Fencing

Fencing - a look back in time

In olden days, when grazing animals grazed outlying land, fields and meadows were fenced in to protect crops from domestic livestock. Nowadays, animals no longer as a rule graze outlying land but are instead fenced in to keep them within a specific area, e.g. a water meadow. Erecting fences was previously a particularly arduous task for the farmer. Different types of fences could be found in the landscape depending on what materials were available. Stonewalls and wooden fences were very common. Ramparts, seaweed walls and hedges were also common locally, especially in southern Sweden.

Iron wire was introduced at the end of the 19th century making fencing much easier. Barbed wire was invented at the end of the 1860s and was originally used to bring parts of North American prairie under cultivation. Barbed wire eventually reached Europe. In conjunction with the First World War, barbed wire production increased dramatically and soon after began to be widely used as fencing material. Different types of sheep-net existed around 1900. Both wire and net fencing are put up between posts made of various materials, often wood but also iron piping and stone are known to have been used. The design, material and quality of the posts are crucial to how long the fence will last.

Electric fencing reached Sweden at the end of the 1930s, but did not become widely used until the 1970s. This type of fencing is nowadays both effective and reliable, as well as being cheaper than traditional fencing.

Modern fencing material

The most common type of pastureland fencing nowadays is some form of permanent wire or net fencing. Wire fencing with some form of electric current running through it is very common. Most of the posts used are made of wood, either circular, sawn or cleaved, from oak, larch, redwood, spruce or juniper. Many posts have been creosoted to last longer. As regards Swedish wood varieties, oak posts are the most durable and can last between 25 and 40 years. Sawn or cleaved oak posts should contain heartwood, measure 75 x 75 mm and be 180 cm high. The diameter of circular posts should be 5-9 cm, corner- and end-posts being 9-12 cm.

When erecting electric fencing, the steel wire is wrapped around rollers and can be relatively easily unwound and then tightened.

The function of electric fencing

The electric fencing is connected to an generator that gives off a periodically recurring voltage signal. Modern generators are completely electronic with no moving parts, making them very reliable. The voltage is between 4 000 and 10 000 volts (max 10 A), with short signals, max 0.1 seconds. An efficient electric fence must withstand tough weather conditions and heavy loads. Grass and shrubs growing around the wire reduce resistance and it is therefore important that the generator can continue to emit high impulse energy. Electric fencing is sensitive to lightning strikes that can destroy the generator. Electric fencing should never be switched off as long as there are animals inside the area, so some form of built-in lightning conductor is needed.

A complete electric fence consists of a generator, metal wire and earthing. Modern generators can conduct electricity through up to 100 km of fencing connected to the same unit. The fencing wire should be at least 2.5 mm thick and should be galvanised to withstand corrosion. It is important that the insulation works well in tough weather conditions, e.g. continuous rainfall, otherwise the system may break down. A closed circuit is created when an animal comes into contact with the fence. The animal receives an electric shock that can be likened to a whiplash. This shock is harmless to an

animal or human being, but anyone who has heart problems should avoid electrocution. Remember therefore to provide adequate information when electric fencing is used, especially at gaps in the fence and at gates. It is important to remember that:

- Barbed wire may not carry an electric current. Electric barbed wire fencing can cause serious injury or even death.
- Electric fencing along roads or footpaths must be well marked, at least every 100 metres.
- At gaps in the fence, stiles, etc., electric cables must be buried underground to avoid causing personal injury.
- The generator must be powerful and provide an adequate electric shock even under a heavy load
- The generator is equipped with a lightening protector, is SIS approved (Swedish Standards Institute) and is guaranteed for a long period of time.
- Electric fencing must be well maintained. Ensure therefore that waste wood and brushwood does not accumulate around it.

4.4 Erecting the fencing

Putting up the fence well in the first place is the most important aspect. Fencing should be erected as straight as possible to be hardwearing. Here are some of the more general guidelines to be followed when erecting fencing.

Electric fencing

- ❖ Plan where the fencing is going to be.
- ❖ Remove old fencing and clear the area.
- ❖ Corner posts and end-posts must be able to withstand considerable force and therefore have to be erected with great care. Corner posts must be thicker than normal fence posts. Old telegraph poles are perfect. It is better to insert the post at the

If there is no electricity available, a solar cell and 12 V battery can power the fence.

opposite angle to the direction of tensile force. The less damage to the ground, the better. The posts should therefore be hammered down. This is most easily achieved using a pile-driver. Holes can also be drilled into the ground - manually, using a hand-held or tractor-driven machine.

- Unravel the wire from the drum and start with the lowest fence wire. Fasten the wire to corner posts or gateposts and insulate it using corner piping or corner insulators. Secure the wire by tying a "half-knot" and then twisting the free wire-end several times round the fence wire itself. Leave about 50 cm of the free wire-end so that you can connect up other wires or any gate anchors later on. The wire is placed on the inside of the posts but on the outside of corner posts and end-posts so that the tensile strain is absorbed by the post and not the insulator. Now you can erect the posts in-between. These are to be erected in a straight line between corner, end and gateposts. They are normally made of wood and between 5 and 7 cm thick.

Tractor-driven machine

- The normal type of ring insulator is far too weak to withstand the forces it will be subjected to as part of a correctly erected, stretched electric fence. A long-duration insulator is a little more expensive but will last a lot longer. The wire must always run freely through the insulator - never twist the wire around the insulator. All insulators are sensitive to tensile strain and the wire must always therefore be drawn on the outside of the post when the fence changes direction.

Sheep-net

- Make holes at least 500 mm deep for the wooden posts. The less damage to the ground, the better. The posts should therefore be hammered down. This is most easily achieved using a pile-driver. Holes can also be drilled into the ground - manually, using a hand-held or tractor-driven machine. When erecting the fence on rock, drill rock dowels into the ground first and then attach the posts to them.

- A wire stretcher is attached to the sheep-net. This is a special hook that is attached to the net and then to a tractor or similar machine. It is then easy to stretch long lengths of wire at a time. Nail the net and wire down while it is stretched tight.

- Do not hammer in staples all the way in other than at corners or break-points or approximately every fifth post. Iron wire shrinks dramatically in cold weather and can break if the distance between staples is too short. In sheep-net with approximately seven strands, it is sufficient to fasten the bottom and top strands and one more in-between to each post. All the strands must be fastened to break-points/end-posts, however.

- Allow a space of about 50-100 mm between the ground and the bottom strand of the sheep-net to avoid corrosion.

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