Unmanned Arial Platform for characterizing plant growth in large field trials
ARC Industrial Transformation Research Hub IH130200027

For crop improvement, plant characterization/phenotyping in the field is essential to develop new varieties (wheat and barley). However, we have no high throughput phenotyping tools for large field trials except harvesting.

UAVs could be the best tool for this job. Their advantages are:
• easy to transport,
• can be operated by 1 person,
• large trials can be imaged in minutes,
• advanced UAVs are commercially available and affordable;

Disadvantages are:
• limited payload,
• automated image processing routines needed,
• licence of CASA necessary;

Cameras and objective:
1. Canon RGB camera (crop growth and development)
2. FlirTau2 thermal 640 IR camera (canopy temperature)
3. MicaSense multispectral camera, 5 bandwidths (vegetation indices like NDVI, R-NDVI, G-NDVI)

Our partners to develop UAV based phenotyping are:
• Phenomics and Bioinformatics Research Centre, UniSA
• AGT
• InterGrain
• LongReach

• Support by LP Koh’s group, Applied Ecology & Conservation at the University of Adelaide