

IMPACT



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Why is it Important to Determine Nitrate Levels in Forage Crops that are being Grown Under Stressed Conditions?

The Situation

Forage crops, grown under stressed conditions from drought, frost, an extreme change in environmental conditions, or even excess nitrogen fertilizer (whether from manure or synthetic fertilizer) can accumulate nitrates. Forage crops absorb nitrogen in the soil through the root system and convert it into sugars during the photosynthetic process of the plant. Plants undergoing stress situations continue to absorb nitrates into the roots, and store the nitrates in the lower part of the plant stems. The photosynthetic process of the plant is slowed down when the plant has experienced one of the many stress factors. However, the process of nitrogen uptake and accumulation remain very active.

The Condition Found. Livestock nitrate poisoning occurs due to the accumulation of nitrates in stressed forage crops. In 2004, one Blaine County producer lost forty head of mother cows in less than two hours. A similar situation occurred two years prior in a nearby feedlot. After studying the animal deaths, it was realized that the forages in the feed that caused the deaths, had experienced stress during the growing season and had received additional nitrogen fertilizer during the growing season.

Our Response

Being familiar with the Quick Nitrate test kit developed by Dr. Dennis Cash (Forage Specialist, Montana State University), we immediately pursued certification to acquire and use the Quick Nitrate test kit

in Blaine County. After obtaining the test kit, we began testing forage crops, including alfalfa hay, oat hay, triticale, barley, and corn. Thirty-six forage samples were tested. Of these, seven were found to contain highly toxic levels of nitrates (1200 ppm or over). If the sample reflected higher than normal levels of nitrates, the sample was sent to a qualified laboratory for complete testing analysis.

Program Outcomes

With the use of the Nitrate Quick Test, we were able to recommend a mixed ration to the producer that would incorporate the high nitrate forage with forage containing low nitrate levels. This allowed for the protection of livestock as well as utilizing the feed, which contained toxic levels of nitrates.

The goal of the Blaine County Extension office is to further disseminate feed nitrate level information to all County Extension Offices in the State of Idaho, and offer training to individuals interested in obtaining certification in the use of the Nitrate Quick Test kit.

For More Information

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