



Irrigation webinar series

Webinar 8: Irrigation AgTech, what's in it for you?

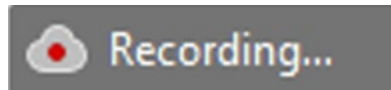
Mark Sloan

Industry Technology Coordinator
Agriculture Victoria

Please note:

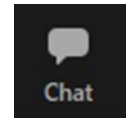
- The webinar will start at 1pm.
- The webinar will be recorded & distributed.
- Your microphone has been muted by default
- Technical issues ? Use Zoom "Chat" – select "Host." Or contact sandra.beasley@agriculture.vic.gov.au
Ph. 0408 458 946

Other housekeeping



- Have a question? Use the Chat function John Paulet (Co-host)
- Question break during presentation & at the end
- Questions related to webinar topic prioritised
- Your feedback is used for funding similar future events
- Finish at 2.00pm

Bottom
of screen



Thanks to our supporters



Webinar 8: Irrigation AgTech, what's in it for you?

00

Welcome

Introduction.

01

Overview Ag Vic On Farm IoT Trial

Brief overview of the Ag Vic On Farm IoT Trial.

02

Technology from the IoT Trial

Water management technology from the IoT Trial.

03

What Irrigation AgTech can do for your farm business.

Case Studies.

04

The Digital Agriculture Investment Scheme

Funding opportunities.

05

Feedback, Questions and Close.

Review of presentation and questions.



Welcome

Introduction

Mark Sloan

Central Victoria

Merino Ewes & XB Lambs

Background

Industry Technology Coordinator

Technical Support GIS

Remote Sensing

Product Manager



Attendee Poll

About you: Please complete the poll on Zoom now.

Contact details

mark.sloan@agriculture.vic.gov.au

0436 833 668



Welcome

Disclaimer

- Agriculture Victoria does not endorse any of the products discussed or shown in this presentation. They are referenced purely as sample technology that is commercially available.



01

Overview Ag Vic On Farm IoT Trial

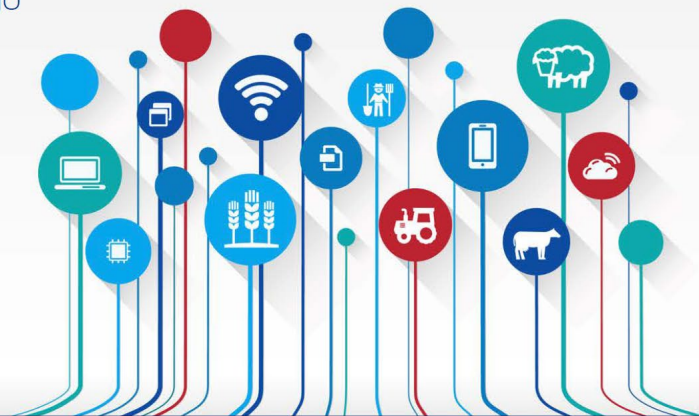
Victoria's \$12m on-farm IoT Trials

Summary Report: Research findings
and options for implementation

March 2018



Economic Development
Jobs, Transport
and Resources



Barriers to the adoption of IoT and other digital technologies across the four trial regions

Community focus group discussions were conducted in the four proposed trial regions to understand the demand for, and uptake of new technologies across the four trial site regions – both now and in the near future. The following issues and key barriers identified by participants are summarised below.

1 Digital literacy

Digital literacy is a foundational element of on-farm digital enablement – and this was found to be a major barrier to adoption across all regions. This included a general lack of awareness regarding technologies available, the knowledge required to understand the impact of technology, as well as the skills required to implement, effectively use and maintain technology. As a contributing root cause, there was found to be a lack of practical learning and exposure to technology in regional areas, particularly for young students.

4 Interoperability

Focus groups highlighted the general lack of interoperability between farm datasets, which makes it particularly difficult for farmers to easily combine and overlay data from different systems in order to access optimal insights with the technology they already have.

2 Connectivity

Connectivity is another foundational element of IoT and other on-farm digital solutions. Challenges with access to mobile and internet telecommunications infrastructure was found to exist across the four trial regions, to varying degrees.

5 Data standards

To realise the full benefits of IoT, farmers need to be able to effectively collect, communicate, analyse and then be comfortable in exchanging data with others along the value chain. There is a general lack of confidence in data privacy and security amongst farmers across sectors, and this is primarily attributed to a lack of industry-wide data standards, protocols and overarching regulation.

3 Cost and investment rationale

A key reason for a lack of IoT uptake in the four trial regions to date was attributed to a lack of proven return on investment (ROI). Farmers are typically unwilling to outlay on new technologies which are largely unproven, and do not have tried and tested economic benefits.

6 Marketplace maturity

The IoT market for agriculture is developing rapidly, particularly around sensors and devices, but is still immature in terms of farm IoT platforms. There is currently no holistic technology platform which exists for agriculture. This is a key cause for interoperability issues and is a barrier itself to supporting & encouraging open innovation.

01

Overview Ag Vic On Farm IoT Trial

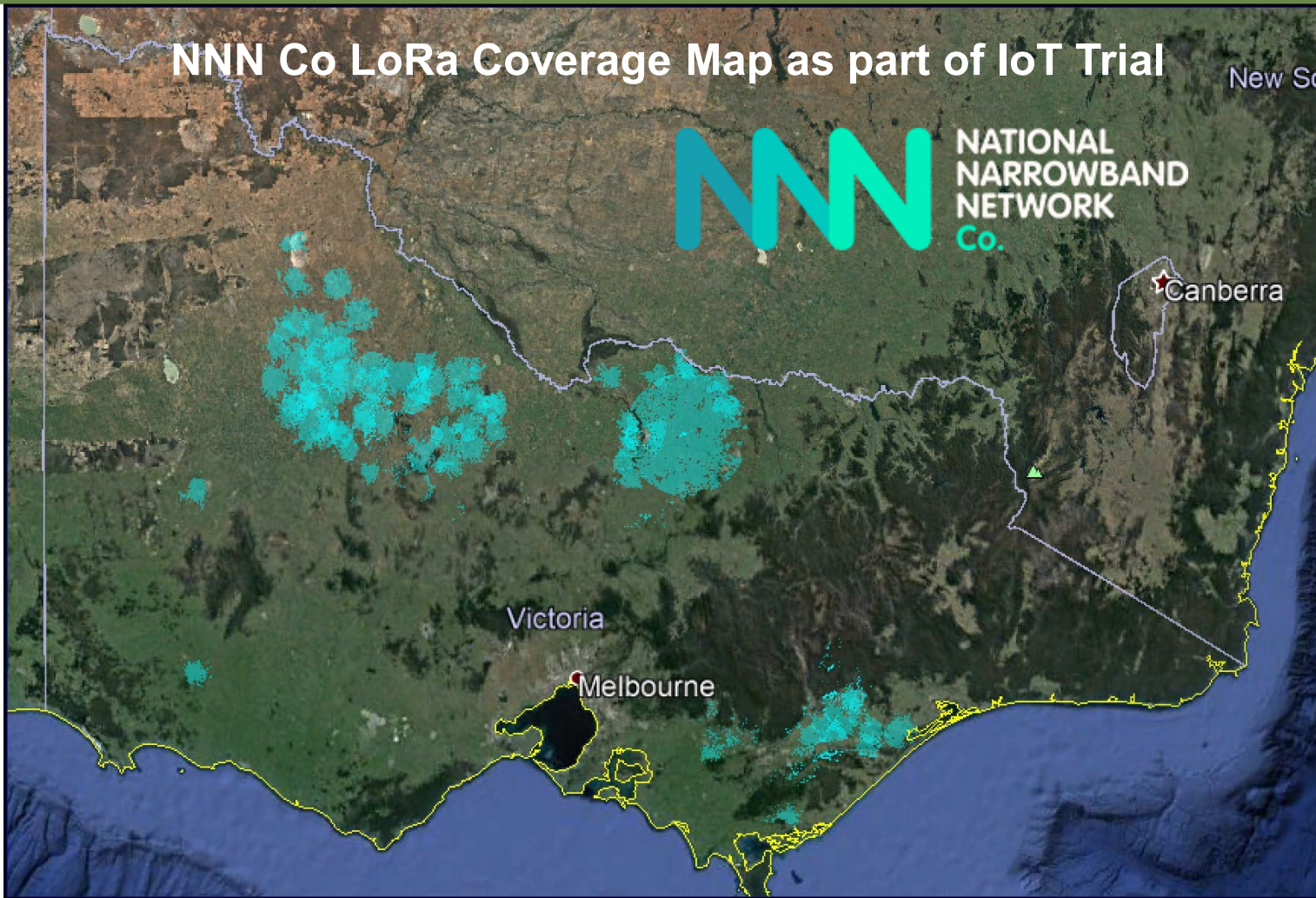


01

Overview Ag Vic On Farm IoT Trial



NNN Co LoRa Coverage Map as part of IoT Trial



LoRa Gateway installed by NNN Co.





Overview Ag Vic On Farm IoT Trial

Round 1 & 2

- 1:2 funding
- Non-competitive
- Approx. 350 applicants
- \$6m/\$18m
- 493 devices connected to Data Lake

01

Overview Ag Vic On Farm IoT Trial

Farm IoT Plan

- Farm practices
- Farm challenges
- Current use of technology
- Connectivity requirements

VICTORIA'S ON-FARM INTERNET OF THINGS TRIAL

INVESTIGATING THE NEXT FRONTIER OF AGRICULTURE



Farm IoT Plan

Prepared by Mark Sloan



Overview Ag Vic On Farm IoT Trial

Popular categories

- Informed agronomy
 - Weather stations
 - Soil moisture
- Water management
 - Monitoring
 - Automation
- Farm management
 - Security

Water flow monitoring



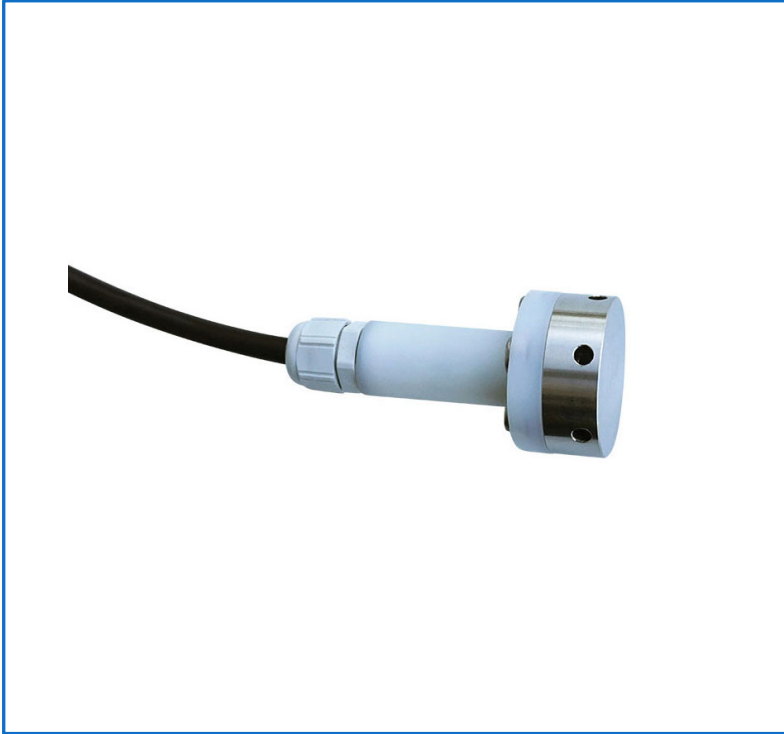
- Measuring the volume of water passing through a pipeline in irrigation systems.
- Can set alerts based on flow.
 - SMS

Pipe pressure monitoring



- This sensor enables continuous monitoring of the pressure in irrigation pipes.

Water level monitoring



- There are a couple different types of water level monitors
 - Pressure transducers
 - Radar transducers

Weather stations



- Weather stations come with a wide range of functionality
 - Rain
 - Temperature
 - Wind speed
 - Wind direction
 - Humidity
- Disease Modelling
- Delta T

Soil moisture monitoring

- Can measure moisture and temperature at 10cm intervals



<https://incyt.io/pages/ag-vic-iot>

Dendrometers



- Dendrometers measure daily patterns of shrinkage and swelling in the stem, trunk or fruit of plants.

Bay automation and control



Image: Mark Sloan Agriculture Victoria

- Remotely automate bay irrigation
- Can be combined with water presence sensors, soil moisture probes and weather stations to create a closed data loop.

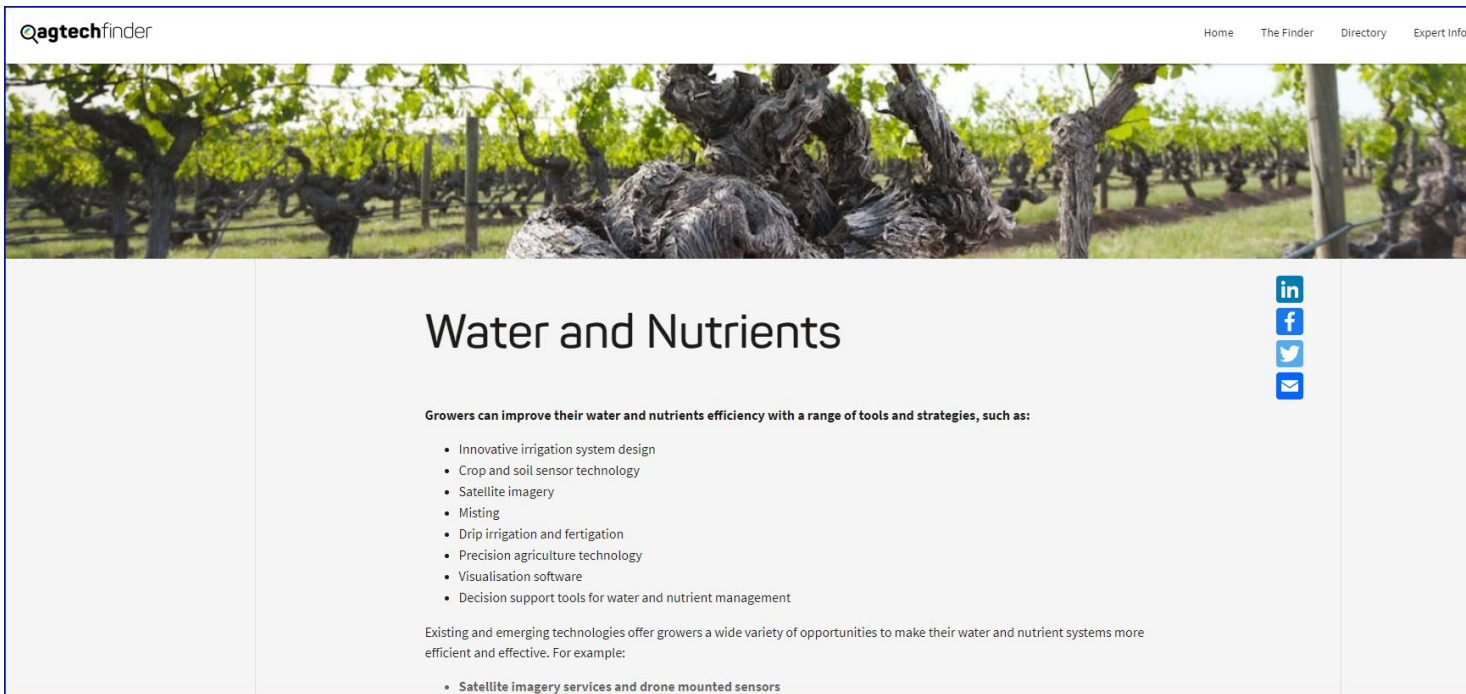
Bay automation and control



Image: Mark
Sloan
Agriculture
Victoria



Break for questions and comments



The screenshot shows the 'agtechfinder' website. The header includes the logo and navigation links: Home, The Finder, Directory, and Expert Info. A large banner image of a vineyard is at the top. The main section is titled 'Water and Nutrients' and features a list of technologies for improving water and nutrient efficiency. Social media icons for LinkedIn, Facebook, Twitter, and Email are on the right. The footer of the page lists 'Satellite imagery services and drone mounted sensors' as an example of existing technologies.

agtechfinder

Home The Finder Directory Expert Info

Water and Nutrients

Growers can improve their water and nutrients efficiency with a range of tools and strategies, such as:

- Innovative irrigation system design
- Crop and soil sensor technology
- Satellite imagery
- Misting
- Drip irrigation and fertigation
- Precision agriculture technology
- Visualisation software
- Decision support tools for water and nutrient management

Existing and emerging technologies offer growers a wide variety of opportunities to make their water and nutrient systems more efficient and effective. For example:

- Satellite imagery services and drone mounted sensors

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t
e

<https://agtechfinder.com/horticulture/water-and-nutrients>



What Irrigation AgTech can do for your farm business.

What's the right technology for my farm business?

Important questions to ask

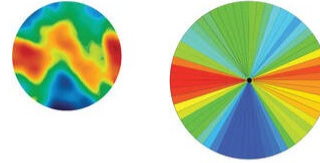
- Is the technology fit for purpose? What is my use case?
- What's the ROI?
- How will I view data that is collected?
- What connectivity is required?
- What are the ongoing costs?
- Who owns my data?

Variable Rate Irrigation

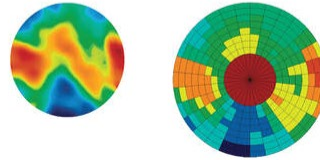


[https://www.lindsay.com/usca/en/irrigation/brands/feldnet/remote-irrigation-solutions/](https://www.lindsay.com/usca/en/irrigation/brands/fieldnet/remote-irrigation-solutions/)

SECTOR



ZONE



<https://www.reinke.com/variable-rate.html>

Variable Rate Irrigation



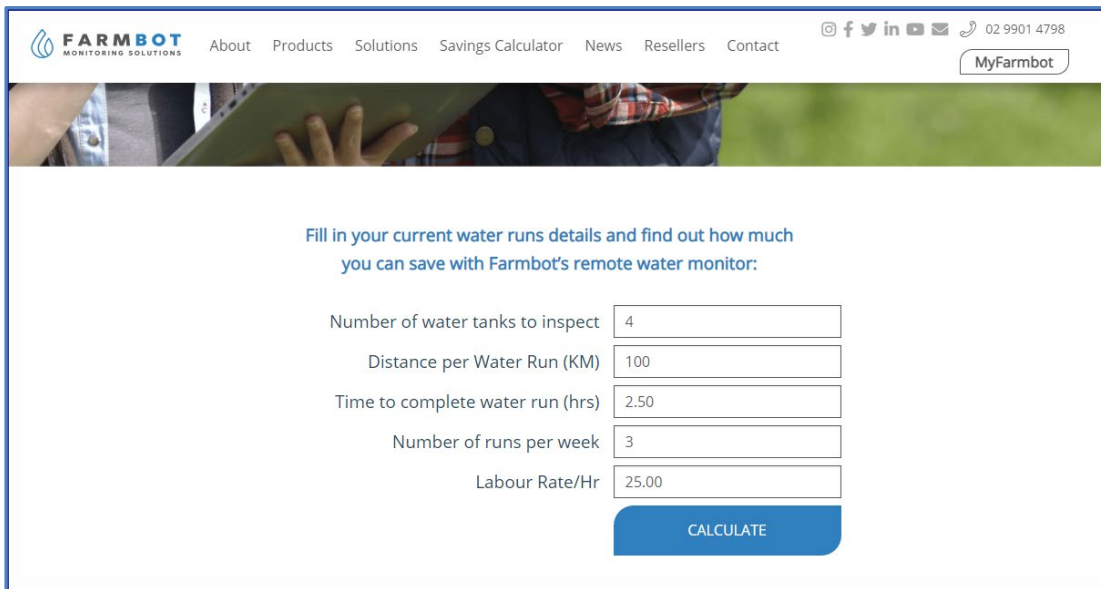
- Speed control
- Zone control
- Sector control

<https://www.reinke.com/variable-rate.html>

What Irrigation AgTech can do for your farm business.

Calculating a Return on Investment

- *Meat and Livestock Australia/KP MG*



The screenshot shows the Farmbot website's 'Savings Calculator' page. The header includes the Farmbot logo, navigation links (About, Products, Solutions, Savings Calculator, News, Resellers, Contact), social media icons, and a phone number (02 9901 4798). A 'MyFarmbot' button is also present. Below the header is a banner image of a person's hands on a laptop. The main content area contains the text: 'Fill in your current water runs details and find out how much you can save with Farmbot's remote water monitor:'. Below this text are six input fields with the following labels and values: 'Number of water tanks to inspect' (4), 'Distance per Water Run (KM)' (100), 'Time to complete water run (hrs)' (2.50), 'Number of runs per week' (3), and 'Labour Rate/Hr' (25.00). A blue 'CALCULATE' button is positioned at the bottom right of the form.

FARMBOT
MONITORING SOLUTIONS

About Products Solutions Savings Calculator News Resellers Contact

02 9901 4798

MyFarmbot

Fill in your current water runs details and find out how much you can save with Farmbot's remote water monitor:

Number of water tanks to inspect 4

Distance per Water Run (KM) 100

Time to complete water run (hrs) 2.50

Number of runs per week 3

Labour Rate/Hr 25.00

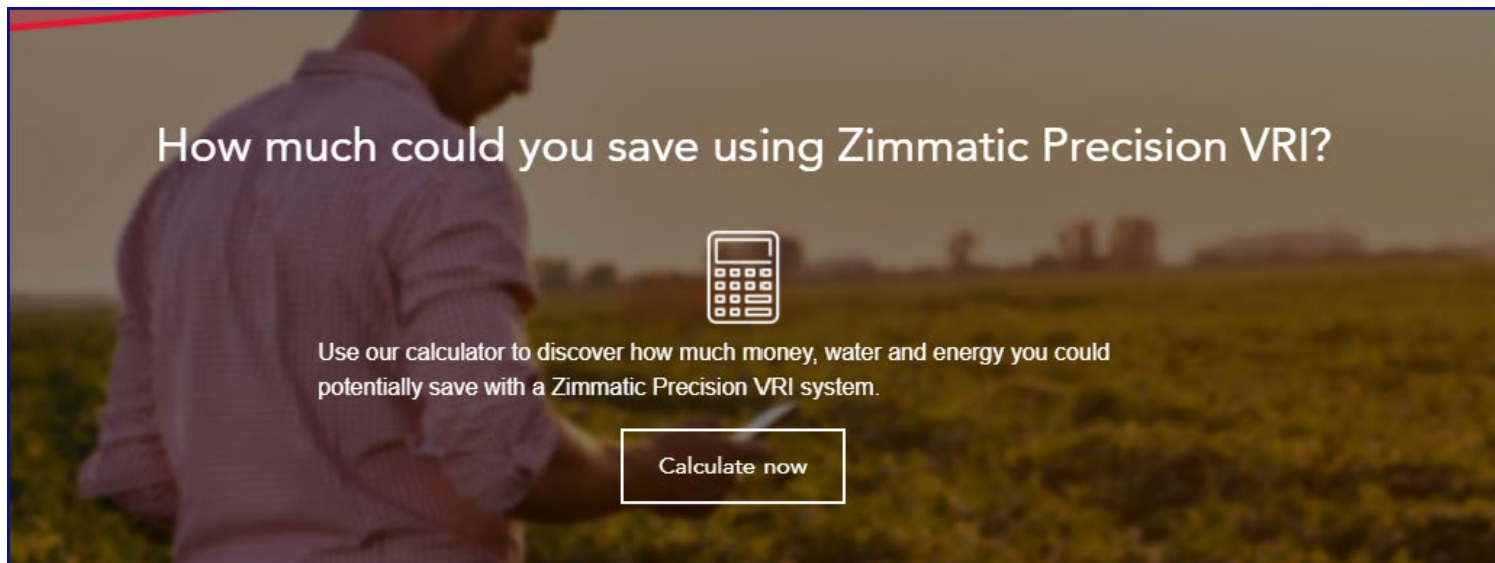
CALCULATE

<https://farmbot.com.au/cost-savings-calculator/>

03

What Irrigation AgTech can do for your farm business.

Calculating a Return on Investment



How much could you save using Zimmatic Precision VRI?

Use our calculator to discover how much money, water and energy you could potentially save with a Zimmatic Precision VRI system.

Calculate now

<https://www.lindsay.com/usca/en/irrigation/resources/tools/precision-vri-savings-calculator/>

Remotes sensing

- Satellite technology used for detecting green matter (NDVI)
- Varying levels of sophistication

<https://geosys.com/solutions/#croptical>

REPORT NDVI

croptical[®]
farm monitoring tool

SEASON **2021**

CROP **WHEAT**

GROWER **TIMMY T FARMING**

VARIETY

FARM **ARGYLE**

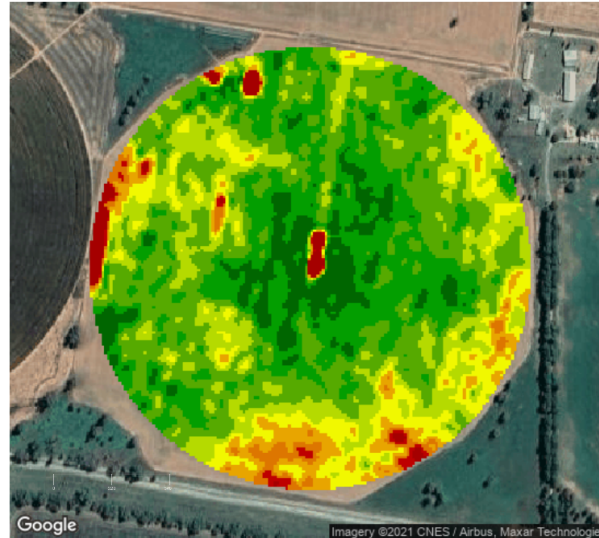
SOWING DATE **17/03/2021**

Paddock NAME **ARGYLE BORE PIVOT**

IRRIGATED

AREA **31 HA**

USAGE **GRAIN**



CREATION DATE
▶ **14/07/2021**

IMAGE DATE
▶ **11/07/2021**

MIN VALUE
▶ **0.53**

AVG VALUE
▶ **0.91**

MAX VALUE
▶ **0.94**

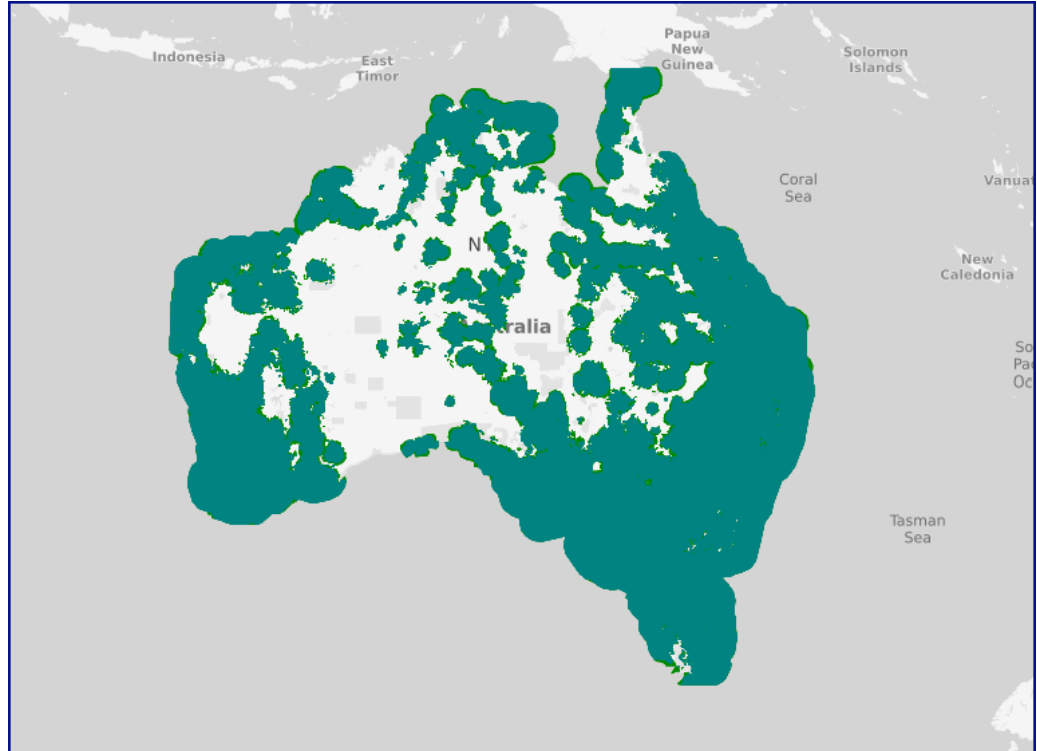
INDEX										
NDVI	0.53	0.86	0.87	0.88	0.89	0.9	0.91	0.92	0.93	0.94
AREA (HA)	0.49	0.23	0.66	1.59	3.19	5.44	9.42	7.33	2.51	
AREA (%)	1.6%	0.7%	2.1%	5.2%	10.3%	17.6%	30.5%	23.8%	8.1%	

Connectivity

- There is a range of connectivity options that need to be considered.
 - Availability
 - Fit for purpose
 - Data
 - Set up costs
 - Building your own
 - Can be shared amongst neighbours
 - Ongoing costs

NB IoT by Telstra

- Leverages LTE infrastructure
- Low power devices



Low orbit nano satellites

- Nano satellites



<https://myriota.com/2021/02/17/myriota-and-goanna-ag-launch-innovative-ag-tech-products-to-manage-rainfall-and-water-usage/>



<https://myriota.com/meet-myriota-revolutionizing-your-industry/>

Case study

The Sydney Morning Herald

Advertisement

Maximising megalitres

Sam Sorrenti is a second-generation peach and nectarine grower outside Cobram, on loamy soil near the Murray River in northern Victoria. He relies on expensive irrigated water to grow his stonefruit. “Farming is completely different to what it was,” he says. “Technology has given us better quality, better volumes and greater efficiencies.” Sorrenti is part of a Victorian government “[internet of things](#)” trial that uses new wireless capabilities to beam information from the soil to his sofa.

He has 24 moisture probes across two orchards, each poking about 80 centimetres into the ground. When water seeps down, the sensors record its depth and send that information to a node and onward to the cloud. Sorrenti can be anywhere – his office, the supermarket – and check if his trees have had enough water.

The sensors were installed in October 2020, and by January this year, Sorrenti trusted the system to guide his decisions. “There are two really important times for water: between flowering and stone-hardening, and five weeks before harvest, when the fruit does most of its growing,” he says. “The sensors won me over for this second period.” During hot summer days, Sorrenti checked the platform every half-hour. “It’s not how much you water, it’s how well you water,” he says.

<https://www.smh.com.au/national/cows-in-pain-thirsty-peaches-stressed-tomatoes-how-tech-s-helping-nature-talk-to-farmers-20210507-p57pwh.html>


03

What Irrigation AgTech can do for your farm business.

The screenshot displays the Qagtechfinder Directory interface. At the top, the logo 'Qagtechfinder' is on the left, and navigation links 'Home', 'The Finder', 'Directory' (highlighted), and 'Expert Info' are on the right. A vertical stack of social media icons (LinkedIn, Facebook, Twitter, Email) is positioned on the right side of the header. Below the header, the word 'Directory' is prominently displayed. A search bar with the placeholder 'Search here...' is located below the title. Underneath the search bar, there are four filter categories: 'Content Type', 'Sector', 'Focus Area', and 'Solution Type', each with a 'See all' dropdown menu. The section 'Directory results' follows, with a note 'Showing results 1 to 9 of 561'. Three result cards are visible: 1. 'Cold Chain Logistics' by James Tyler, featuring a satellite map of Australia. 2. 'Pasture.io - Graze Smarter' by Pasture.io, featuring a map of Australia with various colored markers. 3. 'AGRIVI FMS' by AGRIVI, featuring an image of a laptop, a smartphone, and fresh produce like an apple and carrots.


<https://agtechfinder.com/>


The Digital Agriculture Investment Scheme

 **RURAL FINANCE**


Internet Banking
Secure Log In >

Industry Programs Calculator About Us Contact Us



Search 

Have a Question? 
Call us on 1800 260 425 or
click to leave a message.

Digital Agriculture Investment Scheme - this program is now closed



Related Documents:

-  [Agriculture Investment Scheme Guidelines \(pdf\) \(pdf\)](#)
-  [Agriculture Investment Scheme Guidelines \(Word\) \(docx\)](#)

The Digital Agriculture Investment Scheme is now fully subscribed, and the program is closed to new applications.

Applications previously submitted under this program are being processed in date order.

Due to the high volume of applications received, it will take several weeks to process existing applications.

Other funding opportunities and where to find them

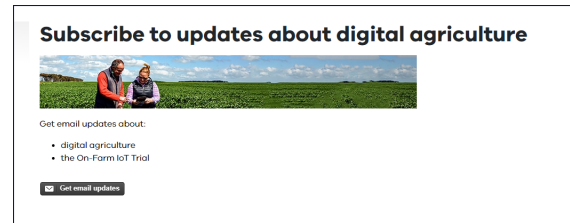
<https://www.woolworths.com.au/shop/discover/sustainability/dairy-innovation-fund#>



<https://www.grants.gov.au/Go/List?orderBy=Close+Date+%26+Time+-+Ascending&Gold=&Keyword=agriculture&KeywordTypeSearch=AllWord>



<https://agriculture.vic.gov.au/farm-management/digital-agriculture/subscribe-to-updates-about-digital-agriculture>





Resources

Resources

IoT Trial Catalogue:

https://docs.google.com/spreadsheets/d/14altXGBZdU0w86H1qXNYAvv0phmWAXN5i_GhM4AKm4U/edit?usp=sharing

Smart Irrigation Booklet:

<https://www.cottoninfo.com.au/sites/default/files/documents/Smarter%20irrigation%20technology%20tour%20booklet%20FOR%20WEB.pdf>

MLA Ag Tech pilot report: <https://www.mla.com.au/news-and-events/industry-news/ag-tech-pilot-delivering-results/>

Agriculture Victoria Digital Ag: <https://agriculture.vic.gov.au/farm-management/digital-agriculture>

Agriculture Victoria Digital Ag Updates: <https://agriculture.vic.gov.au/farm-management/digital-agriculture/subscribe-to-updates-about-digital-agriculture>



Resources

Resources (continued)

Extension AUS – Irrigating Agriculture, Search ‘tech’:

https://extensionaus.com.au/irrigatingag/home/?_sf_s=tech

Extension AUS – Irrigating Agriculture, Plant based sensors for scheduling:

<https://extensionaus.com.au/irrigatingag/plant-based-sensors-for-irrigation-scheduling/>

Extension AUS – Irrigating Agriculture, Using satellites to monitor crop water use:

<https://extensionaus.com.au/irrigatingag/using-satellites-to-monitor-crop-water-use/>

Extension AUS – Irrigating Agriculture, Introduction to remote sensing for crop health:

<https://extensionaus.com.au/irrigatingag/introduction-to-remote-sensing-for-crop-health/>


Sydney Morning Herald, Good Weekend:

<https://www.smh.com.au/national/cows-in-pain-thirsty-peaches-stressed-tomatoes-how-tech-is-helping-nature-talk-to-farmers-20210507-p57pwh.html>



Feedback, Questions and Resources.




Questions





HomeThe FinderDirectory


Expert Info

Filter by: Show all Blog Posts Focus Areas Practical Tips Weekly News Dashboard

Showing results 1 to 9 of 9









Feedback, Questions and Resources.

Feedback Survey

