

Health and Disease Issues

Nitrate / Nitrite Poisoning

Nitrate in the diet of ruminants is normally broken down by microbial action in the rumen, first to nitrite and then to ammonia. Ruminants can tolerate fairly high levels of nitrate in their diet if the intake is spread over the whole of the feeding day and if their diet is also high in readily available carbohydrate

If an animal's nitrate intake is too high, or if conditions are not right for the conversion of nitrite to ammonia in the rumen, nitrite accumulates and may be absorbed into the blood.

Nitrite may also be directly absorbed from wet or mouldy fodder as microbial action may convert nitrate to nitrite under these conditions.

Nitrite reduces the ability of the blood to transport oxygen throughout the body. Excessive nitrite levels effectively induce a drop in available oxygen within the system and death may occur.

Predisposing Factors:

Some important factors leading to a build-up of nitrate in the plant include:

- Continuous cloudy conditions for 4 to 5 days
- High temperatures, low moisture, frost
- High applications of nitrogen fertiliser (over 60 - 100 kg n/ha in one application).

These conditions, in isolation, may not lead to a significant rise in plant nitrate levels. If, however, several of these factors coincide and are sustained for a period of 4 to 5 days, then an appreciable rise in plant nitrate levels is likely.

Signs and Symptoms:

- Marked anaemia
- Bright-red (changing to brown) blood
- Diarrhoea, abdominal pain
- Profuse salivation and purging, and
- Muscular spasms or paralysis.

Control and Prevention:

High risk feeds should not be fed or fed sparingly with additional low-risk feeds so as to dilute the nitrate and/or nitrite intakes.

Treatment:

Nitrate toxicity is difficult to diagnose as affected animals are usually found dead.

If you suspect nitrate or nitrite poisoning, seek immediate veterinary advice.

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