



## **Wellcome Film Project**

### **The Uninvited Guest: principles & practice of cattle tick control**

**A Wellcome Foundation Film made in Africa, Australia, South America and the United Kingdom.**

**Editor: David Renton.**

**Graphics: David Kirby.**

**Sound: Luis Espana; Rudyard King.**

**Director: Philip Harland.**

**Producer: Peter Bradford.**

**A World Wide Picture**

**Produced in the interests of good animal husbandry by The Wellcome Foundation Ltd.**

**Colour**

**Duration: 00:16:41:16**

**00:00:00:00**

**<Opening titles>**

**<Opening titles over film of cowboys silhouetted riding amongst cattle.**

**Opening film of cattle grazing in Africa, then close-up of cattle tick.>**

**<Narration over film, unspecified narrator>**

The cattle tick, a danger to 800 million cattle in every tropical and subtropical country on earth. The tick is a blood-sucking parasite that while feeding can transmit a variety of diseases. These tick-borne diseases may in extreme cases cause death. To the

## Wellcome Film Project

cattle farmer the death of even one animal is a significant loss, but more important tick infestations cause a decline in animal production that's less obvious.

In Australia, calculations show an annual loss of 180 litres of milk or 40 kilograms of beef for every tick-infested animal. In Argentina annual beef production could increase by 300 million kilograms were it not for the ticks. The returns from good tick control are important not only for the individual farmer but for the whole agricultural economy of a country. Eradication of the tick is not practicable normally because of the scale of the problem. Even if ticks were eliminated in one area, it could be re-infested by the uncontrolled movement of stock and wild animals.

How can our knowledge of the tick's life-cycle help in its control? We know the tick is well adapted to its environment. In the grass, the engorged female lays several thousand eggs. A few days after the eggs hatch, these larval ticks, if they are to survive, need to feed. Instinct sends them climbing to the top of the nearest blade of grass.

Cattle country – ideal for the tick. As creatures of habit, cattle tend to follow the same paths each day. The tick may not have to wait long. During the next couple of days, the uninvited guest makes its way over the host animal's body. Even for experienced stockmen, ticks are difficult to detect at this stage. Once they've found a site they prefer, they pierce the skin with their powerful mouthparts and suck blood. This one-host tick develops from larva, to nymph, to adult on one animal. Finally, the female engorges on a last massive meal of blood. Then she drops to the ground. Good control means killing the ticks on the animal before this happens because now she lays her eggs and starts the life-cycle all over again.

Two-host ticks are more difficult to control. They feed as both larva and nymph on one animal but then drop off and attach as adults to a second animal. And three-host ticks are an even greater problem. The larvae feed for a few days only on one animal, attach to a second to feed again as nymphs, and as adults move on to a third animal for their final engorgement. The longer cattle are left without treatment, the greater the loss of condition from the damage and irritation they suffer, the more

## Wellcome Film Project

open they are to infection carried away by flies. Regular treatment will minimise these losses. How?

*<Animation>* New ticks can attach at any time. Dipping or spraying cattle will kill and remove all ticks. The treatment gives protection from re-infestation for 4 to 7 days depending on the type of dip used. After this, new ticks start to attach and feed. To control the one-host tick, cattle must be dipped again at day 21. This treatment, again, kills all ticks and thus prevents the females completing their final feed and dropping off to lay eggs. Regular treatment every 21 days thus breaks the life-cycle of these one-host ticks to give excellent control.

However, two- and three-host ticks attach and feed for a few days only and so cattle need more frequent treatment. Again, dipping will kill and remove all ticks. This keeps the animal clear for 4 or more days depending on the dip used. But good control of two- and three-host ticks means dipping again at day 7 to prevent the ticks feeding and transmitting disease. And then every 7 days. These are the principles of good tick control *<end of animation>*.

*<Narration continues over film>* What about the practice? Using a dip tank is one of the best methods of treatment. It's essential that the farmer measures the capacity of the tank and calibrates it exactly. Using a 200 litre drum perhaps or a water metre. As the tank is filled, some method of recording the volume should be used: a dipstick for example which then allows the level to be checked before each treatment. The correct amount of dip should be measured to the manufacturer's directions. If the concentration of the wash is too low, it will not kill the ticks; a bit too high, it's wasteful. Then it's important to mix the wash thoroughly for at least 5 minutes.

**00:08:20:16**

The cattle should be mustered early; they need to be rested before treatment and should not be dipped in the heat of the day. To prevent the wash becoming fouled with mud, the entrance race to the tank should have some method of opening the claws of the animals' feet. The tank has to be just wide enough for one animal to

## Wellcome Film Project

enter at a time and deep enough to cover their heads completely. As the cattle come out, enough dip remains on their coats to kill all the ticks present and give protection from re-infestation.

While they are in the exit race, the excess wash drains back to the tank but now with a lower concentration, so after a given number of cattle have gone through, the dip tank must be topped up and replenished with dip to bring the wash back to the initial concentration. The animals are rested in a drying pen before going back to pasture. When a sample of the wash is required for analysis, it should be taken immediately after the last animal has been through. The samples can be brought to local laboratories for testing.

Sometimes, a spray race is used to treat the animals. Before each treatment the water level in the spray sump has to be checked, and the dip for a fresh wash measured precisely. Then preparation. Once added, it should be agitated in the sump to mix the wash thoroughly. Then the spray race itself is tested.

The entrance is designed so that cattle move into the spray race in single file. Foot bars in the entrance race ensure that they don't carry in dirt which might block the spray nozzles. Spraying is quicker than dipping, and for calves and pregnant cows it's safer but it needs to be done well to be as effective. From the drainage race, the excess wash returns to the sump to re-circulate. The time cattle spend in the drainage race is used by farmers in some areas to hand dress for additional control of certain ticks.

For small herds it's more economical to spray by hand – individual attention to the least accessible parts, just those most favoured by ticks. It needs to be done thoroughly and, like all treatment, it must be done regularly.

But what can the farmer do if in spite of good management his animals are still infested? Without delay, he should ask assistance from the dip manufacturer's advisory service. Ticks with dip-wash samples can be sent to the laboratories. The dip wash will be analysed for strength, the ticks identified, their possible resistance



## Wellcome Film Project

checked, and with information from all tests, experts will advise how best to control the infestation.

Local stations in every country where there's a need for tick control collect such information. From all over the world it comes to be coordinated in a central programme of research into every aspect of tick control. In the labs for example, there's the continuing search for new, more effective compounds to control strains of ticks resistant to existing products.

Once an active compound has been found, veterinary teams at research stations all over the world will test it for suitability to local requirements. A tick count is made at intervals after treatment to check the effect. All this research helps the cattle farmers of the world keep their cattle healthy and increase production.

How can the farmer help himself? He must know exactly how much his dip tank holds. He should follow the manufacturer's directions for mixing the dip. Cattle should be completely wetted during treatment. And treatment must be at the right intervals. These are the weapons of control the farmer needs in his never-ending war against the cattle tick.

**<End credits>**