Farm Connectivity 101: a simple guide to setting up a Farm Wifi system

Learn about the basics of what you need and how to install a wide area Wifi network on your farm or rural property.

An easy to understand, non technical guide for Australian farmers and rural property owners.

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Farm Link WIRELESS

Are you tired of struggling with slow internet and poor wifi connectivity on your farm or property? In today's digital age, efficient internet access is no longer a luxury but a necessity for successful farming operations. Whether you're wanting to provide wifi at your sheds and workshops, worker's houses, or even remote and distant farms, this guide will give you a basic understanding of how you can provide wifi and internet connectivity to the areas of your property where it is required.

Introduction to Farm Wifi

Reliable and adequate internet connectivity has always been a major problem for many rural and remote areas across Australia. As new technologies and faster internet networks are released, rural and remote areas traditionally tend to miss out - as the telecommunication providers consider it not cost effective to provide these new services to lower population areas. Whilst your farm may now have a good internet connection at the main house - for example Starlink satellite – the rest of your property where you also require internet - sheds, workshops, shearing sheds, remote farms etc - may have very weak or absolutely no internet connectivity at all. With agriculture moving rapidly towards "smart farming" methods, high speed and reliable internet coverage in key areas of your property is becoming vital.

Key components of a Farm Wifi system

In environments where it is impossible to run cables long distances between buildings and properties, wireless networking allows the connection of these areas to be achieved easily and cost effectively. Traditionally having to be installed by qualified IT technicians, now systems like Farm Link Wifi® and Farm Link Cloud® can be easily installed DIY by non-IT qualified customers. There are several main components of a wireless network …

P2P - Point to Point wireless links … consisting of two components, the transmitter is connected to the main internet connection - for example, your Starlink in the house, and wirelessly transmits directly to the receiver at a remote location. It is usually mounted on the roof, and a single network cable connects it to the internet modem in the house itself. It is like "stretching a cable across the sky." Can be used to connect buildings and areas that may only be 100 metres apart, up to many kilometres apart.

WAP – Wireless Access Point … these connect directly to the P2P – either the transmitter or the receiver – and provide a wide area "spread" of wifi that mobiles and internet connected devices utilise to connect directly to the internet. Both Outdoor Long Range units, and Indoor Wide Area units for inside houses and large sheds etc.

MESH Nodes … similar to a Wireless Access Point, Mesh Nodes are used to spread your wifi network across a wider area. They are used in situations where the distances may be shorter and you don't necessarily want to go to the complexity or cost of using a P2P wireless link.

4G Router … when there is no available fixed internet connection available eg Star Link, NBN etc, but there is cellular service in the area. Connects directly to the closest carrier's cell tower, and then in turn the above wireless network devices connect to it to re-transmit and provide internet connectivity and wifi to each area as required. 4G Routers can be fitted with a variety of high gain and directional antennas to improve a weak cell signal. They can also be powered by 240VAC mains, or battery/solar for off-grid applications.

PoE Injector … provides both power in and data out – used to power the above wireless network devices. Can either connect to mains 240VAC mains power, or alternatively a 12V battery/solar power source.

P2P Wireless links.

Wireless Access Points.

4G LTE Router

Mesh Node

Network cabling … network cable needs to be correctly terminated with RJ45 network plugs, and a protective rubber boot fitted over these. Rather than try and do this yourself, the correct length of cable should be determined first, and then these fittings done by a competent technician. Alternatively buy professionally made cables of the correct length.

Assessing your farms connectivity needs

When assessing your farms wifi and internet connectivity needs, several factors should be considered to ensure an effective and reliable network and system is installed.

Farm size and layout … evaluate the physical size and layout of your farm to determine the extent of connectivity and wifi needed. Consider where are the key sheds, workers houses, and operational areas that will require the service.

Topography and obstacles … consider the distances between areas that need to connected, as well as any obstacles, hills, tall timber areas, etc.

Operational areas … prioritise key areas such as workshops, shearing sheds etc where connectivity is required.

Usage … remember not only is internet required, but also improved mobile reception (Wifi Calling) and the connection of security cameras and other monitoring devices. All of these services can be accessed via your wifi network.

Bandwidth requirements … analyse the nature of your activities. Data intensive tasks such as video streaming etc may demand higher transfer rates.

Power supply … is there the availability of power eg all devices are to be installed on sheds and workshops that have existing power. Or do you need to provide solar/battery power for completely off-grid applications.

Future proof … keep in mind that you may want to expand on your system in the future – and "bridge" on from these existing connections.
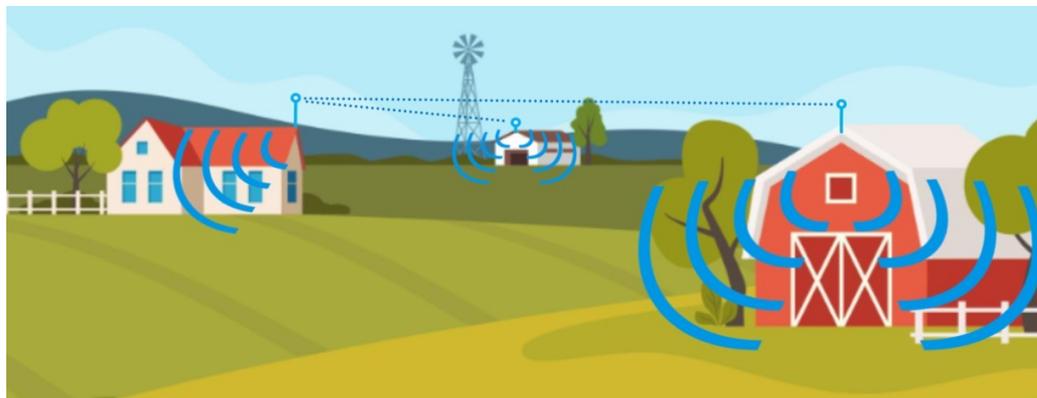
Farm wifi systems consist of a network of wireless Point to Point transmitters and receivers, Wireless Access Points and Mesh Nodes that provide high speed wifi to all the required areas of your property.

Installing your farm Wifi system

Mounting equipment and connecting cables are crucial steps in the installation of a quality farm wifi system. When it comes to mounting equipment – P2P links, WAPs and Mesh Nodes – it is essential to consider the optimal placement of these devices to ensure maximum coverage and minimal interference. Be strategic in choosing locations that provide a clear line of sight and avoid obstruction from large structures or natural landscape features.

When installing and connecting cables, attention to detail is key. Use high-quality cables that are durable and weather-resistant, as they will be exposed to outdoor elements. Proper cable management is also important to prevent tangling and damage over time. Also ensure that all fittings and connections – particularly if exposed to the elements, are weather proofed.

Ultimately, investing time and effort into mounting equipment and connecting cables with precision will contribute greatly to the overall effectiveness and longevity of your farm wifi system. Doing this properly will ensure long term connection reliability and minimal problems and ongoing maintenance required.

Securing your farm Wifi network

Protecting your farm wifi network from unauthorised access and potential cyber threats is important.

Configure **robust security measures** on your routers and access points by enabling WPA3 encryption and implementing strong, unique passwords.

Regularly **update firmware** to patch vulnerabilities and protect against emerging threats.

Consider setting up **firewalls** to monitor and control incoming and outgoing network traffic.

Restrict unauthorised access to your wifi – don't just let anyone use it and don't make the wifi password widely known.

Educate farm personnel about **cybersecurity best practices**, emphasising the importance of using secure passwords.

Install and use accredited **virus protection software** – not only on your computers and laptops, but also your phones and mobile devices. Make sure that all staff and users of your wifi network do the same.

By implementing these security measures you can protect your farm's wifi network against potential threats, protect valuable data and maintain the reliability of your farm business.

Maintaining your Wifi network

Whilst minimal maintenance should be required, some things to consider are …

Physical inspection … check periodically for signs of damage, water or weather ingress, cable damage by birds or rodents etc. Ensure that weatherproofing of exposed fittings and electrical connections are maintained.

Monitoring … periodically monitor signal strength, bandwidth usage, and device connectivity.

Firmware updates … check for and apply firmware updates for routers, P2P links, wireless access points, and other network devices. Updates often include security patches and performance enhancements.

User education … educate farm personnel and users about responsible network usage, emphasizing the importance of security practices. Encourage the use of strong passwords and the avoidance of potentially harmful websites.

Conclusion

A well designed and effective farm wifi system consists of a combination of hardware and strategic planning. By investing in the right components and staying informed about technology advancements, you can create and maintain a reliable and efficient wifi network that will provide you with seamless and efficient wifi and internet connectivity to all of the areas on your properties that you require it.

If you would like to find out more information about installing a wifi network on your farm or rural property, click on the link **Farm Link® and Farm Cloud®**, or email us direct at jon@farmtechsolutions.com.au or call **0417 184 183**.

Farm Link Wireless® ... cost effective Wifi and Internet connectivity for rural and farming properties.

Traditionally the cost of installing the infra-structure required is complicated, and requires onsite installation by qualified IT technicians - a service very hard to get in most rural areas. **Farm Link®** by FarmTech Solutions is a wireless Enterprise Class quality solution - scalable to whatever size you require - at a very reasonable cost. **Farm Link®** can be easily installed by unqualified and non-IT people. It is completely plug-and-play - no IT or networking knowledge is required.

We design your **Farm Link®** system according to your location and requirements. All hardware is pre-programmed before being sent to you. Clear instructions are provided for how you install what and where. Once you have installed your **Farm Link®**, our tech staff then remotely access your system and complete any programming adjustments for your specific location and requirements. Our **Farm Link Cloud®** then constantly monitors your system so that we can immediately and remotely fix any problems that may occur. We can also provide remote access support - change wifi passwords for you, check performance statistics, block users, etc.

*Farm Link Wireless ...
Whole of farm Wifi,
no tech required.*