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PROVINCE OF KWAZULU-NATAL

PASTURES IN KWAZULU-NATAL

Pasture Utilisation

Electric Fencing

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INTRODUCTION

Electric fencing has revolutionised fencing and grazing management and is doing to barbed wire fencing what the Model "T" Ford did to the horse and carriage! On many farms carefully designed electric fence networks with well constructed and well maintained fences have already increased profits by up to 25 %.

Electric fencing, though not necessarily cheap, is easy to erect and adapt, and is highly cost effective. It requires roughly one third of the financial outlay of that required for a 5-strand barbed wire fence. Furthermore, the electric fence achieves far more than the 5-strand barbed wire fence.

The two greatest problems facing the farmer, with respect to electric fencing are:

- a lack of understanding of how an electric fence works;
- what is available to make electric fencing work as it should.

PRINCIPLES OF ELECTRIC FENCES

How does electric fencing work? Very simply, through the FENCE terminal on the energiser the energiser charges an insulated fence wire with electricity. The EARTH/GROUND terminal, on the energiser, is connected either to an earth wire in the fence or an earth peg driven into the water table in the soil profile.

The animal/intruder gets shocked in the process of closing the circuit between the electrified fence wire, the earth wire and the energiser earth terminal. If the earth terminal is connected to an earth peg only, the current passes from the electrified wire through the animal, through the soil moisture to the earth peg and then to the energiser earth terminal. The necessity for adequate soil moisture being present becomes obvious for this circuitry.

In either instance, once the animal closes the circuit it gets shocked in the process and develops respect for the fence.

An electric fence is thus a psychological barrier and not a physical barrier.

It is clear that any limitation in the fence network (too thin a wire, a bad join or faulty or leaking insulator, *etc*.) will lessen the shock the animal/intruder receives. The object of electric fencing is to make this shock as severe as possible.

Modern fence energisers are extremely effective and reliable. Various models of energisers are available. Some are powered by A/C mains, some by wet or dry cell batteries and others by solar energy. Due to the different output capacities of different energisers the length of fence which can be powered by the energiser will differ. The farmer must select the correct energiser for his specific purpose and/or fence.

This decision of which energiser to purchase must be based on sound economic and practical advice. For instance, the energiser should have sufficient power to improve the existing level of stock management/control and to be able to maintain this control once all proposed extensions to the network have been completed. It is important to ensure that spares are available and that repairs can be effected without delay.

The earth

Use a good earth system. Test the earth regularly. More than 80 % of electric fencing problems can be traced to a bad earth. It is important to remember that the higher the energiser output capacity, the larger is the surface area of the earth that is required. Site the earth(s) in a permanently damp place.

The fence

Do not electrify barbed wire.

For permanent electric fencing use 2,24 mm diameter galvanised high strain steel wire.

For temporary (strip grazing) fences use stainless steel, braided, ultra-violet stabilised, nylon wire. Do not confuse the two types of wire. Nylon wire cannot be used for power trunk lines: it stretches and offers high resistance to electricity on strains of more than 500 m. Some brands of nylon wire fray, get brittle and break.

For semi-permanent fences use 2,5 mm diameter galvanised soft baling wire.

Do not economise on insulators. While home-made insulators can and do work within reason, the increased potential for leakage and problems caused by poor insulation does not warrant using home made insulators. Use either good quality porcelain, fibreglass or bakelite insulators in fire areas or high density U.V. stabilized plastic insulators where fires are unlikely.

The fence design

Different soil types have different electrical conductive properties. In wet, clay soils, including areas under irrigation, all fence wires should be live. In dry areas and/or sandy soils alternate wires should be live and earth. Under all conditions all wires of like polarity should be connected in parallel. By contrast, a security fence has all wires of like polarity connected in series.

Accessories

The only facet where costs can be limited, without adversely affecting the effectiveness of the fence, is the degree to which accessories are incorporated into the overall design. However, some accessories such as a **digital** volt meter, **galvanised** line clamps, cut-out switches and off-set brackets are considered essential. The farmer must establish exactly which items he needs and why he needs them — not why he would like to need them!

SYNOPSIS OF ELECTRIC FENCING

- **Electric fencing is easy to erect and adapt.**
- Electric fencing is a pleasure to use, provided the equipment and accessories are well selected and the fence well constructed.
- Electric fences need to be inspected and maintained on a regular basis.
- Electric fencing is the most cost effective grazing management tool available.
- Electric fencing offers total flexibility and total control of stock simultaneously.

Electric fencing means less rands and lots more sense!