Drought Management Strategies for Horse Owners – 2021 Drought

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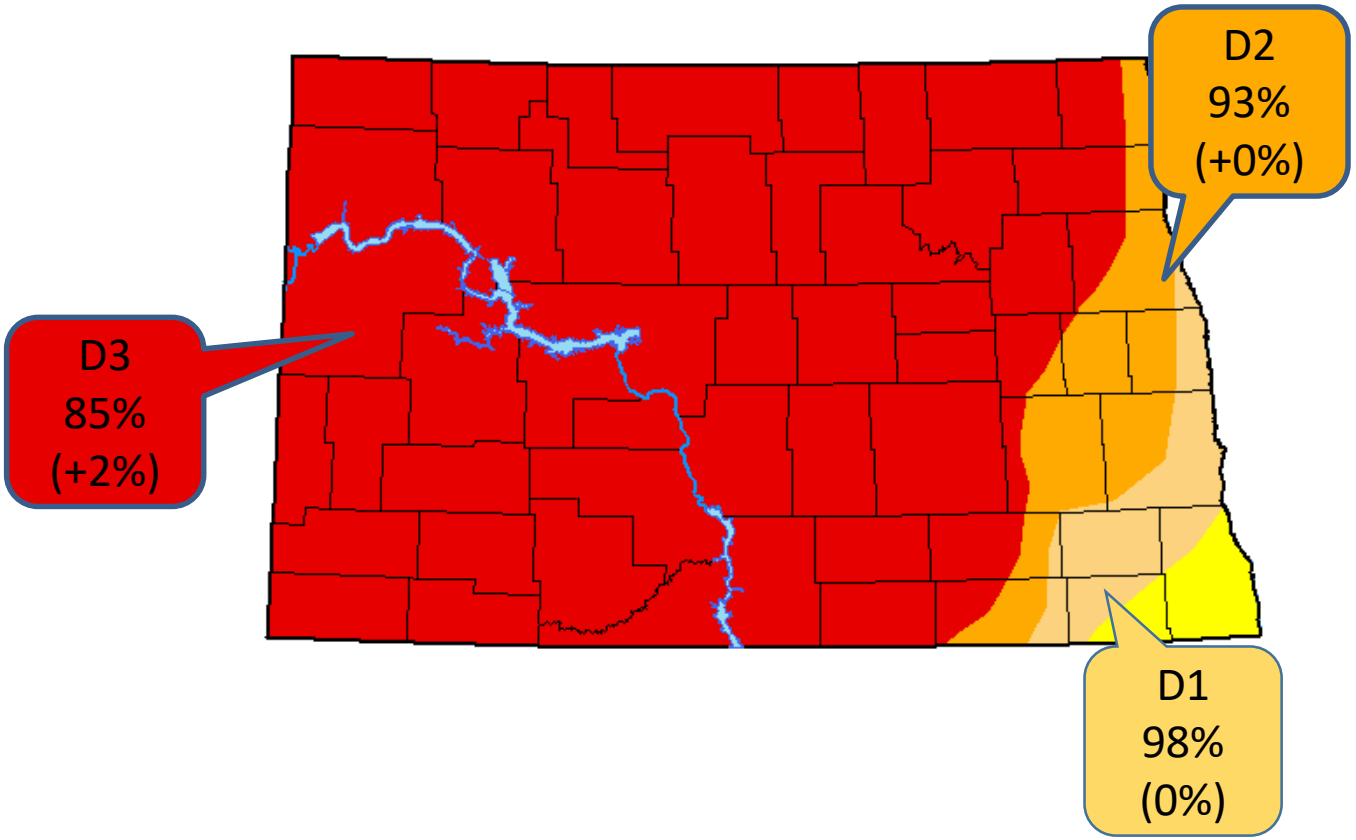
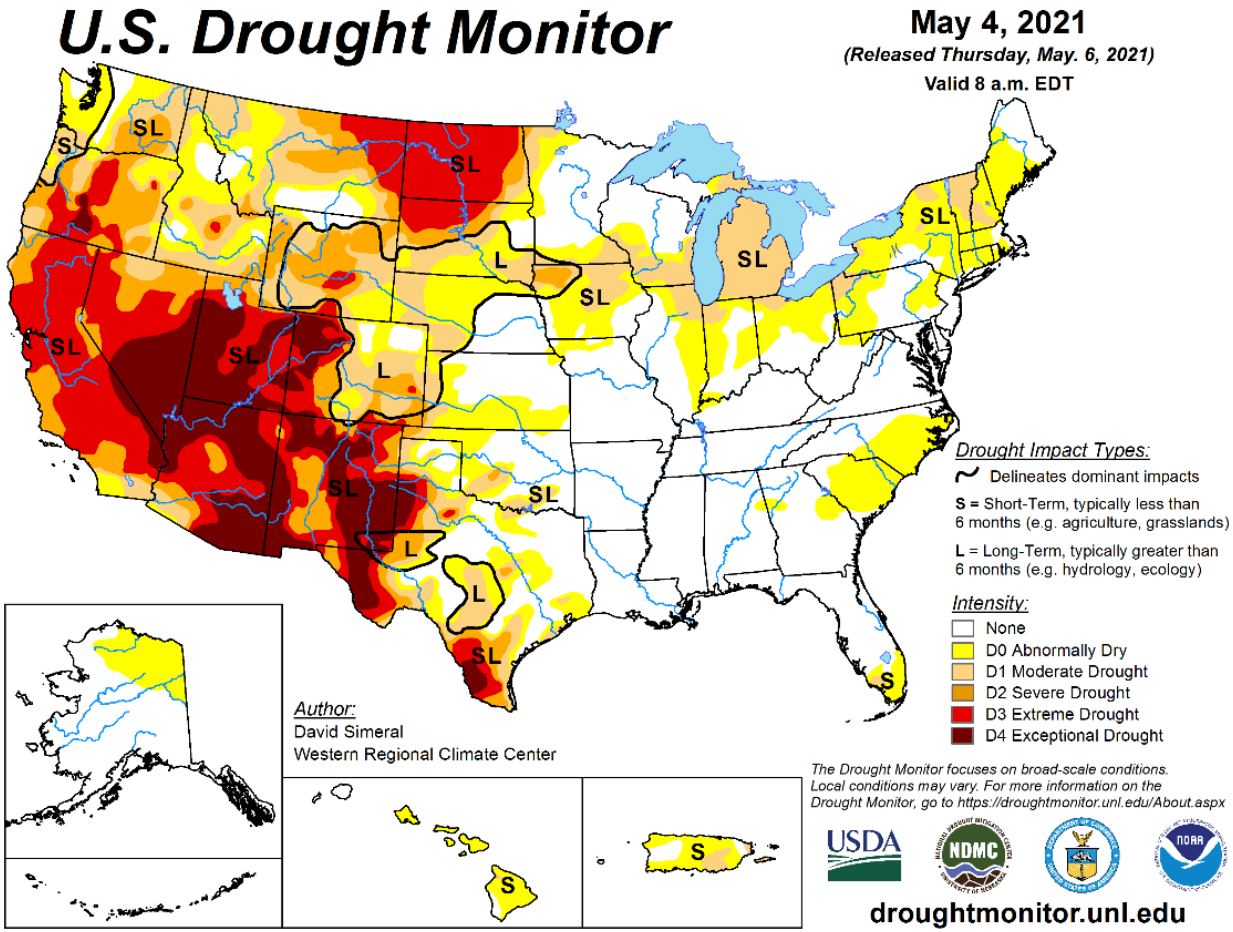
Outline

- Grazing during a drought
- When to graze
- When to dry lot
- Sacrifice areas
- Feeding horses in a dry lot all year
- Sampling feed for nutrients
- Water sources
- Manure management – brief

North Dakota Drought Monitor (May 4, 2021)



U.S. Drought Monitor



When did the drought start?

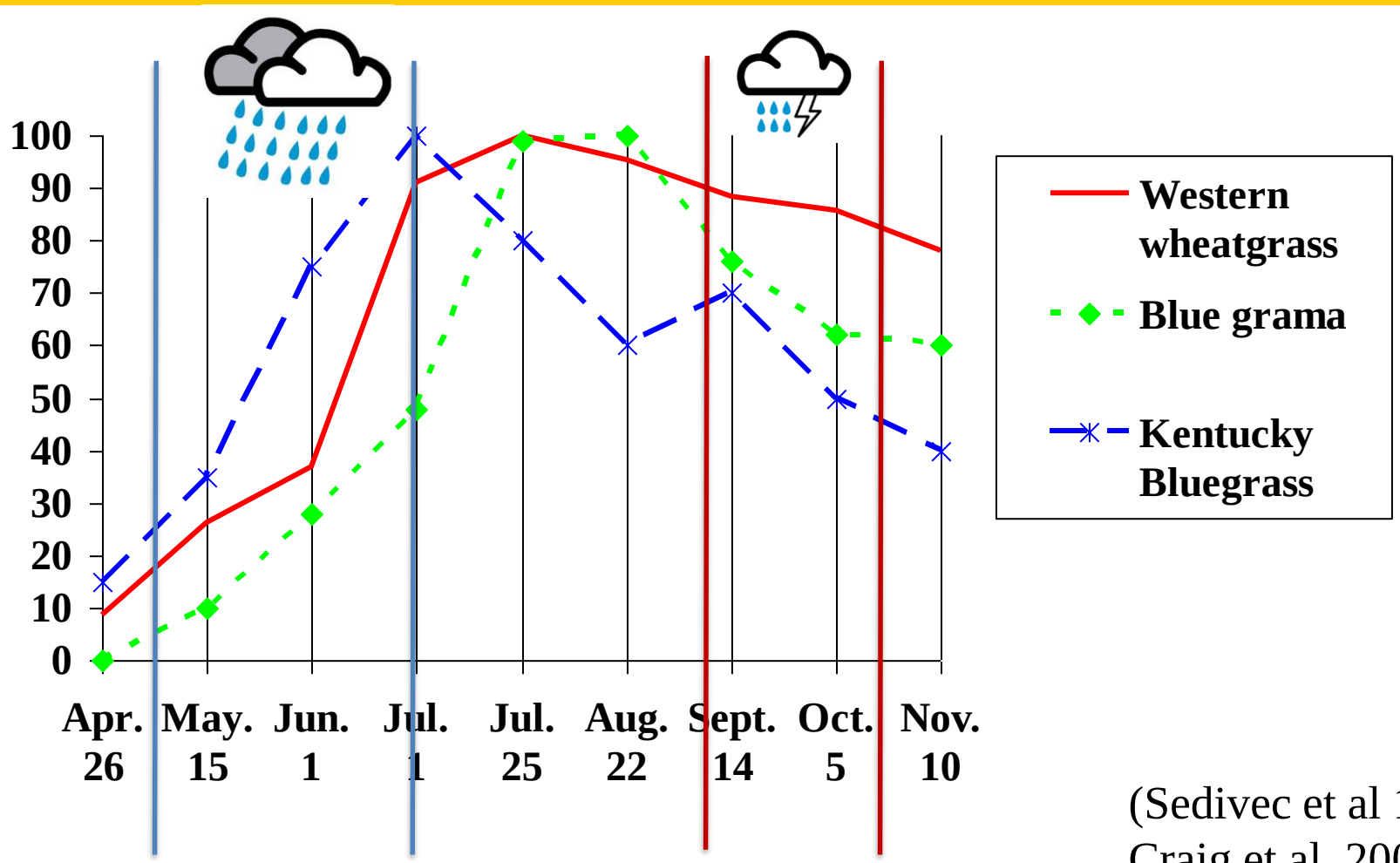
- Much of North Dakota was dry in 2020
  - However, the wet fall in 2019 (150-280% of normal) saved in 2020
- September – April
  - Minot 0.83 inches
    - 12% of normal
    - 2.6 inches of snow

Biggest Issue with Lack of Snow Fall

Predicting Forage Production Potential

- May – June precipitation critical for forage production in North Dakota and much of the Northern Plains, followed by September.

Seasonal Growth Rates of Native Grasses and Kentucky Bluegrass



(Sedivec et al 1999, Craig et al. 2001)

Drought Scenarios for 2021 – Not all Droughts are the Same?

- Spring
  - Greatest effect on forage production
- Summer
  - Greatest effect on forage quality
- Fall
  - Greatest effect on plant vigor of next years spring growth

2021 Drought Scenarios

- "**Below**" normal spring moisture
  - Expect severe reduction in forage production
    - 35 - 55 percent loss

2021 Drought Scenarios

- Normal spring moisture
  - Expect reduction in production
    - 20 - 25 percent
  - If pastures were overgrazed in 2020
    - Expect even greater losses

2021 Drought Scenarios

- Wet spring moisture
  - Forage production should be near normal
    - unless greater than 150%
  - If pastures were grazed properly and under-grazed
    - Expect greater than normal production

Grazing Readiness (Spring turn-out) for 2021

- How does a Fall Drought Effect Spring Growth?

Grazing Readiness

- **Oliver County**: 101 % of normal 2016 fall moisture
- Western Wheatgrass – 3½-leaf stage on 5/9/2017

Grazing Readiness

- **Oliver County**: **42 %** of normal 2017 fall moisture
- Western Wheatgrass – 1½-leaf stage on 5/14/2018

Early Grazing Strategies

- Graze domesticated grass pastures longer
  - Crested wheatgrass is very resilient
  - Smooth brome – not as resilient
- Graze pastures invaded by Kentucky bluegrass

Stretching your grazing days on Crested Wheatgrass/Smooth Brome

Strip or rotational graze (2 pastures)

Early Grazing Strategies

- Minimize repeated years of overgrazing
  - Start in a pasture that was not overgrazed in 2020

Creating Resiliency with Improved Grazing Management

- First Step:
- Install Rotational Grazing to Enhance Range and Pasture Health
  - Minimize over-use to 20 percent or less of your pastures
    - Defer these pastures the subsequent year
  - If you overgraze, expect lower livestock performance

What are your best options?

- When forage is limited!
  - Dry lot feed
  - Create an area where feeding can take place and the pasture can recover

What are your best options?

- When forage is limited!
  - Purchase Hay
  - Don’t wait until you run out of feed
  - Purchase early
    - It will only get more expensive
  - Purchase feed types that fit your horses

Recommendations to OPTIMIZE PASTURE PERFORMANCE

- Turn-out to pasture when ready
  - Use crested wheatgrass, smooth brome for earlier spring grazing
  - Kentucky bluegrass pastures

Recommendations to OPTIMIZE PASTURE PERFORMANCE

- Turn-out to pasture when ready
  - Feed more hay
    - Plan now to purchase more hay or other supplements if short
  - If you have to turn-out on early, start in a pasture that was not overgrazed in 2020
- Minimize repeated years of overgrazing

Take Home Message

- Buy hay now!
  - Contact your hay grower early and lock in your needs
  - Determine if you need alfalfa, grass or both
  - Supplement with other feedstuffs

Water Quality During Drought

- Water source
  - Surface vs. ground water

Total Dissolved Solids

TDS (ppm or mg/L)	Comments
< 3,000	Usually satisfactory for most livestock
3,000-5,000	May not cause adverse effects to adult livestock. Growing/young livestock could be affected by loose stool or poor feed conversion. Levels near 5,000 ppm are unacceptable for poultry.
5,000-7,000	Should not be consumed by pregnant or lactating females. Usually a laxative and may result in reduced water intake
7,000-10,000	Do not use for swine. Do not use for pregnant or lactating ruminants or horses.
> 10,000	May cause brain damage or death

Monitoring TDS

- TDS/EC Meter
  - Submit sample if TDS is > 4,500 ppm
- Sulfates typically 60% of TDS

Cyanobacteria Monitoring

- Visual observation

Water Testing

- Sample Kits
- Sample Protocol
- Sampling Assistance
- Analysis for Livestock
  - TDS
  - pH
  - Nitrates
  - Sulfates
- Cyanobacteria

Livestock Water Testing GUIDELINES

Miranda Meehan, NDSU Extension Service Livestock Environmental Stewardship Specialist
Mike Ell, North Dakota Department of Health Surface Water Program Manager
Michelle Mostrom, NDSU Veterinary Toxicologist

Sample Protocol

1. Collect sample in clean 1-quart or larger plastic (preferred) or glass container
   a. Sample containers can be obtained from your county office of the NDSU Extension Service or the watershed coordinator with your local Soil Conservation District.
   b. The Astro Chem Lab prefers you contact it to get a sample kit/container.
2. Collect sample from area where livestock are drinking. If collecting cyanobacteria (blue-green algae), take a sample in the bloom and wear gloves because it can be toxic to humans.
3. Rinse container several times using water to be sampled
4. Fill container completely. Being sure to collect water from deeper in the water and the surface.
5. Label the container with following information:
   a. name of waterbody
   b. name of sampler
   c. date collected
   d. time collected
6. Seal the container tightly and wrap the top with tape to prevent leaking. Place the water in a sealed plastic bag.
7. Complete laboratory sample custody form required to be submitted with the sample; contact the laboratory if needed
8. If submitting a cyanobacteria sample, **ship immediately** on an ice pack (**no wet ice please**) by next-day delivery. Do not freeze the sample or leave it on the dashboard of your vehicle (avoid temperature extremes).

*We recommend collecting and shipping samples before Friday to avoid shipping delays.

Testing Labs

NDSU Veterinary Diagnostic Laboratory
701-231-7527 or 701-231-8307
www.vdl.ndsu.edu

- Water screen: nitrates, pH, total dissolved solids (TDS), sulfates
  - Cost: $25 for test and $10 submission fee (submission paid once when submitting multiple samples)
- Cyanobacteria (blue-green algae)
  - Cost: $20 for test and $10 submission fee (submission paid once when submitting multiple samples)
- Turnaround: within one day of samples arriving at lab
- Shipping:

U.S. Postal Service
Veterinary Diagnostic Laboratory
NDSU Dept. 7691
PO Box 6050
Fargo, ND 58108-6050

FedEx/UPS
Veterinary Diagnostic Laboratory
NDSU Van Es Hall
1523 Centennial Blvd.
Fargo, ND 58102

Minnesota Valley Testing Laboratories Inc.
701-258-9720
www.mvtl.com

- Water screen: nitrates, conductivity, total dissolved solids (TDS), sulfates
- Cost: $49
- Turnaround: seven days
- Shipping: Minnesota Valley Testing Laboratories
  2616 East Broadway Ave.
  Bismarck, ND 58501

Astro Chem Lab Inc.
701-572-7355
http://astrochemlab.com

- Water screen: pH, conductivity, residual sodium carbonate, hardness, sodium adsorption ratio, total dissolved solids, sodium chloride, calcium, magnesium, sodium, iron, potassium, chloride, carbonate, bicarbonate, sulfate and nitrate-N
- Cost: $60
- Turnaround: seven days
- Shipping: Astro Chem Lab
  4102 2nd Ave. W.
  PO Box 972
  Williston, ND 58802

JUNE 2017

NDSU EXTENSION SERVICE

5 Steps to Sample Your Hay

The best way to use your feed resources is to know what quality of hay you have and the best way to find out what you have is by testing your hay. Here is a quick guide to help you get started.

1. Gather materials needed to test.

   Hay probe (most Extension Agents have one you can borrow), power drill, bucket, plastic bags, and a marker for labeling.

2. Take a representative sample of each hay field.

   10% of your hay supply should be tested; if you have less than 20 bales in your hay supply, test them all. Test bales from the same field together as one sample and place in a bucket.

3. Bag the samples.

   Take a smaller sub-sample for your bucket and place in a labeled sample bags (quart sized) with your name, date the samples were taken, and a description of the samples (ex: North grass hay field, second cutting alfalfa).

4. Send them to a certified feed analysis lab.

   Most equine hay analysis costs around $20. Talk to your local Extension Agent about labs in your area. They can also help you fill out the submission forms and assist in interpreting the results of the analysis.

5. Use the results to determine if your horses needs are met.

   Knowing the class of horse being fed (light use trail gelding vs. lactating broodmare) and their current Body Condition Score (BCS) will determine if supplementation or a different hay will be necessary to maintain the ideal condition of each individual horse.

Contact your local Extension Agent for assistance.

For a list of County offices in North Dakota, go to:

www.ag.ndsu.edu/extension/directory/counties

Stretching Your Hay Resources

- Replace with a pelleted, cubed, or vacuum-packed forage

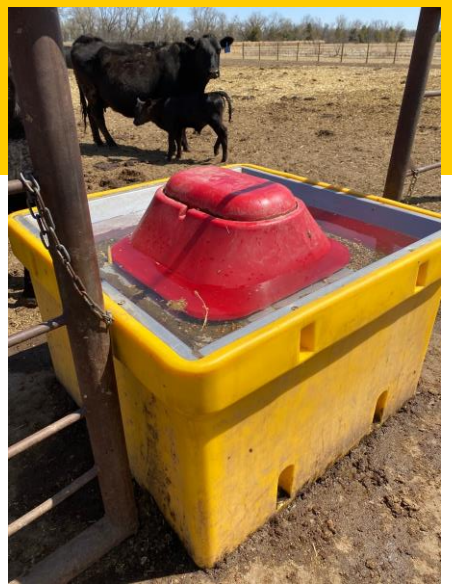
- Replace with a complete feed
- Supplement hay with a concentrated feed
- Feed older hay
- Feed lower quality hay free choice, portion out higher quality hay
- Reduce waste
  - Limit feeding
  - Using a feeder or net
- Resist the urge to turn horses out to pasture early

Managing a Dry Lot

- Dry lots, Sacrifice Pens or Exercise Paddocks.
- Plan ahead for what you want to use it for:
  - Attached to adjoining pastures for rotational grazing
  - Make sure the pen can be accessed with equipment
  - Consider a walk-through gate for easy access
  - Will the pen properly drain

Managing a Dry Lot

- Needs:
  - Shelter
  - Water
  - Feed
  - Space



https://extension.umn.edu/horse-pastures-and-facilities/horse-dry-lots-and-shelters

Managing a Dry Lot

- Benefits:
  - Provides a place during extreme wet or drought
  - Give pastures much needed rest
  - Are key to a good rotational grazing system
  - Provides an outdoor space for horses with metabolic conditions

Managing a Dry Lot

- Space
  - Too Small – Not enough room to move around
  - Too Big – Harder to manage efficiently
    - Make sure there is at least 400-500 square feet per horse available.
  - Permanent Fence

Managing a Dry Lot

- Ground
  - Remove manure regularly
  - Drag the pen occasionally to maintain a level ground
  - High Traffic Areas
    - Pads to help control mud and erosion
      - Around water, gates, feeders, etc.

Manure Management Considerations

- Surface runoff
- Leachate
- Flies
- Bacteria and Pathogens
- Rodents
- Odors
- Internal parasites
- Weed seeds

Manure Stockpile Considerations

- Site selection
- Manure collection
  - Decrease fly infestations, odor issues
- Where is the manure storage area relative to the dry lot or sacrifice area?
- If you think long term, how will you manage the manure storage area?

Manure Storage Management

- Will you compost the manure or will you spread it fresh?
- If you plan to spread the manure, will you do it or will you hire a custom applicator?
- If hiring a custom applicator, do you have the land to spread the manure on and is your manure storage area large enough for the applicator's equipment?

Review

- Will you monitor your grass production throughout the season?
- What is your plan to supplement when you run out of pasture?
- Do you plan to test your water sources?
- Will you dry lot your horses?
- Will you need to purchase hay?
- What is your manure management plan?

Resources

- **NDSU Drought website**
  - www.ag.ndsu.edu/drought
- **Extension.org**
  - https://horses.extension.org/drylots-for-horses/
- **2021 North Dakota Weed Control Guide**
  - https://www.ag.ndsu.edu/weeds/weed-control-guides/2021%20nd-weed-control-guide-1
- **Livestock Water Quality publication**
  - https://www.ag.ndsu.edu/publications/livestock/livestock-water-quality
- **Horse Dry Lots and Shelters – U of M**
  - https://extension.umn.edu/horse-pastures-and-facilities/horse-dry-lots-and-shelters
- **Horse Manure Management – NDSU Extension**
  - https://www.youtube.com/watch?v=Yw0leiyTFFk