USDA United States Department of Agriculture

Drought Management for Range and Pasture 2021

Minnesota Natural Resources Conservation Service

nrcs.usda.gov/mn

Grazing Management

All grasslands are adversely affected by drought regardless of condition. Healthy, vigorous grasslands are less impacted by drought and recover much faster. Regrowth during a drought can be limited. Even still, livestock should ideally be allowed to graze only to the desired ideal grazing heights.

Minimum stubble heights are needed to sustain the forage plant, its root base and solar panel. Terminate grazing within a paddock when forage height is a minimum of 4-6" for short and medium height species (Kentucky bluegrass, Smooth Bromegrass, Timothy, Orchardgrass, etc.) and 6-8" for tall species (Intermediate wheatgrass, Big bluestem, Indiangrass, Switchgrass, etc.). The more leaf material left, the more roots being maintained and the quicker the response of new growth once moisture and improved conditions return.

If pastures have been grazed to their minimum recommended heights and no regrowth has occurred, then consider moving livestock to a sacrifice area and feed the livestock hay and supplements as needed. If no sacrifice area is available, then temporary fence could be used to create one. The sacrifice area should have a fresh adequate water supply and shade for periods with extreme temperatures. When possible, sacrificial areas should be located away from sensitive areas such as water bodies, riparian areas, and steep slopes. Feeding hay is better than allowing livestock to continuously graze forages and overgraze. Overgrazing weakens the pasture, reduces intake of the animals, and compromises chances of good regrowth once adequate moisture returns. Protected reserves have more potential of increased dividends of valuable forage later.

Minnesota NRCS Resources

- Minnesota NRCS offers technical and financial assistance to assist livestock grazing operations become more resilient to drought conditions. Contact an NRCS Planner
- Conservation Grazing Map
- Cropland Grazing Exchange (CGE)
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- Midwest Grazing Exchange
- FSA- Livestock Forage Disaster Program Fact Sheet
- FSA- CRP Emergency and non-emergency Haying and Grazing Fact Sheet
- MN Dept of Ag- Water Testing
- U of MN Extension- Plants Poisonous to LIvestock
- MN Dept of Natural Resources- Improving Grasslands
- USDA Agricultural Research Service- Livestock in Heat Stress

Forage Quality

Nitrate toxicities, prussic acid poisoning are concerns during drought. These are primarily an issue with annual forages and several weed species, but nitrates can be an issue even in drought stressed perennial forages.

Nitrate Toxicity

Corn, small grains, Sudan grass, and sorghum Sudan grass, many weed species, Johnsongrass and even alfalfa can accumulate toxic nitrate levels under severe drought stress. Mechanical harvesting of these forages does not reduce the levels of accumulated nitrates. Nitrates are cumulative.

Test stressed forage for nitrates before feeding or grazing it. Livestock water should also be tested for nitrate levels.

Prussic Acid Toxicity

Several forage and weed species contain compounds called cyanogenic glucosides that are converted quickly to prussic acid (i.e. hydrogen cyanide) in freeze-damaged plant tissues, or under drought conditions. Prussic acid poisoning potential is most common after the first autumn frost. Plants growing under high nitrogen levels or in soils deficient in phosphorus or potassium will be more likely to have high prussic acid poisoning potential. After frost damage, cyanide levels will likely be higher in fresh forage as compared with silage or hay because cyanide is a gas and dissipates as the forage is wilted and dried for making silage or dry hay.

Do not graze after a killing frost until plants are dry, which usually takes 5 to 7 days. Some labs provide prussic acid testing of forages. Sampling and shipping guidelines should be carefully followed because prussic acid is a gas and can dissipate during shipping.

Water Quality and Cyanobacteria (blue-green algae)

Drought also increases the risk for cyanobacteria (blue-green algae) blooms that can produce toxins harmful to livestock, wildlife, and people. If your livestock get water from surface water sources, consider monitoring for harmful bacteria. Toxicity is dependent on the species consuming the water, the concentration of the toxin or toxins, and the amount of water ingested. The best method for monitoring cyanobacteria is visually. However, this can be difficult due to how rapidly a bloom can develop and ranchers' ability to check water frequently. Algae blooms are not specific to ponds or surface water, they can also occur in livestock water tanks. Consider increased monitoring of livestock water during drought conditions. If a bloom is observed, livestock should be removed immediately and a water sample should be submitted for testing. The sample can be evaluated microscopically for potentially toxic species of cyanobacteria or the water can be analyzed for several of the toxins at commercial labs.

Livestock Heat Stress

There are many factors influencing a particular animal's response to heat. Factors can be grouped in four different areas: genetics, health, production status, and previous exposure to heat stress. The heat stress forecast maps are made using the seven-day forecasts of four weather parameters (temperature, humidity, wind speed, and cloud cover).

NRCS Assistance

For assistance with any NRCS conservation practice, contact your local field office.

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