How a data driven approach that puts data analysis at the forefront is key to improving results.

Brad & Kate Jones farm 11,000 hectares on a property called Bungulla, just outside Tammin, Western Australia. Together with manager Hannes and 5 employees, Brad grows a mixture of wheat, barley, canola and lupins, in addition to running an aerial spraying business. Brad has taken a data driven approach to maximising asset utilisation on his farm.

**CHALLENGE**

Brad recognised 10 years ago that, in order to be successful, he had to focus on maximum utilisation of his assets.

**SOLUTION**

A data driven approach was implemented for all assets including machinery, soil and labour. By collecting and analysing this data, conclusions could be derived to enable maximum utilisation.

**RESULT**

60% of Brad’s decisions are now completely data driven, resulting in assets being used in the most effective way.

“...I can then add a yield estimate whenever I need to which provides Brad and myself with an accurate picture of where we stand at any given time in the season.”

Hannes Joubert
Bungulla, Western Australia
Utilising soil to its full potential

The key to Brad’s success in unlocking the potential of his soil, was his approach to using a wide range of information sources to create layers of information that could be viewed in the context of each other. His process began by identifying over 300 soil sampling sites on his farm which were and still are analysed regularly. These results together with additional data layers including soil type, yield data and NDVI imagery make it possible to identify trends, anomalies and other changes in his soil. In addition to a cropping agronomist, Bungulla also employs the services of a soil consultant to help drive the science behind the process. Good data enables good insights and by combining the multiple layers of data he was able to determine that by marginally increasing the pH of this soil, he could unlock nutrients already present in his soil and reduce his fertiliser bill on a portion of his fields.

Data collections didn’t stop at soil sampling; data from other sources such as NDVI imagery, yield mapping and EM surveys were used to help to complete the picture. Brad tells the story the best, “We collect vast amounts of farm data to help in our decision-making and closely monitor how each of our paddocks are performing. We have individual paddock rotation plans mapped-out for three years in advance, so the data helps us make decisions for products with a decent horizon out in front.” By combining all this information, Brad can make informed decisions about whether to pull his poorer soils up by using ameliorates or push his better soils by using more fertiliser. “In our case this meant that we stopped cropping around 10% of our land as it just wasn’t economical. For the rest, we apply variable rates of fertiliser and ameliorates, depending on what has the biggest economic impact.”

Collecting cropping data in a centralised location

Brad recognised the need for a centralised pool of data, along with the benefits of working on the same platform as his employees and agronomist. It is for this reason that he decided to adopt the Agworld platform to capture and manage all data for crop planning, protection, nutrition and management. “It is a reference point for all of us, where we all know the plan, can check what we are doing and have confidence we are capturing and acting on robust data,” His five full-time farm staff have the Agworld app on their iPhones or iPads to record key production information and advice in the paddock for immediate sharing. Brad adds: “We track all our agronomic activity on Agworld, which has benefits in managing residual herbicide issues, use of herbicide and fungicide modes-of-action, potential disease build-up and liming programs.”

Bungulla farm manager Hannes Joubert is on the front line when it comes to collecting and utilising production data on Bungulla. Hannes explains: “At the start of every season, Brad and I make a budget and plan based on the worst-case scenario, so a season that would require every insecticide, herbicide and fungicide spray imaginable. As the season progresses, we can easily delete the ones that aren’t required. By working in this way, we always know what our risk is and whether we need to do something to mitigate this risk.”
As the season progresses, Hannes uses Agworld extensively to communicate with other stakeholders: “I receive recommendations from our agronomist through Agworld and then translate that to spray orders and spray maps that I can give to our spray rig operators. After an application has been completed, I ensure that all data in Agworld is correct and convert the agronomist’s recommendation into an actual record. I also make sure that the financial figures in Agworld are up to date; I can then add a yield estimate whenever I need to which provides Brad and myself with an accurate picture of where we stand at any given point in the season.”

Long term data collection shows trends and probability

Brad tracks his rainfall through the Agworld app, which makes the data available whenever he needs it. Brad explains the importance of historic rainfall: “The farm was settled in 1908 and we have rainfall records going all the way back to that year. This data helps me calculate percentiles and percentage probability of spring drought for example, which is a tremendous help when it comes to the decision-making process.” One of Brads plans for the future is to have more rain gauges and weather stations on different parts of his farm which will allow him to create spatial rainfall and temperature maps. These maps in turn can be overlaid with yield maps and provide valuable insights into actual profit per crop type per millimetre of rain or the true cost of a frost event. “Such insights will be very useful when it comes to making variety and planting date decisions” according to Brad.

Another great example of how layers of information can help troubleshoot issues and manage risks was illustrated when Brad started farming a new block of land just north of Tammin. Results of a grid soil sample were used to create and apply a precision gypsum application and the paddock was deep ripped. When the following crop was planted however, Brad knew he had a problem: “The crop wasn’t growing well and we couldn’t work out any obvious reasons. By doing some more tests and comparing an NDVI image to the gypsum application map, we realised that it was the gypsum that had triggered the issue. Turns out that the gypsum had made the manganese unavailable and the crop was severely manganese deficient. Because we were able to identify this issue very fast, we were able to avert a disaster by opting for two split applications of manganese. It is situations like these where the true value of data analysis and digital agriculture becomes very obvious”

Cropping data in a centralised location

Due to the size and scope of Bungulla farming, Brad recognised the need to work on the same platform as his employees and agronomist and make them part of the process. We collect vast amounts of farm data to help in our decision-making & closely monitor how each of our paddocks are performing.”

Brad Jones
Bungulla, Western Australia
Reading the farming business for the future

As food safety regulations and consumer awareness are on the increase around the globe, the demand for information becomes just as important to fulfill for growers. Recently, Bungulla was audited for International Sustainability and Carbon Certification Scheme (ISCC) certification to enable canola sales into Europe. The ISCC certification requires verification that farming practices are sustainable, adhere to regulations covering state and federal laws and comply with export standards.

Brad explains: “We had all our chemical and other canola crop records at our fingertips through Agworld, including that we had used registered herbicides at legal label rates, which made the audit quick and easy and we passed it with no problems,” he said. “This proves that the Agworld system for data collection is very valuable as a record of provenance - by retaining information about on-farm production methods and systems.”

Brad sums his digital strategy up as follows: “The old saying that you can’t manage what you can’t measure rings true for digital agriculture; our margins have to be increased incrementally to keep us ahead of the game and that requires good analysis.” Brad adds that, in future, the farm’s data strategy will likely expand to more stakeholders potentially including financiers and insurers. “It’s exciting to think about where we can be in 5 or 10 years time, but chances are that data, collaboration and analyses will only play a bigger role then!”

**Improving Profitability in Agriculture**

**What Agworld Offers You:**
- Collect data at every level in a structured way.
- Easily share data with anyone important to your organisation.
- Unparalleled insights into your operation.
- Empowers you to make more profitable decisions than your peers.