

NUTRITION INFO SHEET

NITRATE POISONING

Nitrate Poisoning can cause large losses of sheep and cattle especially in extensive situations. Knowing the main triggers and situations where nitrate poisoning is possible and put in appropriate precautions is recommended as nitrate poisoning can hit quickly and cause large losses.

Nitrate Poisoning

When the ruminant animal eats a plant the following process occurs;

Nitrate (NO₃)---► Nitrite (NO₂)---► Ammonia (NH₃)---► Microbial Protein---► Amino Acids

When higher than normal amounts of nitrates are consumed, the nitrates are converted to nitrites quicker than nitrites can be converted to ammonia, leading to a build up of nitrites in the rumen. The nitrites are then absorbed from the rumen and nitrate/nitrite poisoning occurs. High levels of nitrite in the bloodstream can cause changes to haemoglobin which carries oxygen around the body. The result of nitrate poisoning is the animal essentially starves of oxygen.

Lack of moisture, soil temperature and sunlight can all affect this process and cause nitrate/nitrite poisoning.

Nitrate poisoning is more common in stunted plants that have a purple discolouration and on soils that are high in nitrogen. Cloudy, rainy and frosts can also increase the incidence.

Nitrate poisoning is possible on stressed cereal crops, canola crops, brassica crops, pastures, weeds such as capeweed, variegated thistle, etc and also millets and some forage sorghums. Some herbicides can also increase the accumulation of nitrates in the plant.

Plants that have had high levels of potash and nitrogen fertiliser can be more prone to nitrate poisoning. Plants that have been moisture/cold or sunlight stressed may not be able to convert the nitrates absorbed by the roots into plant protein resulting in a build up of nitrates in the plant.

If hay is to be made out of suspect plants it is important to make sure the hay is properly dried. If large levels of nitrates are present and the hay is damp the nitrates convert to nitrite in the stack and when the hay is fed out nitrite poisoning occurs.

Making silage out of suspect plants are often a better option than hay as the fermentation process can reduce the nitrate levels. If high nitrate levels are suspected it is advisable to get a nitrate/nitrite level performed via a feed test.

For more information contact your local Landmark branch
Or Amanda Lockyer, NSW Animal Nutritionist 0429 787 355

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Signs

- ✓ Diarrhoea & abdominal discomfort
- ✓ Rapid respiration, difficulty in breathing
- ✓ Trembling & staggering
- ✓ Convulsions
- ✓ Eventual death
- ✓ Blood on post mortem (soon after death) appears to be a dark brown, chocolate colour and thick in appearance

Prevention

- ✓ Get a nitrate/nitrite level done on suspect paddock to see if levels are safe to feed
- ✓ Don't put hungry stock onto suspect pasture/crops. Give them a feed of hay before putting them onto the paddock
- ✓ Introduce the animals slowly onto the risky crop/pasture as the rumen bugs can handle small amounts of nitrates and you can slowly increase the amount given over time.
- ✓ Supply a carbohydrate source as the energy source helps the bugs better utilise the nitrates.
- ✓ Can introduce a small number of stock and closely monitor to see if you see any signs and remove immediately if any unusual signs are seen.
- ✓ Monitor stock regularly when grazing suspect crops
- ✓ Try not to graze pregnant animals on the suspect crops as nitrate poisoning can cause abortions
- ✓ Animals should receive a 5 in 1 vaccination before going onto crop as the change in diet can induce pulpy kidney.

Treatment

Urgent veterinary treatment should be sought if nitrate poisoning is suspected.

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