

WA Robotics Playoffs | Innovation Challenges

Challenge 1



Harvesting season in Australian cropping areas can be a stressful time for farmers and professional contract harvesters. Harvest usually occurs under hot dry conditions when the risk of fire is increased and a fire can damage crops, machinery and property - not to mention the risk to lives of the community as well.

The proximity of flammable material to heat sources, such as hot exhaust manifolds and turbochargers along with high ambient temperature, low humidity and windy conditions in the paddock, make this a potentially flammable situation.

How can we reduce the number of harvester fires in WA?

Challenge 2



Changing diet trends, a fast-growing population and international trade opportunities could help Australia become "a global delicatessen" for protein, according to national science agency CSIRO. The report titled Protein: A roadmap for unlocking technology-led growth opportunities for Australia found a \$13 billion market opportunity for a variety of proteins on the global market and outlined how investing in this sector could create up to 10 000 jobs.

What is the next big plant-based meat product for the Australian market?

Challenge 3

Australian farmers are dealing with a drying and warming environment which reduces their productivity and profitability. Since 1970, rainfall from May to July over WA's South-West region (covering the entire agricultural region south of the Pilbara) has been about 20% less than the average from 1900 to 1969. Rainfall is very likely to continue decreasing under all future climate modelling scenarios.

Some existing approaches by farmers to increase resilience to climate variability include farm business management; use of data to understand risks and improve decision making; new farming practices, technologies and diversification; and succession planning and management of people and time.

What are some innovative tools that will add value to WA farm businesses in the future to increase resilience to a hotter and dryer climate with more variability?



Warming trend



Annual maximum temperature anomaly in southwest Australia (1910 – 2021), source Bureau of Meteorology

Challenge 4

Depredation is the term used in the fishing industry where a marine predator (such as a whale, shark or seal), steals the vessel's catch. Primarily this occurs in longline fishing, where the marine predator has learned to associate fishing vessels and longline fishing gear with an easy source of food. In these instances, the marine predator will eat the caught fish directly off the hook.

What ideas could be tried to prevent or reduce these depredation events from occurring without causing harm to the predator?

