



NITRATE TOXICITY IN CATTLE DURING DROUGHT

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Potassium Nitrate

Risk Factors

Drought



Drought slows plant metabolism leaving nitrates in stems

Fertilizer

Moderately high rates of nitrate fertilizer applied preplant or in season in low moisture conditions increase plant nitrate content



Forage type

Certain plants accumulate more nitrate than others, e.g. sorghum, sudan grass, oats, ryegrass and wheat such as pigweed and lamb's quarters

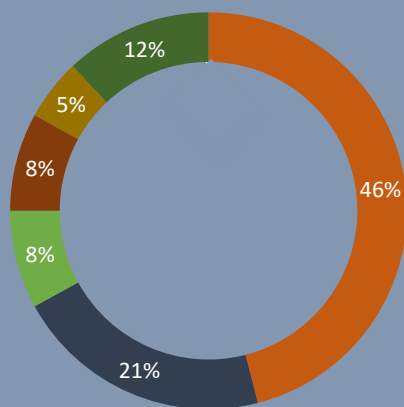


Plant maturity and part



Most common plant poisonings in cattle

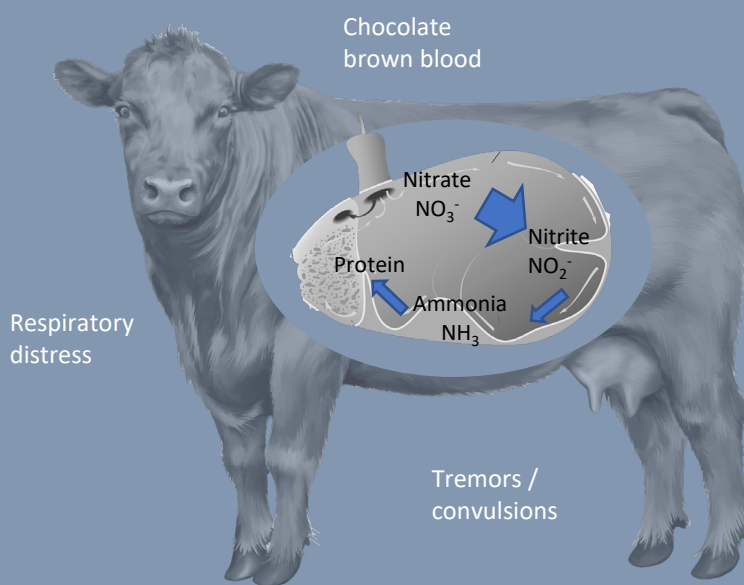
Diagnosed at the California Animal Health and Food Safety Lab between 2000 and 2011.



Nitrate

- Gossypol
- Oleander
- Pyrrolizidine alkaloids
- Oxalates
- Others

Toxic principle



Increased nitrate intake leads to accumulation of nitrite in the rumen, which reacts with hemoglobin

References:

A. Varga and B. Puschner: Retrospective study of cattle poisonings in California: recognition, diagnosis, and treatment, Veterinary Medicine: Research and Reports 2012:3 111-127

G. Strickland, C. Richard, H. Zhang, D.L. Step Nitrate Toxicity in Livestock, Oklahoma Cooperative Extension Service PSS-2903 <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1996/PSS-2903web.pdf>

Alleviating Worries for Nitrate Poisoning and Prussic Acid Poisoning” by Josh Davy and Birgit Puschner in Livestock and Range News, Tehama, Glenn, and Colusa Counties, August, 2017 http://ceteahama.ucanr.edu/newsletters/Livestock_-_Range_News70582.pdf

Cornell University Cooperative Extension: Drought Risk of Nitrate Toxicity in Forages, Fact Sheet 70 <http://nmsp.cals.cornell.edu/publications/factsheets/factsheet70.pdf>