devoted vets

for your animal's life!

for your herd's health

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Winter 2014

Nitrate poisoning? Capeweed not required!

The signs, causes and prevention of nitrate poisoning

Nitrate test kits now available from our clinic

Reminders: The best way to care for downer cows

Too many milk fevers or assisted calvings?

Usually nitrate poisoning in West Gippsland is seen when hungry cattle break into, or are fed pasture with a high percentage of capeweed, often following a drought.

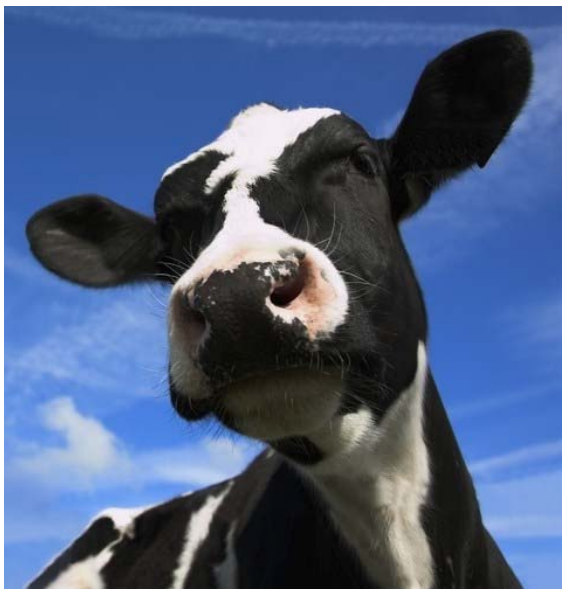
A recent case of nitrate poisoning on one of our client's farms has highlighted the fact that nitrate poisoning can occur in other circumstances too.

In this case, losses were heavy, with 25 cows dying after grazing fresh rye grass pasture. Critically, the paddock had been fallow over summer, then the soil organic matter improved with a heavy application of mulched garden waste prior to seeding with rye grass.

During drought and in other circumstances, high levels of nitrate accumulate in soil. Plants absorb the nitrate, and intake of poisonous levels occurs when animals subsequently consume the plants.

The species of plants that cause nitrate poisoning include rye grass, immature cereal crops such as oats, barley and wheat, turnip tops, lucerne, and green fodder such as sudan grass or corn. In our district following drought, capeweed invades open pasture and can have extreme nitrate levels.

Nitrate poisoning can also be caused by stock eating hay made from pasture or cereal crops containing poisonous levels of nitrate. Although the process of silaging reduces nitrate levels in plant material, toxic levels can be found in silage juice.



Environmental factors are also important. Heavy applications of nitrogenous fertilisers including animal manure or urea increase the risk of nitrate poisoning. Problems can also occur with stock water contaminated with nitrogen based fertilisers.

How do nitrates poison cattle?

High levels of the chemical have two effects, firstly nitrate causes irritation to the lining of the gastrointestinal tract and its caustic action causes salivation, abdominal pain and diarrhoea. However the fatal disorder occurs when nitrates are converted to nitrites in the rumen or nitrites are eaten in plants.

The chemical nitrite is absorbed into the bloodstream where it replaces oxygen within red blood cells, and affected animals *die from lack of oxygen*. The disease is easily diagnosed. The colour of the animal's blood changes from a healthy red to a chocolate or light coffee colour.

Affected animals develop breathing distress, muscle tremors and weakness. They eventually go down, become severely depressed and die within minutes to hours of showing signs. (The picture of nitrate poisoning is superficially similar to milk fever, but the mental depression and the colour of blood in nitrate poisoning are two key points of difference.)

Treatment should be performed by a veterinary surgeon as the antidote, a chemical called methylene blue, must be given intravenously. It causes severe reactions including loss of the vein if it is injected around the vein rather than into it. Fortunately response to treatment is rapid and effective. However pregnant animals may subsequently abort, presumably due to the foetus being deprived of oxygen.

Methylene blue is not a registered stock medicine and therefore has no label withhold periods for milk and meat. Suggested withhold periods are 4 days for milk and 14 days for meat.

As always, prevention is better than cure. Suspicious pasture or crops can be easily tested for nitrate levels using the juice of the plants in question and specific test strips that estimate the quantity of nitrate.

If you want to test pasture, a crop or weeds prior to introduction of stock, please phone the clinic 24 hours beforehand, and we will prepare a kit for you. Note test strips vary in their sensitivity, and we will check that the purchased strip measures the potentially toxic dose correctly.

In our district, spraying capeweed prior to it becoming dominant is also recommended, not only to avoid nitrate poisoning, but to maximise pasture growth as well.

The quantity of nitrates consumed can be diluted by feeding supplements and by making sure animals are not hungry when introduced to a new paddock or crop. This is much easier said than done at the end of a drought. Testing plants prior to introduction of stock is the best strategy!

Calving time reminders

- Remember once cows are down 12 to 24 hours, their chance of recovery is only 10%. This can be raised to 40% by moving them into a shed with 15 cm of soft bedding such as straw, old hay, rice hulls or sawdust. Sand, dirt or gravel is not soft enough. Shelter and comfort are the keys.
- If your herd is experiencing too many cases of milk fever, calving assists, retained afterbirths, "sad cows", acetonaemia, metritis or displaced fourth stomachs, call us for an advisory visit.
- All of the above conditions are strongly related to low levels of calcium in the cow's bloodstream, and NOW is the time to act, not when the rest of the herd has calved!

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Prevention, prevention, prevention!

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Clinic Hours
Monday and Thursday: 8am to 7 pm
Tuesday, Wednesday and Friday: 8am to 5pm
Saturday: 9am to 12 noon