

PIRSA AgTech Growth Fund



GRAINS
INDUSTRY



Cropify Smart classification of small type red lentils



Anna Falkiner and Andrew Hannon are the co-founders of Cropify.

Artificial intelligence and machine learning could soon be a mainstay in the grains industry thanks to businesses like South Australia's own Cropify.

After lifetime careers in marketing, new product development and the grains industry respectively, Anna Falkiner and Andrew Hannon co-founded Cropify in 2019, following a grant from the Australian Institute of Machine Learning.

That initial grant helped them work on proof of concept, which found there was potential for AI to classify grains and grade them accordingly.

Through further funding from the Department of Primary Industries and Regional Development's (PIRSA) AgTech Growth Fund, the Cropify team has been able to build prototype hardware and software which can classify small red lentils, potentially eliminating the need for subjective testing in the future.



YP grower Ben Wundersitz is a great believer in Cropify's potential. Photo courtesy of GRDC.

Industry challenge

Before founding Cropify, Andrew was head of operations at a major grain storage and handling provider. Grain quality was an area which fell under his remit.

Anna also has close ties to the grains industry with her family farming for five generations on both sides. They both had an in-depth knowledge of the challenge they were looking to overcome; misclassification.

Under the current classification system used in Australia and overseas, 50 per cent of classification is done subjectively by the human eye.

“That can cause misclassification and the grower gets paid accordingly. The grain may be classified in a category either above or below what it actually is,” Andrew says.

“Either way, this causes issues for the supply chain. In Australia, it is estimated there is \$54 million value leakage up and down the supply chain from misclassification annually. Additionally, if classifiers aren’t all classifying grain at the same standard then we end up with a wide band of quality, rather than a consistent quality in a particular grading.”

Approach

In developing Cropify, Anna and Andrew decided to base their prototype on lentils for a simple reason.

“Lentils are a high-value crop which are worth a lot to South Australian growers and the wider economy, but they are harder to classify because they are so small,” Anna says.

“Because they are worth so much, the impact of misclassification is high. You could say we started with the hardest one first. Yes, it has been difficult but it also means we have done the hard yards early and have focused on the expanding market for plant-based protein.”

The AgTech Growth Fund grant from PIRSA, in addition to its own matched funding, has enabled Cropify to develop a highly functioning prototype to take to industry and potential investors.

Outcomes

To develop the technology and train the system’s algorithm, Cropify has been benchmarking its AI against laboratory graded lentil samples. Potential customers have provided lab-tested samples which have been put through Cropify to compare the results. Those results have been nothing short of amazing, according to Anna.

“Through this benchmarking process, Cropify has been outperforming lab classification,” she says. “We have achieved results of greater than 98 per cent accuracy, which is obviously something we are really excited about.”

Anna and Andrew have taken the prototype directly to bulk handlers and growers to showcase the product and gauge interest. There has also been high interest at major agricultural field days.

“That has been a great experience for us to garner feedback. Keeping our target customers involved during Cropify’s development has been crucial,” Anna says.

“It means the technology has a greater chance of being widely accepted by industry.

“Feedback has been really positive and has helped us to negotiate with more investors too.”



Future opportunities

The benefits of Cropify to the Australian grain industry could be immense, beyond decreasing the value leakage issue.

Cropify takes approximately 25 per cent of the time a human takes to classify grains, meaning adoption will deliver significant time savings and benefits to growers.

“This has a number of benefits. Firstly, there will be a saving in carbon emissions as trucks won’t be waiting in silo line-ups for as long to be classified with their engines idling,” Andrew says.

“Shorter line-ups and greater efficiency are financially positive for both bulk handlers and growers.

“Many growers have on-farm storage of their own so they aren’t at the mercy of the spot price during harvest.

“They can then use Cropify to assess their stored grain and share the quality with their broker or end customer and decide whether to sell or not.”

In addition to lentils, Cropify plans to expand into chickpeas, faba beans, cereals and other commodities.



Producer’s view

Yorke Peninsula (YP) grower Ben Wundersitz has seen the potential for Cropify since he was first made aware of its development in 2019. The Wundersitz family’s Anna Binna enterprise, based at Maitland, takes in a significant amount of area around the central YP and lentils are a mainstay of the business’ cropping rotation.

For Ben, the value proposition with Cropify is simple.

“One of the major issues with human classification is counterparty risk where growers aren’t getting paid for the quality they have produced or traders are paying too much for grain of a lesser quality. The adoption of Cropify’s objective classification solution makes sure both buyers and sellers are fully aware of the quality being transacted,” Ben says.

“Ultimately, this will add value for growers and will ensure the trade can sell to overseas markets with confidence that the end user gets what they paid for. This has an application here in Australia and around the world.

“I think Cropify is going to be crucial in improving the market for exports of all grains and pulses as it will ensure the grain going into our important markets is of a consistently high quality.”

Contact

For further information about the PIRSA AgTech program:

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For more information about Cropify, visit www.cropify.io