# AgTech demonstration on Kangaroo Island

This project is funded through the Commonwealth Government's Regional Recovery Partnerships program and undertaken in collaboration with AgKI.

The Kangaroo Island (KI) AgTech demonstration project aims to demonstrate available technologies to primary producers to assist them in making AgTech adoption decisions that are right for their business.

AgTech suppliers submitting an expression of interest (EOI) to demonstrate AgTech on Kangaroo Island, will have the opportunity to showcase their technology on-farm to many producers. Demonstration sites and field tours will provide an opportunity for interaction between producers and developers aiming to increase the adoption of AgTech and improve farm management practices and production.

## Guide to EOI process

Expressions of interest are now open from AgTech suppliers offering innovative products suitable to be demonstrated on Kangaroo Island producer properties.

This document provides all the information required to submit an EOI.

The Kangaroo Island demonstrations will provide a two-way digital marketplace for primary producer technology that allows AgTech firms to match their products closely to on-farm challenges faced on the island. It will provide primary producers with visibility of technology solutions, including key information on product cost and performance.

The demonstration of AgTech on Kangaroo Island aims to:

- identify key farm decisions and processes that can be supported by AgTech and highlight the use and value of AgTech solutions in informing these management decisions
- enable primary producers to interact with a wide range of AgTech solutions before identifying and adopting products and services that will improve their productivity and profitability
- enable technology developers and suppliers to engage constructively with primary producers to ensure products are user-centric and capable of meeting their needs
- document and communicate the application and performance of AgTech products as applied to Kangaroo Island production systems.

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# Kangaroo Island primary production

Kangaroo Island is Australia's third largest island (approx. 4,400 square kms) with one third of the island dedicated to national parks and wilderness areas.

It has a broad range of industries including sheep (for wool and meat), cattle, cropping, free range poultry (egg production) livestock, viticulture, horticulture, aquaculture and apiculture.

| Kangaroo Island land area summary (varies from year to year) | | |
|---|---|---|
| | **Area(m2)** | **Hectares** |
| **Kangaroo Island total area** | 4,391,390,000 | 439,139 |
| **Excluded areas (combined)** | 2,229,820,000 | 222,982 |
| **Grazing** | 1,525,780,000 | 152,578 |
| **Cropping** | 284,360,000 | 28,436 |
| **Irrigated vegetables (principally seed potatoes)** | 2,700,000 | 270 |
| **Vines** | 1,970,000 | 197 |

# Selection criteria

The Kangaroo Island AgTech project aims to demonstrate AgTech products to growers and facilitate a better interaction between AgTech providers and the industry. To achieve this, the technology will be required to meet these selection criteria:

1. The product or technology addresses one of the operational decisions or activities detailed in 'AgTech required' and is viewed to have potential value in farm management decision making.
2. The product/technology is available to farmers within South Australia.
3. The product embraces 'open source' principles such that it can communicate with other reporting/viewing products.
4. The company can install the product on a producer's property at their own cost (for an agreed amount of time).
5. The company can provide adequate technical support at their own cost (for an agreed amount of time).
6. The company agrees to open access for all data collected by the product or technology.
7. The company agrees to all performance data on the product or technology being openly available.
8. The company agrees PIRSA can use the product operational and performance data for analysis and images in presentations and communications.
9. Public liability insurance on an occurrence basis for at least ten million dollars ($10,000,000) for each occurrence.

## AgTech required

AgTech is the broad term for a wide range of technologies that can help agribusiness. In the broader sense, AgTech includes digital agriculture software and hardware, mixed/integrated farming systems, plant crop and livestock sciences, and post farm gate agricultural value chain technologies.

The focus of the Kangaroo Island demonstration sites is to enhance the adoption of AgTech that supports management decisions or activities/operations relevant to production systems on KI.

Kangaroo Island has a Mediterranean climate with rainfall averaging 450mm p/a on the Dudley Peninsula to around 800mm + p/a on the western end. Temperatures range from the hottest month of the year, January, with an average of 24°C, to the coldest month, July, with an average of 11°C.

Kangaroo Island is recognised for producing high quality wool and livestock. Broadacre crops such as wheat, barley, oats, beans, and canola prove successful due to the high rainfall region and also irrigated crops such as seed potatoes.

With vineyards scattered across the island, KI produces fine wines and renowned spirits.

The pristine waters of the Southern Ocean allow Kangaroo Island's aquaculture industry to produce some of the world's finest seafood including abalone and oysters.

The following are examples of farm management decisions or activities requiring AgTech solutions:

**General farm activities**

- Weather monitoring and forecasting
- Diesel fuel tank monitoring
- Shed and farm gate monitoring
- Water monitoring – tanks, troughs and dams
- Pump pressure (flow rate) monitoring
- Electric fence monitoring

**Farm management software**

- Labour task scheduling and monitoring
- Data and record management
- Compliance with WH&S requirements and remote hazard recording
- Stock movements/traceability management
- Cost of production measurement
- Imagery for farm management

**Farm vehicle management**

- GPS tracking
- Vehicle automation
- Vehicle safety monitoring

**Pasture management**

- Pasture biomass monitoring
- Remote weed control
- Soil moisture, temperature, and salinity monitoring
- Feed intake monitoring – individual/mob
- Variable rate input management, e.g. fertiliser, chemicals
- Innovative strategies for pasture improvement

**Irrigation/water management**

- Soil moisture monitoring and management
- Automation of irrigation control
- Improving water use efficiency, e.g. linking sensors to irrigation scheduling
- Accurate water use predictions
- Water pump pressure (and flow rate) monitoring
- Pivot movement monitoring
- Variable rate management
- Fertigation management
- Remote start and alerts management

**Livestock management – Cattle and sheep**

- Remote and permanent weight monitoring
- EID tags for auto draft/weigh, fleece weighing, individual livestock management
- Crushes, handlers and auto-drafters
- Automatic dosing guns
- Maternal/paternal offspring matching
- Stock movement monitoring
- Behaviour and health monitoring
- Parasite monitoring
- Automatic drafting between paddocks
- Climate shelters
- Automatic feeding systems
- Woolshed design
- Auto precision nutrient delivery

**Livestock – Poultry**

- Operational management software
- Climate controlled housing
- Monitoring and Management of pest and disease
- Weather monitoring systems
- Traceability of produce/software
- Management and tracking of stock
- Water monitoring systems, e.g. temperature, level, and flow/ pressure
- Weather monitoring systems
- Automatic feed delivery system

**Livestock management – Apiculture**

- Operational, asset and hive management
- Hive monitoring, temperature, humidity, activity and weight
- Extraction data, honey quality and yield
- Authenticity and traceability
- Trade support
- Weather monitoring
- Drone imagery of flowering times

**Crop management**

- Crop heat or moisture stress
- Crop growth and canopy cover
- Soil moisture, temperature and salinity monitoring
- Crop nutrient management
- Variable rate mapping and application
- Quality and/or yield improvement
- Yield estimation and prediction
- Pest identification (weeds and insects) and management
- Mapping farm profiles/variability using drone imagery
- Water/ pump management

**Aquaculture**

- Nutrient monitoring
- Temperature monitoring
- Supply chain management
- Disease prevention

## Timing

Expressions of interest will be accepted up until July 2023. Successful demonstrators will be informed as assessments are completed.

# How to apply

Expressions of Interest must be submitted via the online form. The following information will be required:

- **Company details**
- **AgTech proposed for demonstration**

  Include, for each AgTech product or technology being proposed for demonstration:

  - product/technology  name
  - relevant farm management decision/activity
  - product/technology  description
  - distributor to South Australia if not the proponent
- **Compliance with performance-based selection criteria**

  Include responses to the following selection criteria:

  - availability in South Australia
  - open-source system
  - installation – who will install and how
  - technical support

  Where multiple products or technologies are proposed, and the response differs between products or technologies, please provide specific details for each product/technology.
- **Information Management**

  State whether you agree with the below selection criteria, and list any additional requested conditions:

  - all data collected by the product or technology can be openly accessed
  - all performance data on the product or technology will be openly available
  - PIRSA can use the product operational and performance data for analysis, and images in presentations and communications
- **Insurance**

  The proponents are required to have public liability insurance on an occurrence basis for at least ten million dollars ($10,000,000) for each occurrence. Please provide a certificate of currency.