

## Nitrate toxicity in ruminants

Nitrate toxicity can occur in cattle ingesting plants containing high level of nitrates. Plants tend to accumulate nitrate during periods of rapid growth especially after periods of stunting, as seen in the autumn after dry periods. Plants that are more likely to accumulate nitrates include ryegrass, cereal grasses, sorghum, Brassica crops and young newly planted fast-growing pastures. Nitrate levels within plants can fluctuate with varying levels of sunlight, and higher nitrate levels are reported during periods of lowlight such as in the early morning or evening, or on overcast or cold days.

### Clinical signs

Nitrate is converted to nitrite in the rumen which causes methaemoglobinaemia formation which in turn causes hypoxia. Some animals can die suddenly while others may show salivation, diarrhea, abdominal pain, dyspnea and/or cyanosis. Some animals may abort.

### Testing

Pasture nitrate content can be measured before allowing animals to graze a suspect pasture. This can be done using test kits or by sending a plant sample to the lab. Pasture nitrate level can also be measured when animals are showing clinical signs, however, as nitrate levels in the pasture can vary significantly during the day, nitrate concentration can also be measured in serum samples from affected live animals and eye fluid from dead animals.

