Taking the first steps to automated agronomy – don't be alarmed!

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automation, agronomy, sensors, satellites

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Take home message

GRDC has embarked on several new ambitious projects to explore, research, test, and navigate the pathway to autonomy in grain production systems. A key part of this is crop agronomy. Our three projects are examining how we can detect weeds, diseases, pests, nutrition disorders, and other anomalies using sensors, artificial intelligence, and satellite imagery – and feed this information back to machinery (robots) to treat affected areas.

The projects are in the very early stages; however, they aim to focus on:

1. Green on brown weed detection (fallow) from satellite, and section control herbicide application
2. Green on green weed detection (e.g. ryegrass in cereals) from satellite, and section control application
3. Early-stage disease detection (foliar diseases in cereals, rhizoctonia, charcoal rot) from satellite and targeted control with fungicides/cultural practices
4. Early detection of anomalies in crop growth using satellite imagery and providing alerts to farmers and agronomists
5. Use of 'drone in a box' technology for targeted crop scouting
6. Fusion of a number of datasets to help make decisions (yield, as-applied, imagery, EM, topography, BioScout, protein)
7. Use of natural language models/AI to produce pesticide/nutritional recommendations
8. Looking at the barriers to adoption of autonomous agronomy, and how an agronomist role might change over time.

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