

## ELECTRIC FENCES

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T. W. MILLEN, M.Sc., D.V.M.

ALLAHABAD AGRICULTURAL INSTITUTE, ALLAHABAD.

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INDIA is a land of walled gardens but of few good fences. The traveller looking out of the train window gazes at miles and miles of what was once a fence along the right-of-way and sees continual evidence of its ineffectiveness. Very few enclosures are made to keep animals away or confined although near forest areas it has become necessary to erect barriers to keep wild animals out of the cultivated crops.

In the United States of America electric fences have become very common in certain areas. In the dairy State of Wisconsin this is especially true. Here vast hillsides are grazed by valuable cattle which must be kept confined. The efficacy and economy of the electric fence soon have won many converts and now miles of single-charged wires keep the cattle in determined areas.

### MOVABLE ELECTRIC FENCE.

Many dairymen have found a movable electric fence very convenient for the purpose. An area of grazing land is allowed to become quite lush before the animals are allowed to graze. Then they are confined to a small area which is changed daily by moving the fence to a clean area. In this way the maximum value is secured from the pasture and when the last area is finished the part grazed first is ready again. There has been a good deal of talk about rotational grazing in some of the forest and other areas in India. The movable electric fence should lend itself to this attempt to increase India's pasture which now suffers so much from over-grazing.

### EXPERIMENTS WITH ELECTRIC FENCING.

At the Allahabad Agricultural Institute we have been using electric fencing for the past four years. Our present type of fence has been evolved as a result of considerable experimentation. We are now confining our dairy cows, heifers and growing calves in electric fenced paddocks. An electric fence also confines our *Jumna-pari* goat herd when it returns from grazing. We have used electric fencing for swine and buffaloes also but they invariably find out when the current is off or decide to scratch their heads on one of the posts to relieve an itchy spot. Therefore the fences used for buffaloes require more repairs than those used to confine other cattle. Young buffaloes however can be easily kept in electric-fenced paddocks. We contemplate keeping a charged wire inside our present buffalo paddocks to keep down the repairs now necessary as a result of the buffaloes continually catching a curled horn on one of the wires of the fence and pulling or pushing until something gives way.

Our current consumption is about one kilowatt unit per month for confining 200 animals provided the line is kept free from short circuits. We plan to double our present area under electric fencing and do not anticipate much added electricity consumption as little of the current is used up except when there is a contact between the live wire and the ground. We use a transformer attached directly to the 220 volt line to activate our fence and a single wire is electrified in the fence except in the goat paddock where two wires are charged. For the smaller calves we found it expedient to put an uncharged barbed wire about a foot above the ground which ensures that no calf can crawl under the live wire without touching it. We have used barbed wire in our fence but smooth wire can be used in case barbed wire is not available. A properly constructed electric fence is very attractive to look at and shows off confined animals well. There are no weeds and tall grass growing in the fence row.

#### **COST OF ELECTRIC FENCING.**

We tried wooden posts first but the white ants were too hard on them even when treated. Iron posts are too easily shorted and are hard to come by at present. We tried insulators on the side of the post but during the monsoon large drops of water too often ran down the posts making contact between the wire and ground. When the insulators are in the centre of the top of the posts this trouble is prevented.

We are now using concrete posts made by our Engineering Department from broken bricks held together with cement and reinforced with pieces of old fence wire. A short threaded iron rod is imbedded in the top and the porcelain insulator is bolted to this rod. These posts are 4 in. square at the bottom tapering to 3 in. square at the top and are 4 ft. long. At present these posts cost us Rs. 1-6 each and the insulators 5 as. each. We have spaced the posts about 15 ft. apart. With this information and the cost of wire it is easy to calculate the expense of fencing an area. It is surprising how much cheaper this type of fencing is than the conventional one.

#### **HEIGHT OF THE FENCE.**

The height of the wire is determined by the type of animals to be confined and is adjusted by burying the post to the desired depth. The wire confining adult cattle is about 28 to 30 in. above the ground and that for calves four months old to yearlings is about 2 ft. above the ground with a second uncharged wire about a foot below. The two wires used for the goats are 18 and 30 in. respectively above the ground.

#### **GATES OF THE FENCE.**

We make no special posts for the corners as there is little stress on them. Our gates are quite simple and are made from a single barbed wire. A spring at one end keeps the wire taut and a hook at the other completes the circuit when the gate is closed. Just behind the hook we have a length of bamboo covered with old motor inner tube to act as an insulated handle for opening and shutting the gate. When the wire is unhooked it is carried back carefully and hooked over the line in such a way that it does not make contact with the ground.

**TRAINING CATTLE FOR ELECTRIC FENCING.**

It is essential that the cattle be trained in a small area to know that there is a wire between them and the outside world and that it has a sting in it. We have had village cows run headlong into the wire with disastrous results. Also it is well to mix animals together in a small pen so that they will not fight and push each other into the fence. We have no trouble with our fence for weeks at a time. Drivers on the manure cart, however, have tested the strength of the cement posts and find that they break off quite easily so that it is necessary to turn at the proper place to avoid them if one desires to enter the paddock. Wooden guard posts on either side of the gate posts and a few small fines soon stopped this nuisance. We believe, however, that the iron rods should run clear through the post and we are now making new ones in this manner.

Cows that have been kept in by an electric fence for some time will not step out of a ring of wire laid on the ground, whether charged or uncharged and may be kept temporarily confined to a small area. There is no danger of injury to the cattle or the attendants from a shock from the fence as there is a safety device in the transformer to prevent a fatal shock. The voltage is high, probably more than a thousand volts but the amperage is negligible.

**FUTURE OF ELECTRIC FENCING.**

It is not necessary to have a power line nearby to charge an electric fence as battery-operated controllers are obtainable and economical in operation. There is no part of India where an electric fence could not be installed. Many places that are not now fenced for lack of woven wire could be fixed up with an electric fence made from available wire scraps joined together. When the barbed wire entanglements are taken apart after the war many miles of electric fence can be cheaply constructed.