Victoria’s On-Farm Internet of Things Trial

What kind of technology will be available to farmers participating in the trial?

This is a summary of the types of technology available to support the trial. Agriculture Victoria is currently finalising the complete list of technology to support the trial. All Apps & Devices in this list are available to all farmers. The coloured icons suggest where the Apps & Devices may be most applicable.

**Informed agronomy**

**Information systems to support decision-making**
Compile data into key reports, analysis, alerting and/or decision support. May bring in additional data through free or allied services.

**Weather monitoring**
Monitor weather conditions including air temperature, relative humidity, barometric pressure, wind speed, wind direction, rainfall and solar radiation or photosynthetically active radiation.

**Soil moisture monitoring**
Monitor soil moisture and other soil factors for crop/pasture management. May include soil temperature and macronutrient sensing at a range of depths.

**Microclimate monitoring**
Sensors for specific applications such as leaf wetness, frost, rain gauge, wind speed, wind direction and light sensing.

**Plant growth monitoring**
Measure plant and fruit growth status. Includes stem and fruit diameter using dendrometers. May allow for comparative assessment of block and variety progression and inform harvest timing.

**Plant stress tracking**
Track plant water use and moisture stress for informed management of productivity and fruit quality.
### Production environment data

**Pest monitoring**  
Enable rapid identification of pest risk to production system. Trapping, imaging and alerting of pests for analysis or control.

**Plant disease risk monitoring**  
Measure crop environment temperature, humidity and leaf wetness to monitor fungal disease risk.

### Farm management

**Asset tracking**  
Track location, movement and status of equipment.

**Site security monitoring**  
Monitor building doors or gates, detect motion and/or trigger camera recording of security events.

**Battery condition monitoring**  
Track remote equipment battery status, power consumption and battery health.

**Staff safety monitoring**  
Monitor welfare of staff (fall detection, location, panic button), including staff working remotely or in one-up situations.

**Fuel tank level monitoring**  
Monitor diesel fuel supply volume and actively manage resupply based on current and historical fuel requirement.

**Grain storage monitoring**  
Monitor and manage grain storage conditions such as temperature and humidity to protect grain quality and germination.

**Silo level monitoring**  
Monitor grain, feed or fertiliser silo levels for both filling and supply level tracking. Prevent the need and risk to climb silos, save time in filling and reduce overflow spills.

**Animal monitoring**  
Track location, movement and health status of stock. Factors including location, body temperature, movement types and reproductive status can be monitored.

**Fence monitoring**  
Monitor fencing to ensure stock are contained to paddock boundaries.

**Milk temperature and process equipment monitoring**  
Detect milk storage and cleaning temperature factors outside of set points to reduce risk of spoiled milk batches.

**On-farm cold store monitoring**  
Track humidity and temperature within on-farm cold stores.
### Managing Water

<table>
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<tr>
<th><strong>Water flow measuring</strong></th>
<th>Meters to measure water flow through reticulation systems. Pipeline sensing from 20mm to 100mm, plus channel flow rate metering.</th>
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<tbody>
<tr>
<td><strong>Tank level monitoring</strong></td>
<td>Remotely monitor water tank levels for stock, irrigation, spraying or domestic supply.</td>
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<tr>
<td><strong>Water quality monitoring</strong></td>
<td>Monitor water salinity, electrical conductivity and/or pH.</td>
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<td><strong>Pump monitoring and managing</strong></td>
<td>Remotely manage pumping through scheduling or level or pressure switching.</td>
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<tr>
<td><strong>Dam level monitoring</strong></td>
<td>Remotely monitor dam levels for stock, irrigation, spraying or domestic supply.</td>
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<tr>
<td><strong>Trough level monitoring</strong></td>
<td>Remotely monitor watering points and inform reticulation supply and repair scheduling.</td>
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<td><strong>Water delivery monitoring</strong></td>
<td>Remotely detect wetting front in soil – especially via flood irrigation.</td>
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<td><strong>Water pressure monitoring</strong></td>
<td>Pressure sensor to remotely confirm pump status in water transfer/delivery.</td>
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<tr>
<td><strong>Valve controlling</strong></td>
<td>Remotely control reticulation valves for efficient automation of orchard irrigation/fertigation.</td>
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