Department of Agriculture and Food
Farmnote
Note: 159
Replaces Farmnote 90/94

Photosensitisation in sheep grazing caltrop

By Roy Butler, District Veterinary Officer, Merredin

Summary

Caltrop (*Tribulus terrestris*), a summer weed with spiny burrs, can cause sheep to become photosensitised (abnormally sensitive to sunlight), leading to damage and inflammation of exposed skin (dermatitis – may look like sunburn) and often to death. In this Farmnote the signs shown by and treatment of affected sheep are described. The plant and methods of eradicating it are outlined as well.

Signs of caltrop poisoning in sheep

When sheep become photosensitised due to caltrop poisoning any skin not covered by wool may develop a severe dermatitis. If caused by eating caltrop, the effects of photosensitisation are extreme and may be fatal.

The skin on the face, ears, teats, tail and mulesed area becomes swollen, reddened and covered with a thick black scab. The eyelids stick together and the nose is blocked with dried mucus. This interferes with breathing and to compensate, the animals adopt a head-up stance, like camels.

The membranes of the mouth and eyes become yellow (jaundiced) and a red ring forms at the top of each hoof. Affected animals are depressed, reluctant to move and usually seek shade.

The post-mortem signs include a yellow carcase, a swollen, orange-coloured liver and swollen, khaki green-coloured kidneys.

Many affected animals die. Survivors are often left with scarred faces which are pink and bare of wool.

A sheep with typical signs of caltrop poisoning can be seen in Photo 1.

Should caltrop be grazed?

The high death rate, lack of suitable treatment for sick animals and the potential for widespread problems make prevention of caltrop poisoning preferable to its cure. However, the factors that cause the problem in grazing sheep are not well understood.

Caltrop is not always toxic and grazing offers a way to control the plant. Outbreaks of photosensitisation tend to occur after the plants have used all the available moisture and begin to wilt. If caltrop is being grazed, be cautious and remove sheep before plants get to this stage.

Sheep showing typical signs of caltrop poisoning: Jaundice (yellowing of skin and membranes), swelling and peeling of damaged skin on the face, leathery appearance of the ears.

Plant description

Caltrop germinates during summer after rain. It can grow from germination to seed-set in three weeks on just 25 mm of rainfall. The abundance of the plant depends greatly on seasonal conditions as well as the number of seeds present.

Caltrop grows close to the ground with wiry stems up to a couple of metres long. The stems are covered with fine hairs, and the leaves consist of several leaflets arranged opposite each other along the stems. The yellow flowers have five petals and are less than 1 cm across

Wedge-shaped burrs form in clusters of five, each with four or more long sharp spines which are a nuisance for both animals and humans. The burrs are spread easily and seeds can lie dormant in the soil for many years.

Hand grubbing and then burning of plants is recommended for the eradication of small patches of

caltrop. Larger infestations can be controlled by spraying with 2, 4-D amine (see Farmnote 42/2003 for the rate of application).

Other toxins in caltrop

In New South Wales, caltrop has been known to cause two other problems in grazing sheep besides photosensitisation. Nitrate poisoning shows as weakness, gasping for breath and death within 6 to 12 hours. Staggers caused by a brain toxin have occurred after sheep have grazed caltrop for long periods.

Neither of these conditions has been seen in Western Australia, but given the right seasonal conditions, both are possible.

Nursing sick sheep

Sheep suffering photosensitisation should be given access to shade or put into a dark shed. Green feed or the feeding of high protein grains to affected sheep should be avoided as these will make things worse. Worm drenches are generally metabolised in the liver so they should not be given to affected sheep. Any stressful handling, such as yarding, driving, shearing or crutching should be postponed until the sheep have recovered, which may take some weeks.

Nasal crusts can be removed gently to allow easier breathing, and ample water should be provided. Antibiotics and anti-inflammatory drugs can help with recovery and should be considered after consulting a veterinary practitioner.

Acknowledgement

This Farmnote is based on the previous Farmnote (90/94) written by Robin Jacob and Steve Penny.

Further reading

Control of Caltrop. Farmnote No. 42/2003.

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