

INNOVATION PROFILE



BUSINESS SNAPSHOT

OWNERS

Daniel, Jeff, Lincoln and Chris Evans

PROPERTY NAME

Evandown

PROPERTY LOCATION

Wunkar, SA

SIZE OF PROPERTY

8,000 hectares

BRIEF ENTERPRISE DESCRIPTION

Merino sheep and cropping

NUMBER OF PEOPLE WORKING IN THE BUSINESS

3 full time equivalents plus casuals

AVERAGE ANNUAL RAINFALL

250mm

WHY THIS IS A PASTORAL ZONE INNOVATION

Fencing is an essential part of stock control on any property. Keeping the wire manageable not only makes fencing easier but the hydraulic controls make it a lot safer.



Hydraulic Wire Winder

The Evans' farm is located near Wunkar, in South Australia's Mallee. The family has been farming there for over four generations and they are certainly skilled and think "outside of the box". They apply this thinking to every facet of their business. They look for ways things can be done more efficiently and how they can use their skills to their advantage.

Fencing is an essential task on every farm. The Evans' acknowledge this and wanted to find a way in which fencing wire can be controlled and used by anyone whilst keeping them safe.

This innovation profile demonstrates the use that a hydraulically controlled wire winder can have to increase the efficiency and manageability of fencing.

WHAT WAS THE MOTIVATION TO CHANGE?

The motivation behind this innovation was simple. The Evans' took on more land where the fences were in a state of disrepair. There was lots of fencing to do, therefore an easy way to manage cyclone, plain and barbed wire was needed. They needed a safe, efficient way of rolling up old wire and rolling out new wire when upgrading the fences.

Figure 1: Wire winder with narrow reel layout.



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HOW DOES THE INNOVATION WORK?

The hydraulic wire winder has been intricately designed by Daniel Evans from scratch, to be adaptable for different kinds of wire and as Daniel says "it is probably over engineered, but that means it will last".

It is a separate implement that is attached to a tractor via a three point linkage. It has hydraulic hoses that are attached and this drives the winding mechanism.

The hydraulic hoses mean that the operator can stand away from the machine when it is winding and control its operation safely. This differs from the Power Take Off (PTO) driven wire winders that have much less control and certainly not as safe in their operation. There is a guide fitted that keeps the wire in check and avoids the wire becoming tangled or missing the reel and getting wrapped around the drive shaft. The hydraulic pressure can be applied as a drag when winding wire out to stop the mechanism over-reeling, causing issues with wire getting tangled.

The reels have been designed to fit different types of wire. This means that they can be interchanged to make a small reel for single plain or barbed wire and then expanded to take pre-fabricated fence (cyclone) wire for example. The two layouts can be viewed in figures 1 and 2.

Daniel attaches a weight at the end of the wire when winding it in to keep tension and allow the wire to feed effectively.

The materials used to make this, the same as with many innovations on the Evans' property, has been recycled from other parts. The bearings and drive shaft are from a header and the majority of steel is used from materials on hand.

THE FINAL WORD

"Time is everything on a farm, it costs money so if you can find a way to reduce that time, you should" said Daniel.

Bestprac acknowledges the contribution of Daniel Evans in the development of this innovation profile.

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KEY FEATURES

The key features of the hydraulic wire winder are:

- Works using a hydraulic pressure system.
- The reels are interchangeable.
- It has a wire guide to avoid tangles.
- It is mounted to the tractor using a three point linkage.
- The hydraulic lever is placed away from the operating area.

WHAT ARE THE KEY BENEFITS?

The key benefits of this innovation are:

- It reduces the workload and the time it takes to re-fence an area with time not spent on untangling wire or winding it up manually.
- It can be used virtually by anyone.
- It keeps the worker away from the operating area so increases safety.
- Wire is kept tidy and it is easy to unravel when needed, stored or disposed of.

KEY RESOURCES REQUIRED FOR THE INNOVATION

Key items needed are:

- Steel to make the frame.
- A drive shaft.
- Hydraulic spool valve and hoses.
- Welding equipment and materials.

POTENTIAL CAUTION AND RISK

Daniel built the implement from scratch and recommended that the design is made as tough as possible. This will ensure it lasts and does not add undue strain on the tractor and implement due to the weight of wire.

When in operation, the operator still needs to ensure they stand away from the implement and must not put their hands near the implement when it is working. It is also advisable to wear safety glasses or goggles when rolling-up or unrolling wire.

WHAT COULD BE DONE DIFFERENTLY NEXT TIME?

Daniel is largely happy with his design and has been impressed with its performance in the paddock. The only things he can suggest changing are that the wire guide could be a little lower and he would install a tap on the hydraulic hoses to apply drag pressure when unwinding.

LOOKING FORWARD

Daniel has been approached by several people who are interested in the design. At the moment he has no plans to go into manufacturing the machine as it takes time to build that he doesn't necessarily have. He insists that if these were to be built, it would have to be through batch production.

COST BENEFIT ANALYSIS

Daniel says the spool valve cost him approximately \$200. He has managed to salvage the other materials required. If you needed to purchase the steel, it would increase the cost somewhat, depending on how much was required. Drive shafts and other materials can be obtained from scrap metal merchants.

For Daniel, it didn't take too long to build the implement but he believes it took around two weeks to envisage and finesse the idea.

The hydraulic wire winder has provided a large cost saving and has made the task of fencing much more manageable and efficient.

Figure 2: Wire winder with extended reel layout.

