

Ask the VMD

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Donald Yorlets

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A reader asks:
What are the signs of nitrate poisoning in cattle? Is it a seasonal problem? Is there any prevention or treatment?

Dr. Yorlets replies:

Nitrate poisoning in cattle is usually caused by the ingestion of forages, weeds, fertilizer or water which contain a high nitrate content. The signs of acute nitrate poisoning are usually evident within 4 hours after ingestion.

These signs classically are characterized by difficulty breathing (usually open-mouth breathing), cyanotic (purple)

mucous membranes, rapid heart rate, weak pulse, generalized weakness, along with an uncoordinated gait. Pregnant animals frequently abort. There is a characteristic chocolate discoloration of the blood. In severe cases death usually occurs within 12-24 hours. The animal frequently dies in convulsions.

Death is due to the nitrate compound interfering with the blood's oxygen carrying capacity, causing death by suffocation. Confirmation of the cause of death can be made by laboratory analysis of stomach contents,

blood urine, forages, or water for nitrate compounds. It should be noted that nitrate poisoning is unrelated to urea poisoning.

Nitrate poisoning can occur at any time of the year; however, it is more likely to occur at certain seasons. During the spring planting season, Ammonium Nitrate and Potassium Nitrate fertilizers are available and can cause nitrate poisoning if ingested.

Also runoff from fertilized fields can contaminate drinking water resulting in nitrate poisoning. In the spring, immature green oats, barley, wheat, and rye hay, and

sudan grass, corn or sorghum fodder may contain high nitrate levels. The plant nitrate content is largely influenced by soil conditions: high soil nitrate content, acid soil, drought followed by moist soil conditions, and decreased light all favor accumulation of nitrates in forages.

In the fall of the year, runoff from silos is very high in nitrate compounds. Harvesting of Sudan grasses after frosting can result in Cyanide poisoning which, although completely unrelated can be confused with nitrate poisoning.

The risk of nitrate poisoning can

be reduced by feeding high energy feeds along with nitrate containing forages. Ensiling nitrate forages is beneficial in reducing their nitrate content. The addition of Chlor-tetracycline at the rate of 15 mg/pound of feed is helpful for approximately two weeks.

Nitrate poisoning is treated by the intravenous injection of methylene blue at the rate of 10 mg/pound body weight for cattle. Mineral oil drenches are helpful in counteracting local irritation of the stomach as a result of the ingestion of these caustic compounds.



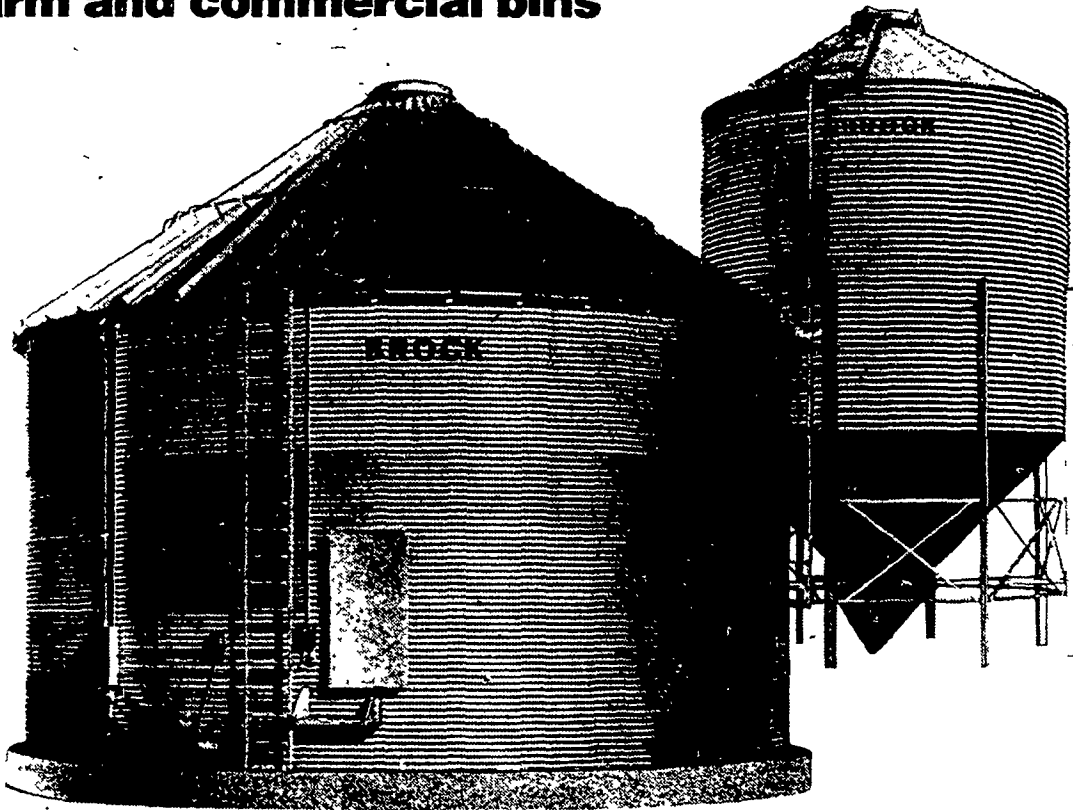
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