

On Farm **Connectivity** Information Service

INFORMATION TOOLKIT

NOVEMBER 2023



National
Farmers
Federation



Regional
Tech Hub

INFORMATION TOOLKIT

In this toolkit, you will find everything you need to help spread the word about the new On Farm Connectivity Information Service.

Containing links to resources you can download, or share, via your communications channels - please distribute to your network.

Keep checking the Regional Tech Hub website for regular updates and additional information to help get you connected



Overview

Connect with Regional Tech Hub

Case Study: Longline Fishing

Case Study: Walnut Farm Case

Study: Marketing Manager Case

Study: Oyster Farmer

Factsheets

Useful Guides

Videos

More Information

OVERVIEW



On-farm connectivity. Driving the next wave of productivity.

The National Farmers' Federation (NFF) are proud to support the Federal Government's On Farm Connectivity Program (OFCP), by delivering a free Information Service to boost on-farm digital and agtech adoption.

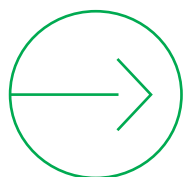
Launching the independent On Farm Connectivity Information Service, the NFF's Regional Tech Hub works directly with farmers to help them make informed decisions around the connectivity technologies best suited to their business.

Whether it be determining how to extend connectivity from the house to the machinery shed or yards, or how to support some of the highly sophisticated production networks and systems they wish to adopt, the Information Service provides practical, tailored solutions.

Farmers are urged to make use of this free, independent advisory service, so they can confidently participate in the On Farm Connectivity Program and access rebated support for the cost of eligible equipment, including installation and training, to boost the productivity of their business.



CONNECTING WITH THE REGIONAL TECH HUB



Free and independent service available to help answer questions about the On Farm Connectivity Program. We also provide advice on selecting connectivity options and technologies for your farm:

To support the roll out of the program, the NFF has launched an On-Farm Connectivity Information Service, delivered through the Regional Tech Hub, to help farmers access rebates up to \$30,000 under the **Australian Government's new On Farm Connectivity Program**. This is a completely free and independent service that helps farmers by answering any questions or helping them understand what connectivity technology options they may need and can access through the program.

Ways to get in touch with the Regional Tech Hub:

- Visit our website: [Here](#)
- Book an appointment to chat with our team: [Here](#)
- Call us on **1300 081 029**
- Fill out a contact form for individualised info: [Here](#)

How we can help:

- Walk you through the eligibility criteria for the program
- Provide examples of equipment covered by the rebate
- Free advice on choosing the right connectivity technology and develop an adoption plan
- Sounding board to discuss options and ideas for on farm connectivity
- Walk farmers through their best options and next steps
- Answer any technical questions farmers might have.



FOR MORE INFORMATION WATCH OUR WEBINAR.

Held on 23 November 2023, where we hear from the Regional Tech Hub and the Department on program eligibility, the application process, and lots of questions answered from farmers.

[VIDEO LINK](#)

We have already helped dozens of farmers better understand their options and how to apply through the program. Please get it in touch if we can help you!

CASE STUDY



USE CASE: DAVID, LONGLINE FISHING

AgriFutures Australia

[DOWNLOAD CASE STUDY HERE](#)

USE CASE: DAVID, LONGLINE FISHING

AgriFutures Australia



Connectivity Persona: David



Longline Fishing Operations Manager

"Robust, consistent connectivity is essential to the operational efficiency of the vessel also for the mental wellbeing of our staff"

David, is a believer in the importance of connectivity for modern wild catch fishing. His organisation heavily relies on expensive geostationary satellite connectivity, wi-fi and UHF radio in it's day to day operations at sea. To support and maintain fleet connectivity, he collaborates with specialised engineers, flying them from other states due to their scarcity. Recognising connectivity as an essential requirement for operations, compliance, and safety during long periods at sea, David ensures emerging technologies are allocated. However, he faces quality of service challenges with volatile and costly satellite bandwidth. His company plans to trial Low Earth Orbit Satellite solutions however, David remains concerned about coverage in remote southern fishing regions.

USER ENVIRONMENT

LOCATION:
Remote, on-boat, connectivity to the internet from operational areas and crew quarters.

AGRITECH IN USE
VMS, Catch Reporting Software^{1,2,3,8}, E-PIRBS⁵, Fish finder¹, E-Monitoring video cameras and sensors⁸

CONNECTIVITY IN USE
1. Geostationary satellite,
2. Point to Point Wireless,
3. Wi-Fi,
4. VHF,
5. UHF radio,
6. Digital Select Calling,
7. Cellular,
8. 4G/LTE,
9. Wi-Fi calling.

GOALS

TASKS:
Catch/compliance reporting/monitoring^{1,2,3,8}, personal administration^{1,2,3,7,8,9}, research, email^{1,2,3,8}, backoffice reporting^{1,2,3,8}.

OBJECTIVES
To use connectivity to support/enhance operational efficiency, compliance and crew wellbeing.

PAIN POINTS

BUSINESS CASE:
Provision and maintenance of service is essential but very expensive for the organisation to supply and maintain.

TECHNOLOGY
Quality of service is the biggest issue, often there is not enough bandwidth to carry out essential tasks such as time sensitive compliance reporting resulting in fines. Crew are also unable to contact home and manage their affairs like online banking which leads to mental health issues.

SUPPORT

Available support is very limited and costly, there are few trusted experts in Australia. David leans on his consultants for advice and information about new technologies.

CASE STUDY





USE CASE: GEOFF, WALNUT FARM OWNER

AgriFutures Australia

[DOWNLOAD CASE STUDY HERE](#)

USE CASE: GEOFF, WALNUT FARM OWNER

AgriFutures Australia



Connectivity Persona: Geoff

Walnut Farm Owner

"Internet at the house is fine but we don't have any at the packing shed. I have to run back and forth to print postage labels for our orders. It's such a time sink."

Geoff is a small walnut farmer based in northern Victoria. Despite having access to fixed line NBN at 50mbps in his peri-urban location, he struggles to justify investing in better connectivity options on-farm. He sells walnuts wholesale into food manufacturing and directly to consumers through his e-commerce website managed from his office. His office is located in his house but he packs orders in a shed 80 meters away that has no connectivity. This sees him frequently running back and forth to print labels. This inefficient process wastes time and is prone to errors. Geoff lacks the skills and time to solve these connectivity issues himself and doesn't know where to seek assistance. Additionally, he has read about the use of IoT monitoring technologies in walnut orchards to optimise fertiliser and water usage but is unsure of the best options for him and if the investment is financially viable given the narrow margins in his business.

USER ENVIRONMENT
LOCATION:
Peri-Urban <1000Ha.

AGRITECH IN USE
Excel Spreadsheets^{1,2,3}

CONNECTIVITY IN USE
1. NBN FTTN broadband,
2. Wi-Fi,
3. Ethernet over Power
4. 5G
5. 4G/LTE
6. Cellular

GOALS
TASKS:
Business Administration^{1,2,3,4,5,6},
Production and Resource
Management^{1,2,3}, Sales and
marketing^{1,2,3,4,5,6}, Security and
monitoring^{1,2}.

OBJECTIVES
To improve sales efficiency and
increase accuracy and frequency of
farm input monitoring.

PAIN POINTS
BUSINESS CASE:
Tight margins mean that technology investments are difficult to justify, even across his relatively
small enterprise.

TECHNOLOGY
While Geoff has access to good connectivity solutions including NBN FTTN and 4G/LTE
coverage his knowledge of solutions stops him from implementing them to their full potential
within his business.

SUPPORT
Geoff uses his local telco store as a source of advice but finds that the sales people there do not
understand farming meaning the advice they give is often not in line with his needs.

CASE STUDY



USE CASE:

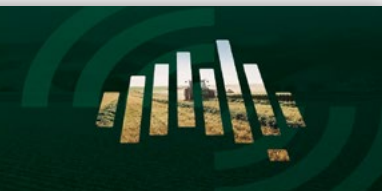
JULIA, MARKETING MANAGER AND FARMER

AgriFutures Australia

[DOWNLOAD CASE STUDY HERE](#)

USE CASE: JULIA, MARKETING MANAGER AND FARMER

AgriFutures Australia



Connectivity Persona: Julia



Marketing Manager

"Good internet access is essential for my marketing business. I couldn't run it without it. I would lose valuable income as well as my passion!"

Julia and her husband manage a large cropping farm spanning over 2000 ha, cultivating wheat, lupins, canola, barley, and producing export hay. Limited 4G connectivity means they rely on 3G cellular connections in specific areas, with a cell-fi system boosting the signal for usability in key areas. Julia also operates a marketing consulting business, which provides crucial off-farm income and that is 100% reliant on good internet service. Communication across the property is facilitated by UHF radio, utilising installed and community repeaters. Julia has a box in her kitchen from a local grower group's community weather station project that is plugged into her home network. She accesses regional weather information from the project through a website. Despite available yield data from machinery, it remains largely unused, except for occasional requests from her agronomist. Recent satellite downtime, affecting GPS correction signals, highlighted the significance of technology like auto steer for her contract workers and younger staff to carry out their work effectively.

USER ENVIRONMENT

LOCATION:
Rural, remote >2000Ha.

AGRITECH IN USE
Weather Stations^{1,2,4}, Farm Management Software^{1,2,3,4}, Yield Prediction Maps^{1,2}, Yield Data^{1,2,8}

CONNECTIVITY IN USE
1. NBN fixed wireless broadband,
2. Wi-Fi,
3. Ethernet over Power
4. LoRaWan
5. Cell-Fi
6. UHF-Radio
7. 3G
8. 4G/LTE
9. Cellular

GOALS

TASKS:
Business Administration^{1,2,3,5,7,8,9}, Production and Resource Management^{1,2,3,5,6,7,8,9}, Selling and marketing^{1,2,3,5,6,7,8,9}, Security and monitoring^{1,2,3,5,6,9}, Off farm business management^{1,2,3,5,6,7,8,9}

OBJECTIVES

To support production and resource efficiencies, disaster prevention, maintain off-farm income.

PAIN POINTS

BUSINESS CASE:

The property is too large for whole of farm connectivity investments. Julia is worried that the upcoming 3G turn off will deprecate her cell-fi repeaters and some 3g sims she uses for remote monitoring of water supplies leaving her with no cellular service.

TECHNOLOGY

UHF is the main connectivity tool in use but it's not private. She has access to a LoRaWan network but does not know how to further leverage it. Sometimes her fixed wi-fi goes down for no apparent reason meaning she cannot work and loses off farm income.

SUPPORT

Julia doesn't know where to go for support but tries to leverage her grower group.

CASE STUDY



USE CASE: DUNCAN, OYSTER FARMER

AgriFutures Australia

[DOWNLOAD CASE STUDY HERE](#)

USE CASE: DUNCAN, OYSTER FARMER

AgriFutures Australia



Connectivity Persona: Duncan



Oyster farmer

"I usually have mobile signal, I use my phone mostly to speak to customers, keep track of production and to check weather conditions."

Duncan manages a shared farm business on the NSW Central Coast, farming oysters with 4 other farmers. He recently adopted a mobile app for farm management, which helps him optimise his business. The app tracks oyster growth and bag numbers using GPS for physical location. Duncan can access information on the go, allowing him to communicate with customers and fulfill orders even when he's away from the office. His team also uses the app for maintenance tracking. They communicate through WhatsApp, iMessage, and phone calls. Duncan utilises LoRaWan connected flow sensors to monitor water characteristics and temperature. He also has access to NSW DPI data and uses his phone and the office computer to check the weather and to fulfill orders. Although 4G/LTE signal isn't perfect, it doesn't pose significant issues, and 5G is being introduced in the area. Wi-Fi is used across the farm station, with broadband in the office.

USER ENVIRONMENT

LOCATION:
Rural ~8Ha.

AGTECH IN USE

Farm Management App^{1,2,5,8},
Maintenance App^{1,2,5,8}, Water
Monitor Sensors^{1,2,4}, Weather Station
(x1)^{1,2,5}

CONNECTIVITY IN USE

1. NBN FTTN broadband,
2. Wi-Fi,
3. Ethernet over Power
4. LoRaWan
5. 4G/LTE
6. 5G
7. UHF Radio
8. Cellular (personal phones)

GOALS

TASKS:
Business Administration^{1,2,3,4,5,6,7,8},
Production and Resource
Management^{1,2,4,5,6,7}, Sales and
marketing^{1,2,3,5,6,8}, Security and
monitoring^{1,2,5}, Staff
management^{1,2,3,5,7,8}.

OBJECTIVES

To support production and resource
efficiencies, enable better planning
and maintenance, increase sales.

PAIN POINTS

BUSINESS CASE:

Connectivity is not generally an issue for Duncan both on land and on boat however he struggles to be aware of the new technologies that could help his business.

TECHNOLOGY

Duncan doesn't generally face prolonged connectivity issues as he has mobile and wi-fi connectivity but frequently reboots his NBN modem due to poor service from the supplier. Staff use their personal mobile phones over which Duncan has no control.

SUPPORT

Duncan, who manages his farm's technology independently, keeps up with new advancements by reading technology websites and industry press. However, he struggles to find reliable and affordable specialist support to manage his technology effectively.

FACTSHEETS



FACT SHEETS

ON-FARM CONNECTIVITY TECHNOLOGY OPTIONS

PICKING THE RIGHT CONNECTIVITY SOLUTION FOR YOUR FARM BUSINESS

ON-FARM CONNECTIVITY EQUIPMENT: AN ESSENTIAL GUIDE

STEPS IN YOUR ON-FARM CONNECTIVITY JOURNEY

ON-FARM CONNECTIVITY: ENVIRONMENTAL MONITORING FACTSHEET

ON-FARM CONNECTIVITY: FARM MANAGEMENT EQUIPMENT FACTSHEET

FACTSHEET: On-Farm Connectivity Technology Options

On-farm connectivity technology types
 In the dynamic landscape of modern agriculture, farmers are presented with a plethora of technological options, each offering unique solutions to enhance efficiency, productivity, and sustainability. From the precision of IoT devices to the broad reach of satellite communications, the array of choices can pose a daunting range of on-farm challenges.

The key to harnessing this potential lies in carefully selecting the right technology that aligns with the specific problems they aim to address, ensuring that the solution not only integrates seamlessly with their current operations but also aligns to future advancements in farm management.

Following is a summary of the main technology types and an introduction to the use cases, benefits and considerations. Please contact the Regional Tech Hub for free consultations.

IoT (Internet of Things)
Description: A network of devices that communicate with each other and share data.
Use Cases: Precision agriculture, livestock management, and environmental monitoring.
Benefits: Increased efficiency, data-driven decision-making, and improved resource management.
Limitations: High initial costs, potential security concerns, and power limitations for remote sensors.

LPWAN (Long Range Wide Area Network)
 Describes a variety of technologies used to connect IoT devices to a network beyond the reach of traditional networks such as Bluetooth and WiFi.

LPWAN encompasses a range of technologies including LoRaWAN, Sigfox, Category M1 (Cat M1), NB-IoT and others. These have emerged to meet the need for long battery life (years), low cost, and a long-range reach of signals.

LPWANs are typically used for low data rate transfers, where the ability for sensors to generate, communicate and transmit over long distances is only feasible if infrastructure can be provided affordably, and maintained at low cost over time.

DOWNLOAD PDF HERE

ON-FARM CONNECTIVITY TECHNOLOGY OPTIONS

FACTSHEET: Steps in your On-Farm Connectivity Journey

Steps to Consider in Your On-Farm Connectivity Journey
 An on-farm connectivity plan is a key to your technology adoption journey. This factsheet aims to guide you through the steps and considerations when preparing to establish connectivity on your farm.

Build your farm connectivity plan
 A robust farm connectivity plan is vital for a successful digital agriculture strategy. Below are the steps and considerations to guide you in building your plan.

1. Identify your connection needs
 Determine the types of data and applications you need to connect. Consider the volume of data, the frequency of updates, and the specific use cases for the connectivity.

2. Assess your current network connectivity
 Identify which types of network connectivity (mobile, broadband, IoT etc.) are available on your farm.
 - Map out where these networks are strongest and weakest.
 - The Regional Tech Hub can help you understand your connectivity by providing a free and independent report on your connectivity options available at your location. Click here to start the process.

DOWNLOAD PDF HERE

STEPS IN YOUR ON-FARM CONNECTIVITY JOURNEY

On-Farm Connectivity Factsheet

Picking the right connectivity solution for your farm business
 When it comes to selecting a communication network for a farming business, there is no one size fits all. While one connectivity solution may be perfect for a local enterprise in Queensland, it might be inadequate for the needs of a large scale grain operation in Western Australia.

What matters is the context of your deployment, including location, business requirements and technology use cases. These will dictate which communication technology is used to fit.

Know the problem you're trying to solve
 Before you start looking at connectivity options, you need to understand the specific problem you're trying to solve. This will help you identify the right technology and connectivity solution for your business.

Questions to consider as a potential supplier
 - What kind of coverage do you require for your specific location?
 - Are there any data caps or limits?
 - How will your connectivity solution integrate with my existing farm equipment and management systems?
 - Do you provide ongoing technical support and maintenance services?
 - What are the installation costs, processes, downtime and timeline for supply and installation?
 - Are there ongoing subscription costs or fees?
 - What level of customer support and technical services do you offer post-installation, especially for rural and hard-to-reach areas?
 - Do you offer any discounts or packages suitable for farming operations?
 - What personnel are well-versed in farm, who own the data collected by your systems, and how can we use this data for our farm management decisions?
 - What measures are in place to safeguard my farm and personal data? Do your solutions comply with all relevant legal and regulatory requirements for data protection and privacy?

DOWNLOAD PDF HERE

PICKING THE RIGHT CONNECTIVITY SOLUTION FOR YOUR FARM BUSINESS

Factsheet: On-Farm Connectivity

On-Farm Connectivity Equipment: An Essential Guide
 Enhancing on-farm connectivity requires a suite of equipment designed to ensure robust and reliable communication and data transfer. Below, we delve into the purpose of each piece of equipment and its role in agricultural operations.

Antennas
Purpose: Antennas are crucial for capturing and sending out radio frequency signals. They can significantly improve the range and quality of wireless communications by providing a physical medium through which signals are transmitted and received.

Types and Applications:
 - Omnidirectional: Broadcast and receive signals in all horizontal directions; ideal for general coverage.
 - Directional: Focuses signals in a specific direction, which is useful for long-range communication.

Practical:
 - Extend range
 - Connect devices
 - Use in remote areas

Bascom Purpose:
 - Monitoring livestock locations
 - Managing asset locations and environmental conditions in real-time.

Radio Transmitters
Purpose: These devices convert information into radio waves and transmit it across distances. They are essential for wireless communication where conventional infrastructure is not available or practical.

Practical Use on Farms:
 - Controlling irrigation systems remotely.
 - Communicating with workers across expansive and remote farm areas.

DOWNLOAD PDF HERE

ON-FARM CONNECTIVITY: ENVIRONMENTAL MONITORING FACTSHEET

Factsheet: On-Farm Connectivity

On-Farm Connectivity Equipment: An Essential Guide
 Enhancing on-farm connectivity requires a suite of equipment designed to ensure robust and reliable communication and data transfer. Below, we delve into the purpose of each piece of equipment and its role in agricultural operations.

Antennas
Purpose: Antennas are crucial for capturing and sending out radio frequency signals. They can significantly improve the range and quality of wireless communications by providing a physical medium through which signals are transmitted and received.

Types and Applications:
 - Omnidirectional: Broadcast and receive signals in all horizontal directions; ideal for general coverage.
 - Directional: Focuses signals in a specific direction, which is useful for long-range communication.

Practical:
 - Extend range
 - Connect devices
 - Use in remote areas

Bascom Purpose:
 - Monitoring livestock locations
 - Managing asset locations and environmental conditions in real-time.

Radio Transmitters
Purpose: These devices convert information into radio waves and transmit it across distances. They are essential for wireless communication where conventional infrastructure is not available or practical.

Practical Use on Farms:
 - Controlling irrigation systems remotely.
 - Communicating with workers across expansive and remote farm areas.

DOWNLOAD PDF HERE

ON-FARM CONNECTIVITY EQUIPMENT: AN ESSENTIAL GUIDE

Factsheet: On-Farm Connectivity

On-Farm Connectivity Equipment: An Essential Guide
 Enhancing on-farm connectivity requires a suite of equipment designed to ensure robust and reliable communication and data transfer. Below, we delve into the purpose of each piece of equipment and its role in agricultural operations.

Antennas
Purpose: Antennas are crucial for capturing and sending out radio frequency signals. They can significantly improve the range and quality of wireless communications by providing a physical medium through which signals are transmitted and received.

Types and Applications:
 - Omnidirectional: Broadcast and receive signals in all horizontal directions; ideal for general coverage.
 - Directional: Focuses signals in a specific direction, which is useful for long-range communication.

Practical:
 - Extend range
 - Connect devices
 - Use in remote areas

Bascom Purpose:
 - Monitoring livestock locations
 - Managing asset locations and environmental conditions in real-time.

Radio Transmitters
Purpose: These devices convert information into radio waves and transmit it across distances. They are essential for wireless communication where conventional infrastructure is not available or practical.

Practical Use on Farms:
 - Controlling irrigation systems remotely.
 - Communicating with workers across expansive and remote farm areas.

DOWNLOAD PDF HERE

ON-FARM CONNECTIVITY: FARM MANAGEMENT EQUIPMENT FACTSHEET

USEFUL GUIDES



USEFUL GUIDES: Handy guides for reference



ON-FARM CONNECTIVITY GUIDE

This guide is designed to assist farmers better to understand the key phrases used in the on-farm, AgTech and connectivity sectors as they are relevant to agricultural operations.

[DOWNLOAD GUIDE HERE](#)



AGRI 4.0 - CONNECTIVITY AT OUR FINGERTIPS

The purpose of this paper is to cut through the confusion surrounding on-farm connectivity. KPMG IoT and AgTech specialists explore the technology landscape, and shine light on the stories of pioneering farmers who have already adopted digital technology to advance their enterprises.

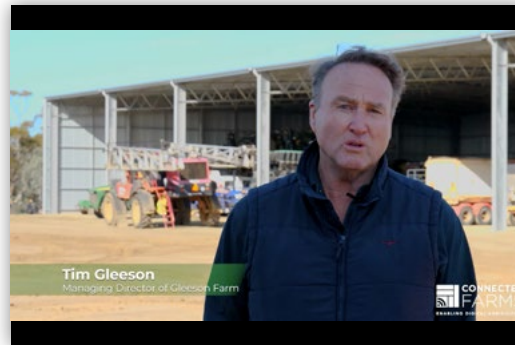
[DOWNLOAD PDF HERE](#)

VIDEOS



USEFUL VIDEOS:

Video to watch to learn about Farmers experiences



MEET TIM GLEESON, A CONNECTED FARMS BROADACRE CUSTOMER.

Connected Farms

Meet our customer Tim Gleeson who owns a broadacre operation in Victoria.

[VIDEO LINK](#)



MEET ZAC GLOVER A CONNECTED FARMS BROADACRE CUSTOMER.

Connected Farms

Meet Zac Glover our valued customer share his experience with our Satellite on the move product!

[VIDEO LINK](#)



MEET PETER A SOUTH AUSTRALIA BROADACRE FARMER

Connected Farms

Watch Peter Glover's journey and see how it's boosting operations on his farm.

[VIDEO LINK](#)

MORE INFORMATION



Regional Tech Hub

regionaltechhub.org.au/home/on-farm-connectivity-program/

On Farm Connectivity Program

infrastructure.gov.au/ofcp

business.gov.au/grants-and-programs/on-farm-connectivity-program

National Farmers Federation

nff.org.au/on-farm-connectivity-information-service

**THANK YOU
FOR SPREADING
THE WORD**

**On-farm connectivity.
Driving the next wave
of productivity.**

