

## Tick control in Cattle

### FEATURES

- Ticks can cause major economic damage.
- Two primary strategies followed in tick control.
- Methods of tick control
- Available dips and actives

### Introduction

Ticks have an important impact on the production of cattle because apart from the damage to hides and skins, they can damage organs such as the udder, scrotum, and the ears of cattle. Less well known is the effect known as “tick worry”. This is the suppressive effect on the appetite of the animal due to a component in the tick saliva. With heavy infestations this will negatively effect the growth rate and production of the animals. Less meat and milk are produced as a result. Some tick species are potential transmitters of diseases such as heartwater, redwater, anaplasmosis and tick toxicoses. These conditions will be dealt with in a separate article.

### What kind of tick control?

There are two different types of strategy to use for controlling ticks. The choice of which strategy to use must be made based on the following factors:

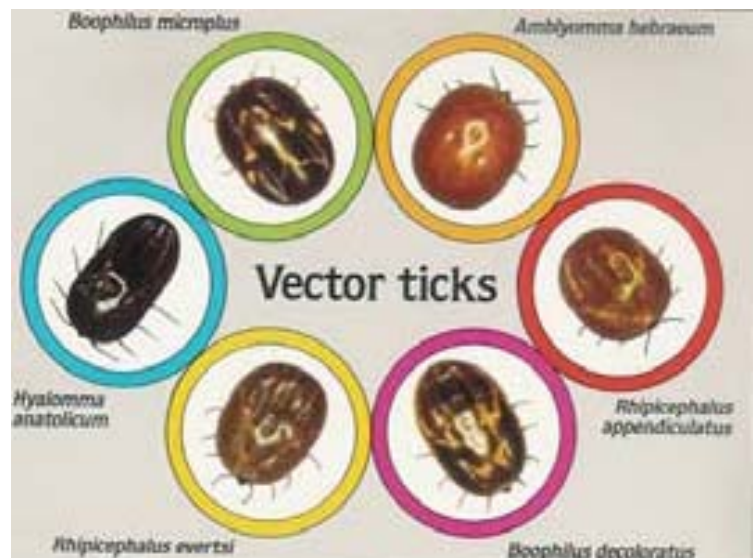
- The type of farming (dairy/ extensive/feedlot ).
- The species of ticks which occur on the farm.
- The tick borne diseases in the area.
- The breed of animal.

### Intensive control

This is the frequent and continuous treatment to minimise exposure of animals to ticks (weekly in summer and every 2 weeks in winter). The animals are therefore not exposed to the tick borne diseases and vaccination is unnecessary. Intensive control is used in dairies since ticks cause serious damage to udders and tick-transmitted diseases are unacceptable, because of their effect on production. Other advantages are the elimination of tick worry and its negative effect on growth and production, no tick damage and a reduction of tick numbers. Good supervision and management is required for intensive tick control.

The disadvantages are that cattle are totally susceptible to tick borne diseases and if a problem arises with dipping (technique or resistance) large numbers of animals may develop tick-borne disease. Intensive control is not recommended for those cattle breeds which are “tick tolerant ” because their resistance is acquired on exposure to ticks and will be lost under intensive control. Examples of tick tolerant animals are Ngunis, Bonsmaras and Afrikanders. Intensive treatment requires capital investment for dipping apparatus, and dips.

*Photo 1. The engorged female ticks of different species are difficult for the layman to distinguish (Schering Plough Animal*



*“if a plunge dip is well designed it is the most effective method of wetting animals.”*

**Photo 2. A heavy infestation of blue ticks (Dr Robin Taylor)**



### Strategic control and stable disease situation

Strategic control needs less frequent dipping than intensive control. The aim is to reduce the number of ticks but to maintain sufficient numbers to allow the exposure of animals to infected ticks which will “immunise” animals against the prevailing tick borne diseases. The advantages are less expenditure on dips and dipping equipment. The disadvantages are that either there are still ticks around to cause damage and tick worry which can severely affect production.

Sporadic deaths due to tick-borne disease can still occur and vaccination should be practiced. Although strategic control often seems the most attractive option to farmers it is difficult to achieve in practice because it is hard to establish the correct dipping intervals i.e. to know how many ticks are required for sufficient immunisation. This is especially so if all three tick-borne diseases are present because they are transmitted by different species of ticks, each of which require different dipping

intervals. For example dipping to achieve a stable situation for heartwater and to reduce damage by three-host ticks, may result in the intensive control of blue ticks and cause insufficient natural immunisation against redwater. To further complicate the issue, droughts may reduce the numbers of ticks below the level required for immunisation. Vaccination of adults animals may be required to re-establish immunity. Stable situations are easier to achieve in areas where ticks are numerous and the farmer is prepared to accept some losses of production.

### Methods of tick control

Plunge dip: if a plunge dip is well designed it is the most effective method of wetting animals. In the long term plunge dipping is the most cost effective method if large numbers of animals are in-

involved.

Spray races: well designed and managed races will achieve good wetting but spot treatment may still be needed under tails and in ears. There must be sufficient arches and wetting nozzles to achieve good wetting.

Hand or mechanical spraying: this is the most expensive and difficult method to do successfully. The minimum volume of application is 5 litres and it may require as much as 10 litres to get good wetting.

Pour-ons: this method is convenient but application must be precise. The remedy takes time to spread over the body. Pyrethroid pour-ons can cause irritation and resistance can develop rapidly.

Injection with macrocyclic lactones: this is a conven-

**Photo 3. Select the correct dipping method for your management situation (Schering Plough Animal Health)**



ient method of control but only effective against blue ticks.

### Pasture management

Management of pastures can help to reduce the number of ticks on cattle. The resting of camps if done for sufficiently long intervals; if the grass can be burnt this will help reduce tick numbers. Planted pastures are much less attractive to ticks than natural pasture, but even under zero-grazing conditions, the use of hay can cause the introduction of sufficient ticks to cause disease.

### DIPS FOR CATTLE

There are currently 5 main groups of remedies registered for the control of ticks in SA.

**Pyrethroids:** examples are deltamethrin, flumethrin, and cyhalothrin. They are effective against ticks and flies which is useful in dairies where fly borne disease such as three-day stiff-sickness need to be controlled.

The disadvantages are irritation of pyrethroid pour-ons at certain times of the year. Pyrethroids are oxpecker-friendly unless they are in combination with organophosphates.

**Amitraz:** is very effective against all tick species and mites. The dip causes the ticks to detach almost immediately and “hotfoot” aimlessly around on the animals.

These ticks then die sometime later. Amitraz is very safe for mammals including humans and oxpeckers. It is suitable for dairy animals but doesn't control flies.

**Organophosphates:** chlorphenfos is the commonly used organophosphate on cattle. It is effective against all species of ticks as well as lice. It has become effective again following a long period of disuse due to the development of resistance. The organophosphates are the most toxic of the dips and must be diluted, used and disposed of with

extreme care. Don't use in areas where oxpeckers occur.

**Macrocyclic lactones (MLs):** this group contains the remedies ivermectin, moxidectin, doramectin, etc. They only work against blue ticks and because the remedy is injected into the animal, the tick must first feed before the remedy takes effect, so there is still the possibility of disease transmission. The MLs are especially useful in areas where only blue ticks are a problem or where they are resistant to other dips. They are also effective against roundworms and mites. Some MLs may have a negative impact on the biology of dung beetles.

**Insect Growth Regulators (IGRs):** an example of this group is fluzaron which is available as a pour-on. It is important to understand that IGRs do not affect adult ticks but inhibit the immature stages, resulting in a gradual reduction of tick numbers and the prevention of eggs being laid. The IGRs control blue ticks and as with MLs there is an initial delay in the effect of the remedy. IGRs are not registered for use in dairy cattle.

### WHY DIPS SOMETIMES APPEAR NOT TO WORK

Farmers become annoyed when there are still ticks present after dipping or ticks reappear rapidly on their cattle after dipping. It is important to understand the many factors that can play a role in the efficacy of dips. Here is a list of some of these:

#### POOR APPLICATION

- The dip may be too weak due to over dilution or under replenishment. This often occurs due to the capacity of the dip tank being underestimated. Testing of the dip wash will establish if the concentration is sufficient.
- The dip tank may be too shallow and doesn't wet the heads of the animals.
- Wetting in a spray race may be poor due to structural and functional defects.
- With hand or mechanical spraying, problems are almost always due to insufficient dip being used to wet the ani-

mals.

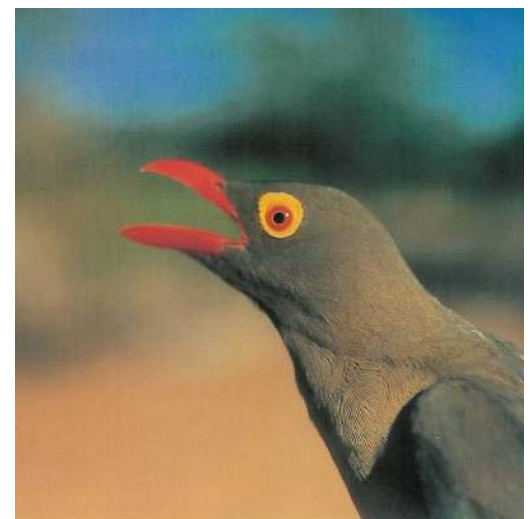
#### TIME INTERVAL

- MLs take time to act because the ticks have to feed before there are any effects.
- Pyrethroids can take up to 2 days to kill ticks and some stay attached despite being dead, especially the males.
- Pour-ons may take 2-3 days to spread over the animal and their effect on the lower body areas (belly and legs) will be slower than on the head and neck.
- Ticks may climb on animals after the residual effect is past (after 3 days). This occurs especially when farmers put animals in new camps which are alive with thousands of hungry ticks.

#### OTHER REASONS

- Rain and wet grass washes off dip.
- The animals used for stirring the dip are not returned to the dip when it is at the proper concentration.
- IGRs will not kill adult ticks.
- When there is a massive population of ticks due to warm wet conditions, frequent dipping is required to reduce the numbers.
- Resistance can be suspected when a dip group has been used for long periods of time. Ticks can be collected and tested for resistance.
- Product is damaged, under standard or expired.

*Photo 4. Some dips can be lethal to oxpeckers (Endangered Wildlife Trust)*



**Dr. Pamela hunter**