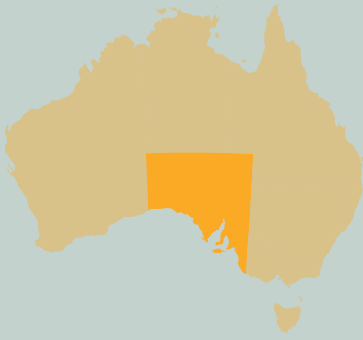


INNOVATION PROFILE



BUSINESS SNAPSHOT

OWNERS

John, Will and David Lindner

PROPERTY NAME

Wonga Station

PROPERTY LOCATION

25km north west of Morgan, SA

SIZE OF PROPERTY

53,000 hectares

BRIEF ENTERPRISE DESCRIPTION

Self-replacing merino flock

NUMBER OF PEOPLE WORKING IN THE BUSINESS

4 people (3 full time equivalents)

AVERAGE ANNUAL RAINFALL

225mm

WHY THIS IS A PASTORAL ZONE INNOVATION

Internet connections in pastoral zones are often slow and expensive, with little choice of service providers or plans. This innovation improves download speeds and plan options in remote areas which are cost-effective.



Wireless Broadband to the Bush

The Lindner family has owned Wonga Station for several generations. The property is located in bluebush country near South Australia's Riverland region and they run a 15,000 head self-replacing merino flock dominated by breeding ewes.

As many rural people understand, getting a reliable internet connection is not easy and this was the case for the Lindner's. With more business systems relying on the internet to operate, it is hard to keep up with change if the connection is slowing them down or is unreliable.

John, Will and David Lindner were unhappy with the internet connection a satellite service was giving them. They originally started with dial up but that started to fail due to line failures and very slow speeds.

"We could not successfully do our banking on line as it would often drop out half way through a transaction or would take 10 minutes per transaction," said David.

Figure 1: The Yagi antenna mounted on the Wonga homestead roof directed at the nearest phone tower.



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A progression to satellite service was the only way they could improve the internet connection and reliability at that time. It was costly and also became somewhat unreliable on heavy cloud days.

It was therefore at the top of the Lindner's list of priorities to obtain a cheaper, faster internet connection. This innovation uses a directional antenna to increase signal strength to access mobile wireless broadband.

WHAT WAS THE MOTIVATION TO CHANGE?

The high cost and unreliability of a satellite internet connection was causing issues for the business. Business programs require internet connection, such as Phoenix, used by the Lindner's. The internet connection was slow and the signal often dropped out, leaving tasks incomplete and personal frustration.

The price was fixed with one supplier at \$79/month for a limiting 500MB of data. Heavy cloud days made connection difficult. The only place they could get internet connection was in the office at the computer.

They did some research and made enquires about how it could be improved. The answer was a Yagi directional antenna that picked up mobile wireless signal.

HOW DOES THE INNOVATION WORK?

'Yagi antenna' is the common name for the type of antenna. It is a directional antenna that is also known as a 'beam antenna'. This is achieved by putting a series of smaller 'director elements' in front of the actual connected element. It also has a narrow bandwidth in which the signal is received, concentrating on the purpose it's installed for and reducing interference from other frequencies.

The antenna is installed on the roof to give it maximum potential to receive the signal. This limits interference from trees and other objects if possible and directed to the nearest mobile phone tower. This is then connected to a router which gives access to the internet anywhere in the house, just like you'd expect in an urban dwelling.

For Will, John and David, the nearest tower is approximately 25km away in Morgan. In rangeland terms, this is relatively close compared to other station owners.

Greg Patten of Canegrass Station, located north east of Wonga Station, is testament to the ability of a Yagi antenna. They are located more than 100km from the closest tower. This still picks up fast, reliable internet and phone reception because of the Yagi antenna's ability.

The technology relies on 'line of sight' to reach the tower. It works well in the relatively flat areas of the pastoral zones of Australia. It is unaffected by cloud cover and other weather conditions. The ability of the antenna to withstand extreme weather conditions has been noted by both the Patten's and the Lindner's.

Figure 2: The landscape at Wonga Station.





Figure 3: Merino rams at Wonga Station.

KEY FEATURES

Key features of this innovation include the following:

- By using a mobile data network, there has been built competition in the market, and therefore increased the number of plans available. This has dramatically increased the value and capacity of their business and decreased the cost.
- Consistently high speed and high strength signal makes business operations quicker and easier.
- Without relying on a government subsidised scheme, infrastructure is developed in the private sector. This has created competition and continually develop infrastructure to enable more users to access different networks. This also means that there is no lock-in contract with the National Broadband Network (NBN).
- Traditionally data is stored on computer hard drives or devices and you need direct access to these to access the information stored on them. Data can now be easily stored in the 'cloud'. This allows business to be performed and discussed at any location; not solely in the office.

WHAT ARE THE KEY BENEFITS?

The key benefits of this innovation include the following:

- They no longer have a contract with one provider. There is competition in the market that allows them to 'shop around' for the best deal. The Lindner's current plan is 5GB of data for \$29/month.
- The reliability and speed of the connection has vastly improved. This allows bigger parcels of data to be downloaded and help their business needs. This has also improved their lifestyle, especially their children, to download music and games and do their homework, just as their urban counterparts would.
- They have created their own domain name. This allowed them to obtain a more professional email address and the opportunity to change providers without changing their email address.
- Mobile phones, laptops and other smart devices can be used throughout the house and the general vicinity. The distance this can obtain relies on the routers ability to send the signal around the house and surrounds. The sim card can be inserted into an internet dongle and used on the same plan even if they are away from the farm on business or holidays.

KEY RESOURCES REQUIRED FOR THE INNOVATION

The following resources are required to obtain wireless mobile broadband:

- Directional Yagi antenna.
- Router.
- An annual domain name cost.
- Mobile broadband plan.

POTENTIAL CAUTION AND RISK

David advises to research plans available and how flexible they are to change as required. It is important to establish what network provider the plan uses. For example, David uses Internode for the plan that is serviced via the Optus network.

It is important to understand where the nearest tower is located. Research what type of Yagi antenna will best suit your needs and location. Some antennas may only pick up specific networks or signals or bandwidth.

Greg Patten from Canegrass Station has shown that this technology will work 100km from the nearest tower; however this is considered the outer range of the antennas limit. This innovation won't suit every situation; however, those who are within 100 km can drastically alter their connection speeds and capacity.

LOOKING FORWARD

The Lindner's have a Yagi antenna on two homesteads on the station and they are looking at the possibility of setting up Wi-Fi and/or Bluetooth systems to further improve mobile phone coverage in buildings and in the yards via a similar system.

If the mobile phone Wi-Fi or Bluetooth system works, they will be looking at the possibility of installing this system in the shearer's quarters. They believe that if they look after their workers, they will look after them. This has rung true year after year with the Linder's providing the best environment possible and achieving good results from their workers.

FURTHER RESOURCES

For more information on the use of and installing a Yagi directional antenna, an in depth explanation can be found at www.ubersignal.com/blog/yagi-antennas/

COST BENEFIT ANALYSIS:

The cost to set-up the innovation is as follows:

- A router and Yagi antenna is approximately \$800-\$900. This is a one-off capital investment.
- An annual domain name is \$100.
- A 5GB data plan is \$350 per year.

This has more than halved the annual cost and increased the amount of data available to use, compared to the previous plan via satellite.

THE FINAL WORD

"We have been able to increase our business capacity without being channeled to one provider. This gives our business flexibility and an improved lifestyle for the whole family," said David.

Bestprac acknowledges the contribution of John, David and Will Lindner in the development of this innovation profile.

To view more innovation profiles, business cases and videos of innovations in the pastoral zone, visit the Bestprac website www.bestprac.info



Figure 4: