

Permanent electric fencing – A solution for many guardians of the land

GW Mulligan^A D Abbey^B and A Fitzgerald^C

“Gallagher Westonfence”, Epping VIC 3076, and Parkes NSW 2870:

graeme.mulligan@gallagher.com

Abstract: *The attributes of permanent electric fencing are being well recognised but there is considerable opportunity for increased uptake to further protect pastures and environmental plantings. Electric fence efficiency has been on a journey from the 1960’s. Early designs featured a dumb box with 5 joules of stored energy that at best could generate just 5000 volts of energy. Earthing systems were fragile in the arid landscapes of Australia and attracted more criticism than accolades. Moving forward fifty years, we now have sophisticated technology that can deliver high voltages over significant distances. A 10,000i series fence unit now stores 100 joules of energy and punches out a minimum 10,000 volts with a well-designed technically advanced earthing system. Smart technology allows constant monitoring and management of the fences. Over a similar period, we have witnessed the introduction of high-density polypropylene (HDPE) droppers made from 100% recycled material sourced from Australian farm waste. The strength and versatility of this system is providing a cost effective, low maintenance fence with the ability to protect stock, crops and pastures from a variety of pest animals. The ingenuity of two farming families has revolutionised fencing today.*

Key words: Energiser, intelligent, fence selection, productivity, return

Introduction

Sir William Gallagher, second-generation ambassador of the 83-year-old family business, is still active today in the company, esteemed for its advanced technology, innovation and manufacturing. In Australia, Gallagher Animal Management operates out of Epping VIC delivering a range of fencing products to farmers and land managers. There is a team of people throughout Australia which offer expertise direct to customers and resellers through a hub of senior management, customer service and technical support.

Westonfence is a family-owned business based in Parkes NSW, manufacturing a unique fencing system and droppers. The late Peter Weston developed the Westonfence solution for the family’s 80,000-acre property. The business, now operated by Duncan Abbey and his wife Maria (nee Weston), has grown since the days a neighbour asked Peter if he could supply him with some high-density polypropylene (HDPE) droppers. The family has now supplied over 20,000 km of suspension fence to farmers around the country.

The recycled HDPE resin used in the manufacture of the droppers is derived from

farm waste, mostly chemical drums and plastic bins through Pelletek, a subsidiary company of Westonfence. The range of fence designs developed by Westonfence has grown over the years, providing solutions for the exclusion of feral animals and internal subdivision for livestock management. The products have been used extensively in regenerative and environmental programmes with organisations such as Landcare.

In the last six years Gallagher has formed a partnership with Westonfence to supply a permanent electric fencing solution for not just farmers but for a raft of guardians of the land.

The Historical Myths

Farmers still bear the scar tissue from their experience of using electric fencing in the 1980s. For some, it was a bad experience and not a permanent solution. It was said maintenance was high, voltage inconsistent, earthing did not work, electric fences started fires and the list goes on. In part, the Kiwi designed energisers were suited to the well earthed soils of New Zealand, but some farmers there also experienced problems to find the right earthing system.

Today, with the benefit of an additional forty years of rigorous research, innovation, and manufacturing excellence, the I series energisers

provide intelligence, reliability and efficiency. We also have improved knowledge on earthing requirements for specific Australian soil types. This technology has encouraged more farmers to adopt permanent electric fencing as a first-choice land management system.

Why Use Electric Fencing?

Electric fencing is more effective at containing domesticated livestock or excluding pest animals than traditional fencing. The short, safe shock creates a psychological as well as a physical barrier that is memorable enough that the animal never forgets and will avoid touching the fence again. The fence needs to be well designed and constructed to absorb some pressure from animals and the environment. The energizer must have enough power for the design of the fence and to control the animals.

Electric fences are used for various applications including:

- Pest exclusion fencing
- Rotational grazing
- Protection of environmental plantings
- Fencing riparian zones
- Protecting crops and newly sown pastures

Choosing a Fence System

- To make the right choice for fence design, it is important to consider the following issues:
- What are you trying to achieve?
- How long does it need to last?
- What animals are being included or excluded
- What is the cost of capital and operating expenses?

For example, boundary fences will need to be higher and contain more wires to exclude kangaroos, wild dogs or pigs. The design of internal fences for cattle will be different to those used for sheep.

Suspension fences using the HDPE droppers can replace two thirds of the steel posts of a conventional fence and have proven to be cost effective and easier to install. The droppers also replace the need to use pin lock insulators which are easily damaged by animals. This design of

fence can absorb the energy when hit by an animal.

Choosing a Power System

The distance and size of area determines energiser size. Access to a power supply will determine if the fence is run on mains or by a battery backup solar unit.

Earthing is critical to energiser efficiency; drier areas need a different fence setup and multiple earth components. An energiser needs to have low leakage or impedance.

The only true way to compare different energizers is based on stored joules as this is a constant measure and not affected by variations in fence conditions or earthing. This stored energy is the potential energy available in the single pulse per second generated to power the fence line. The higher the stored joule rating the greater the energizer's ability to push past shorts caused by weeds and fence faults.

Handy Recommendations

- Always purchase an energizer with more power than you require.
- More power provides more confidence that the fence will perform despite unexpected shorts like vegetation growth.
- Purchase an energizer with headroom to power additional fences.
- Ensure the energiser is protected with built in modular lightning diverters.
- A rule of thumb, need a minimum of 10 Joules of stored energy to maintain 8000 volts in a fence.
- Buy smart technology so fences can be constantly monitored and reported to a mobile phone app.
- Choose a system with remote power switching and fault finding technology
- Multiple electrified wires will create an electro-magnetic field.

A Case Study

Doug Cameron of Bendoc is a great example of making a wise choice with Permanent Electric

Fencing. A family property ravaged by wild dogs four years ago is now a success story. He invested \$80,000 by clearing a hilly bush line boundary and installed 13 km of Westonfence powered by an I series electric fence unit. A completed cost of \$6153 per km.

Prior to the Westonfence, Doug was marking 58% lambs from his 1200 set stocked Merino ewes. With the safety of an exclusion fence, lambing survival has increased to 117% from the paddock adjoining the bush, a haven for wild dogs, kangaroos and feral pigs.

In one year, the increase of 700 live lambs only had to fetch \$114 each to pay the investment back, not to mention a return of personal wellbeing for a family being able to remain on the land without the fear of wild dog incursion.

Goals or business objectives

In the short term, our collective goal is to inform farmers and land managers of the improved technology in advanced intelligent permanent electric fence systems. With added energy output of up to 15,000 to 18,000 volts at the end

of a suspension fence has formed both a physical and psychological barrier so animals learn to respect the fence.

In the medium term our vision is to see permanent electric fencing as a go-to option for farmers and land managers alike for the protection of land and livestock.

Conclusions

Permanent electric fencing is a man-made product derived from innovation. It has matured into a land management/farming system solution made from recycled plastic materials derived from farm waste, together with an aesthetic contribution to our environment, which can be powered by solar energy. Wise people making wise choices are now and will be well served by man's invention.

Acknowledgments

That the innovation of farming families (Weston and Gallagher) has combined to create lifelong solutions that add to protect the wellbeing of animals and restore the environment of our communities.



Incitec Pivot Fertilisers

We add something extra to our blends.

From Nutrient Advantage[®] soil, water and plant tissue testing services, new LabSTREAM sampling app for analysis, NA Pro to select custom blends and enhanced efficiency fertilisers, to our expert agronomic advice, we make realising your productive potential a reality.

Call 1800 009 832 today.
incitecpivotfertilisers.com.au