FACULTY OF AGRICULTURE AND ENVIRONMENT

BETTER RAINFALL FORECASTS FOR GRAIN GROWERS
Dear *Name*,

Thank you being involved with this project and for supplying us with your rainfall data.

This report contains the results from a number of algorithms that we have applied to your data. I would like to emphasise that the algorithms are examples of what we can produce and if you would like any specific data to be analysed, we would be more than happy to oblige. The analyses we can apply to your data are constantly being updated, revised and improved, and so your next report will have some more focused information. As we progress, we would appreciate any feedback you may have as to the usefulness of particular aspects of these reports.

Throughout this update, reference is made to “your local BOM site” – This isn’t necessarily the closest BOM (Bureau of Meteorology) site to your property. Data from “your local BOM site” will either come from the closest high quality BOM site or a local BOM site with the longest data records. For your records, we have used BOM site *Number*.

We are currently working on a number of innovative initiatives such as an on-line portal for instant feedback as well as improving the current algorithms and generating new developments which will assist in transforming your rainfall data into more accessible, informative and valuable information.

In the meantime, we shall continue to supply you with updates as the project progresses. We would like to remind you though, that the information you receive about your property will be greatly enhanced with additional data-points, therefore if you could encourage others to get in contact with us, it will not only benefit them, but you as well. Accordingly, attached to this update is a promotional flyer which you can pass around.

If you have any questions about your data, this update or the project, please don’t hesitate to contact me.

Regards,

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The locality map shows *Property Name* in the center (marked red).

The black dots represent other data points around *Property Name*.

These data points are taken from Bureau of Meteorology (BOM) sites, other organisations and private records.

The greater the density around your property, the more accurate and detailed your feedback will be.

This graph shows the daily rainfall of your property (blue) as compared to BOM site *Number* (yellow).

While this plot is very simple, it provides you a visual comparison of your rainfall records to the BOM data available.

It may also show differences in extreme events, or highlight consistent variations over time.
The annual rainfall graph displays a comparison of *Property Name* with BOM site *Number*. From this, you may be able to decipher patterns regarding the rainfall at your property relative to the BOM site and consequently make assumptions based upon BOM forecasts.

While the annual information is quite simple, you may notice consistent differences between your property and the BOM site.

As we get more information, we will be able to show if these differences persist, and how this information can help your ‘reading’ of rainfall forecasts and other information.

This map displays the annual rainfall variation around your property for *Year*. Again, *Property Name* is located in the center of the map. We can produce similar maps for any year you would like.

As we only have data for specific points (i.e. the exact locations of the rain gauges) this algorithm calculates the most likely annual rainfall experienced between each point.

This map specifically shows how the rainfall varies across the landscape, based on the limited data available. By studying the plot, you may recognise differences in rainfall patterns across your neighborhood or property, which might not necessarily be reflected in regional forecasts.

Another application of this type of map is to examine rainfall patterns of past years with reference to predictions. That is, if the current year is predicted to have high rainfall, you can look at the patterns for previous wet years to estimate what areas received more rain than others, and vice-versa for dry years. Once again, this may help interpret seasonal or regional rainfall forecasts.
The cumulative daily deficit/surplus map shows the cumulative daily surplus (above average) or deficit (below average) rainfall, with respect to the average for a given year.

The green line represents the average rainfall for *Property Name*, calculated on a daily basis. The red line represents the selected year, in this case, *Year*. The dark and light blue lines represent the highest and lowest rainfall years respectively.

If for a given year, your property has received above average rainfall at any point in time, the red line will be above the green line (surplus). The red line will be below the green line at any time that the cumulative rainfall is less than the cumulative average (deficit).

As well as being a continuous (daily) indicator of your rainfall as compared to ‘average’ conditions, this indicator relates to how much water is likely to be in your soil. For example if a season is in deficit (below average) you can estimate how much it will ‘fill up’ according to forecasts for the rest of the season, and therefore how much water will be available for your crops.

We are currently working on going live with this algorithm. That is, we are working to set up an on-line portal whereas you can enter rainfall data as it happens and view how the cumulative rainfall is progressing with respect to the average, min and max. With this, you will be able to see, in real-time, how the yearly rainfall is progressing.

The cumulative daily deficit/surplus map shows the cumulative daily surplus (above average) or deficit (below average) rainfall, with respect to the average for a given year.

The graph on this page considers BOM site *Number*, as a comparison to the graph of *Property* on the previous page.

As with the previous graph, the green line represents the average rainfall, calculated on a daily basis. The red line represents the selected year, in this case, *Year*. The dark and light blue lines represent the highest and lowest rainfall years respectively.

This plot is a comparision to understand what is happening at a nearby site, and the possible differences between sites. It may be interesting to compare and contrast the plots, and consider how the more specific data from your own property would differ from information based on ‘nearby’ BOM sites or regional information.
The cumulative sums of daily rainfall shows the cumulative rainfall for all reported years.

The graph on this page considers "Property Name".

The dark and light blue lines represent the wettest and driest years on record, respectively. The green line represents your average rainfall and the red line highlights a selected year, in this case "Year".

These plots are intended to provide another indication of what the season or year of interest is like, in comparison to average, wet or dry years. While it is fairly general information, it should help you interpret likely scenarios for upcoming months, based on what has happened in other, similar years or seasons. This type of information could be useful in risk management considerations.

By comparing the BOM data with that of your property, you may discover patterns in wet or dry years that are unique to your property, once again assisting in your ability to interpret rainfall forecasts. We are working to discover these patterns for you, as part of our continuing research.
OUR TEAM

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“You’ve worked hard to maintain your records, now let’s put them to use.”