholesaler was interested in growing and obtaining a reliable Sweet Corn supply that would be available to him, prior to the Lockyer Valley season.

The Project Leader requested the soil temperature data for the locations of interest via the BoM data request website (a cost recovery-based service) – planning to receive them and then just pass them on (as an excel file – or with a lot more work as a comparison graph). After 2 weeks an email came back from BoM stating that "not all the data was available", only selected BoM stations recorded soil temperature and some of those had technical issues.

A further request for other nearby stations was also unsuccessful and the issue languished on the "to-do list" for several more weeks. The Wholesale Agent phoned again on the 24th of June only to be told soil temperature data seemed illusive.

With the latest version of Climate Monitor now complete, the Project Leader decided that "maybe a Climate Monitor analysis" would at **least provide some relevant data** to the Wholesaler, satisfy the client and be way to check the functionality of the updated Climate Monitor version.

The Wholesaler was interested in a comparison of monthly soil temperatures between Gatton and Bundaberg. He was obviously trying to determine how much warmer minimum temperatures were at Bundaberg compared to Gatton. He knew the earliest month he could "get-away with" planting in Gatton (Lockyer Valley) in winter, so a Climate Monitor comparison of minimum temperatures at both locations would be a very useful. This analysis should guide his decision making and answer his question "could he seed a crop earlier at Bundaberg, (and in what month) and how much earlier would this be compared to Gatton?".

Wholesaler follow-up email *– after initial request, a month earlier.*

On 24 Jun 2022, at 4:13 pm, David Carey <David.Carey@daf.qld.gov.au> wrote:

Hi N - I have had nothing back from BoM. I have chased them up twice. I think they are busy fixing Flood damaged gear.

Below is Max and Min range at both locations centre line in colour band is the mean. This plot is for every year since data was recorded.

Figure 23. Project Leaders' reply to the Wholesaler in the Brisbane Markets, after the initial request

Minimum temperature analysis.

The Project team utilised the power of Climate Monitor to compare and analyse the historical annual temperatures at the two locations of interest. Minimum temperature was the critical temperature that would determine the earliest seeding date, but the additional maximum temperature information would also be informative and of "interest".

This information as well as all the supported BoM data, easily downloaded via Climate Monitor, was emailed (see below) to the Wholesaler.

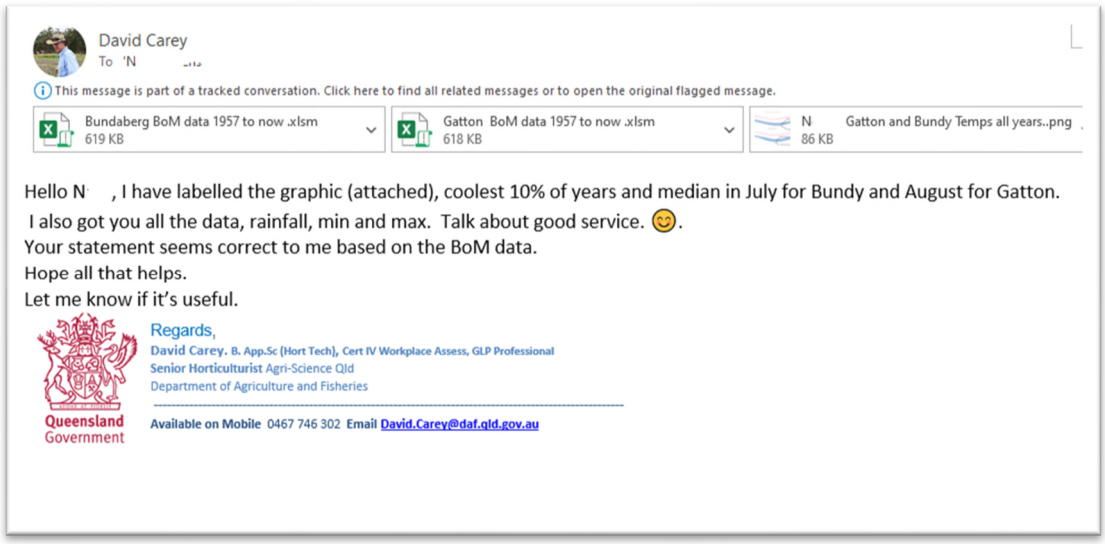


Figure 24. Email sent to Brisbane Markets Wholesaler with Climate Monitor information attached.

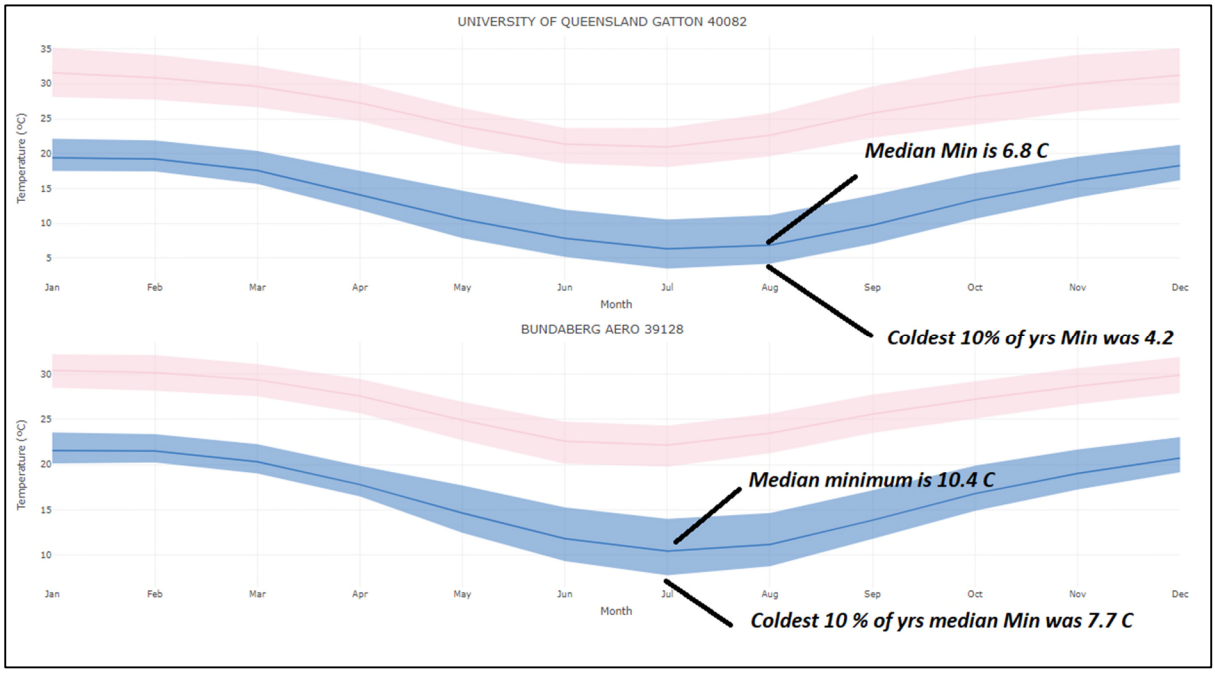


Figure 25. Monthly comparison of temperature (particularly minimum) at Gatton and Bundaberg.

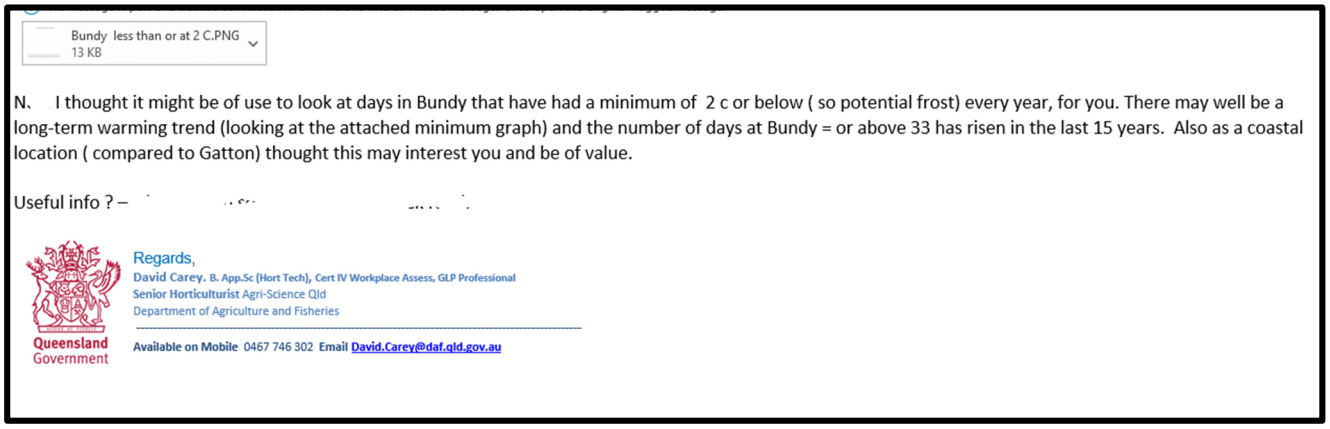
The above labelled Climate Monitor temperature and location analysis was included in the email to the Wholesaler.

Below is his reply after receiving the Climate Monitor information.

> Thanks Dave.
>
> I appreciate your time.
>
> As I mentioned, if Gatton can plant corn 1st week of Aug, can Bundaberg plant corn 1st week of June? Or July?
>
> Temp indications in the diagram would suggest yes.

The Wholesaler had read and interpreted the information that indicated planting a month earlier in Bundaberg was feasible. Even in the coldest 10% of years at the Bundaberg location in July, the average minimum was 7.7°C, while in Gatton in August the coldest 10% of years had a minimum of 4.2°C and a median minimum of 6.8°C. Bundaberg's median minimum a month earlier in July was over 3 degrees warmer, at 10.4°C.

The Climate Monitor team provided one more useful analysis – just to give the Wholesaler another relevant piece of information to assist his decision and improve his understanding.


Bundy less than or at 2 C.PNG
13 KB

N. I thought it might be of use to look at days in Bundy that have had a minimum of 2 c or below (so potential frost) every year, for you. There may well be a long-term warming trend (looking at the attached minimum graph) and the number of days at Bundy = or above 33 has risen in the last 15 years. Also as a coastal location (compared to Gatton) thought this may interest you and be of value.

Useful info ? –

Regards,
David Carey. B. App.Sc (Hort Tech), Cert IV Workplace Assess, GLP Professional
Senior Horticulturist Agri-Science Qld
Department of Agriculture and Fisheries
Queensland Government
Available on Mobile 0467 746 302 Email David.Carey@daf.qld.gov.au

Figure 26. Final email to Wholesaler with additional Climate Monitor information

Given the concern was about low minimums in Bundaberg, the attachment in the email above was the Climate Monitor analysis of days in all years at Bundaberg where the temperature was 2°C or below.

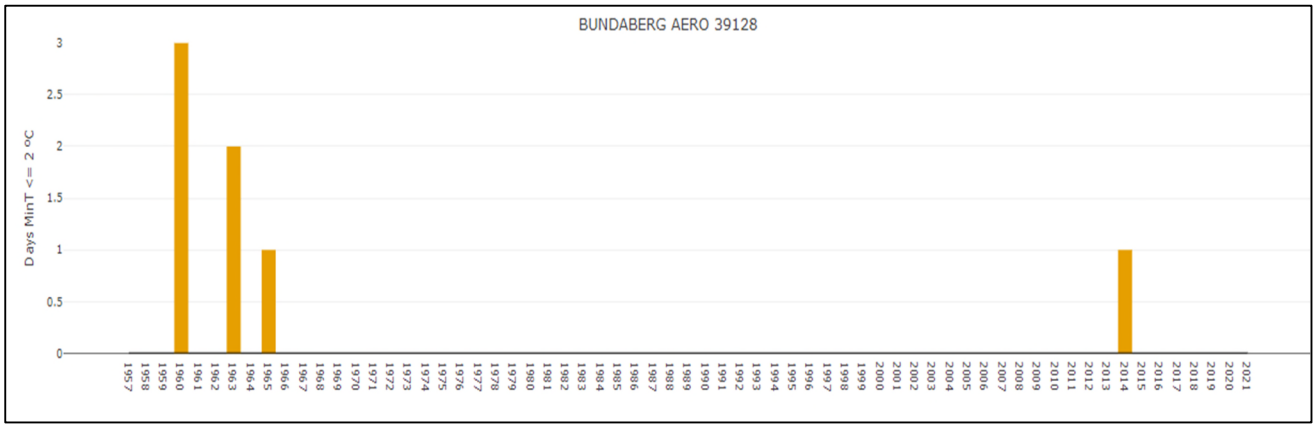


Figure 27. Number of days in which the temperature has been 2°C or lower.

So what?

Climate Monitor easily analysed the climate data available for the two locations of interest, then provided all the relevant data for the Wholesaler, in an easy-to-understand format.

A "better (more informed) **management decision", could now be made!**