

# Horse Grazing Management

Mary Keena, Paige Brummund,  
Rachel Wald and Kevin Sedivec

May 6, 2020

**NDSU**

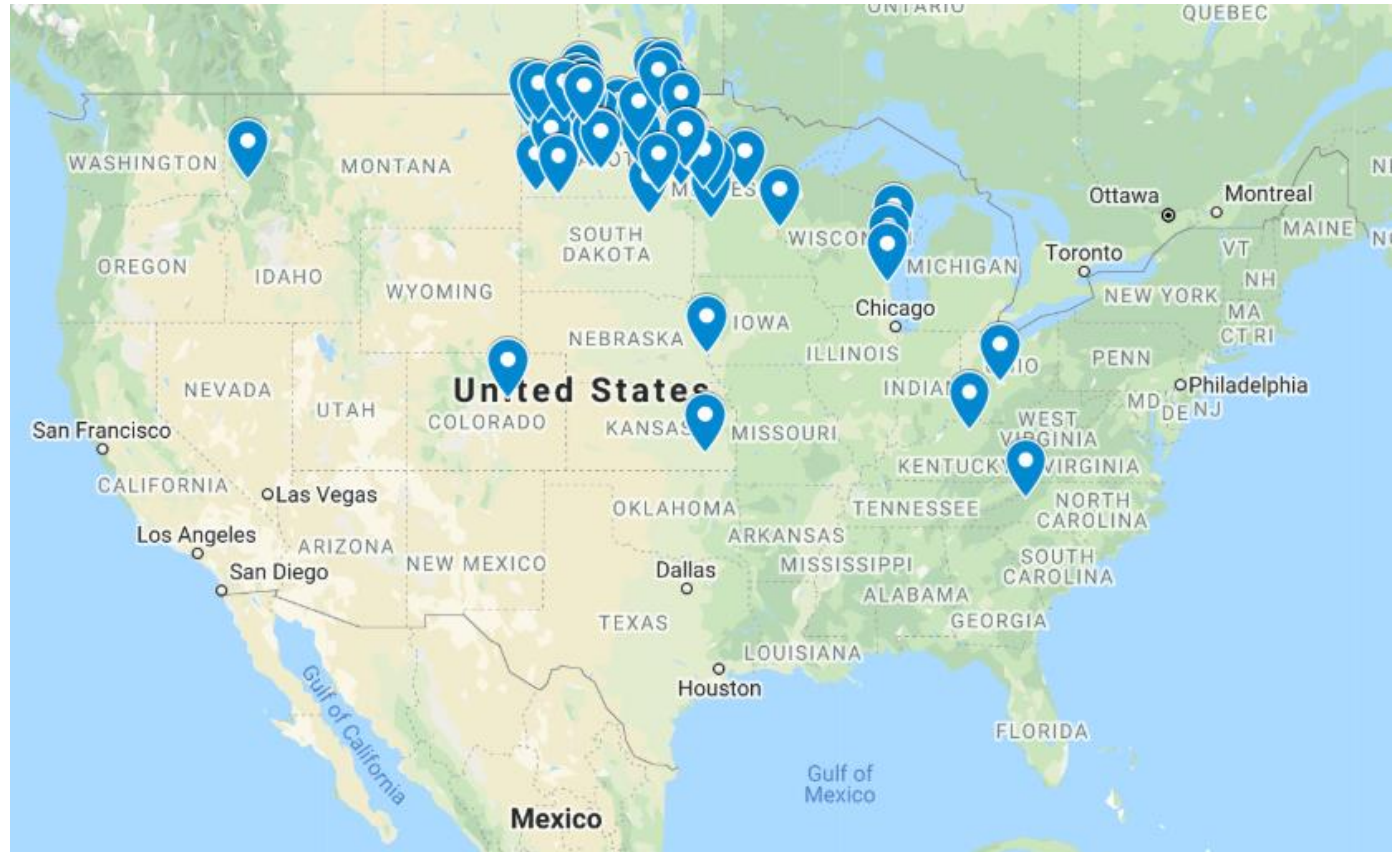
EXTENSION

# Outline

- Types of grasses
- Fertilizing pastures
- Toxic plants
- Grass seed
- Grazing strategies
- Fencing
- When to graze
- Dry lot management

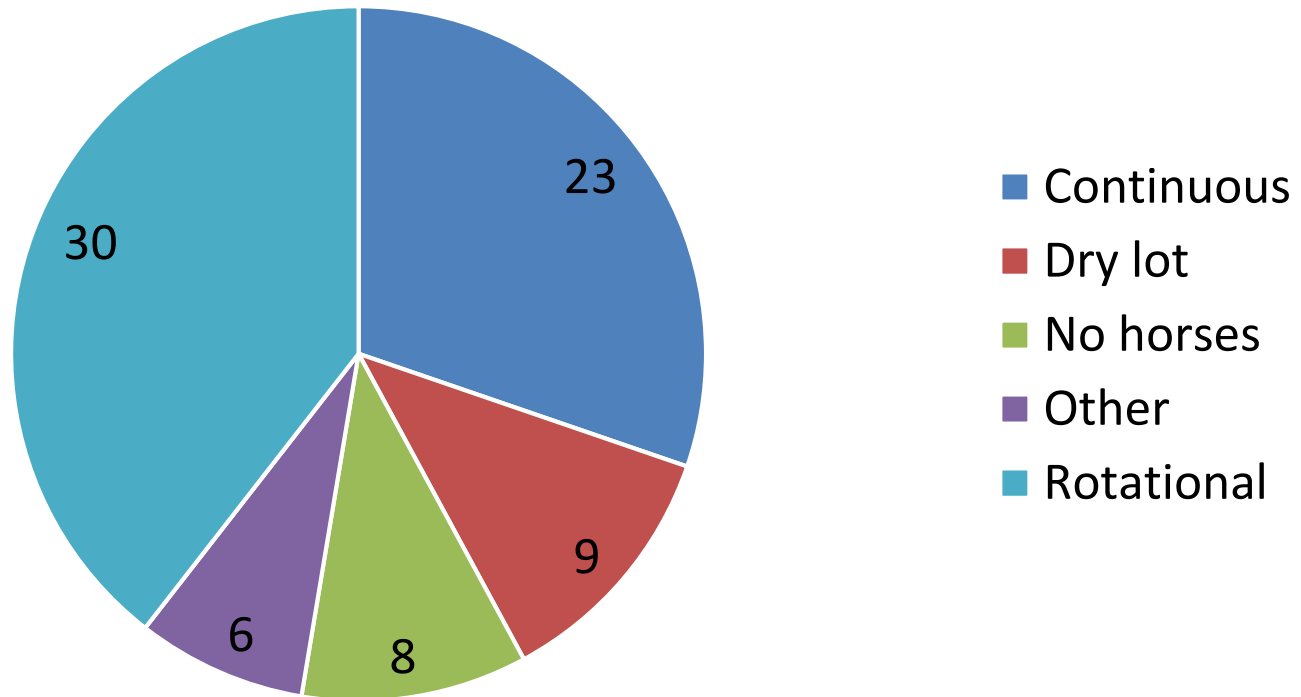
# Who's Here?

- Peru
- Australia



# Grazing Strategies/Participant

Grazing Strategies





# What's in Your Pasture – Management Hints for Horses

*Kevin Sedivec*

*Extension Rangeland Specialist*

EXTENDING KNOWLEDGE >> CHANGING LIVES

**NDSU**

EXTENSION

# Topics We Will Cover Today

- Types of grasses in ND horse pastures
- Fertilizing pasture
  - Why, when and how
- Plants toxic to horses found in ND pastures
- Where to source grass seed
  - Seeding rates for “new pasture” vs over-seeding current pasture

# Commons Grasses in Horse Pastures in North Dakota

- Smooth brome
  - High quality, high production, very palatable
  - Common in planted pastures, ditches
  - When mature, becomes less palatable and low quality



# Commons Grasses in Horse Pastures in North Dakota

- Kentucky bluegrass
  - High quality, moderate production, and palatable when immature
  - Common invader in planted pastures
  - When mature, becomes less palatable and low quality





# Commons Grasses in Horse Pastures in North Dakota

- Crested wheatgrass
  - Common perennial in drier regions
  - Palatable when immature, high producing
  - Wolfy when mature, poor palatability



# Commons Grasses in Horse Pastures in North Dakota

- Quackgrass
  - Palatable when immature, moderate to high production
  - Common invading grass in pasture – especially salty areas
  - When mature, becomes less palatable and low quality



# Commons Grasses in Horse Pastures in North Dakota

- Native pasture
  - Good year-round grazing, palatability varies by species and time
  - Low to high production, dependent on soils
  - Greatest aesthetic value
  - Expensive to establish



# Fertilizing Horse Pastures

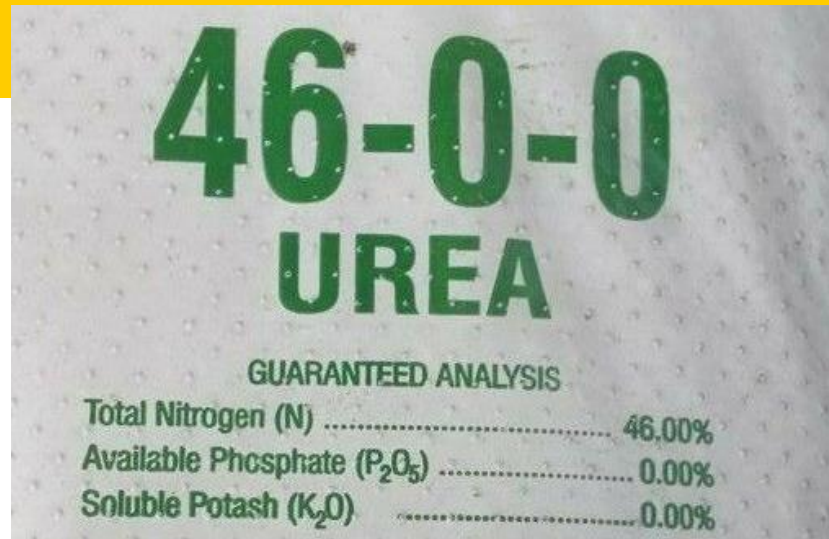


# Fertilizing Horse Pastures

- Only fertilize seeded pastures (not range)
  - Brome, crested wheatgrass, intermediate wheatgrass, timothy, orchardgrass
  - NO on native pastures
- Fertilizer increases forage production and quality
- What to Fertilizer with?
  - Nitrogen is the limiting nutrient on planted pastures
    - 40-60 lb/ac of actual N in western ½ ND
    - 60-80 lb/ac of actual N in eastern ½ ND

# Fertilizing Horse Pastures

- When to fertilize?
  - Late April through mid May
- Most common option is Urea
- Spread by top dressing on the pasture
  - Becomes volatile when temperatures above 70° F



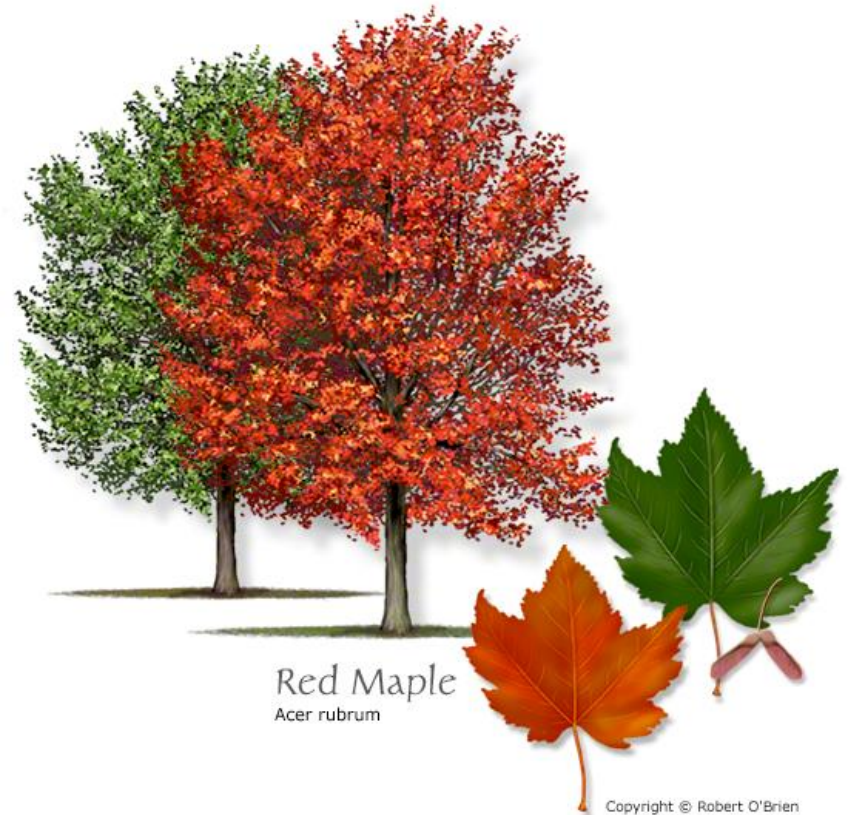
# Weeds?

- Annual weeds
- Invasive weeds
- Noxious weeds
- Toxic weeds



# Toxic Plants

- ***Red Maple Tree***
  - (Box elder tree, other maples)
- Leaves most toxic
  - 3 lb ingested / 1000 lb horse can be deadly
- Severe anemia
- Depression
- Increased breathing





# Toxic Plants

- ***Chokecherry***
  - Stressed or wilted leaves most toxic
  - Bark somewhat toxic
  - Cyanide poisoning
- Death usually occurs before found
  - Flared nostril
  - Labored breathing
  - Lack of coordination
  - Trembling and agitation



# Toxic Plants

- ***Other Plants (not palatable)***
  - Horsetail
  - Locoweed
  - Milkweed
  - Oak
  - Poison hemlock
  - Ragworts

# Toxic Plants

- ***Nitrogen accumulator plants***
  - Annual broadleaf
    - Kochia
    - Russian Thistle
    - Lambsquarter
  - Usually causes high fever, death can follow!

# Where to Source Grass Seed?

- Seeding a new pasture
- Over-seeding an existing pasture
- Local seed dealer
  - (i.e. CHS)
- Larger seed companies
  - (i.e. Agassiz Seed)

# My Favorite Horse Pasture Mixtures!

- 1) Meadow brome
  - Meadow brome + Alfalfa
  - Meadow brome + Orchardgrass
    - SE North Dakota
- 2) Intermediate wheatgrass + pubescent wheatgrass + slender wheatgrass
- 3) Crested wheatgrass + Alfalfa
  - SW ND

# Seeding Horse Pasture!

- Seeding Date
  - 1: Early April – late May
  - 2: Mid October – early November
    - Dormant seeding



# Over-seeding a Pasture

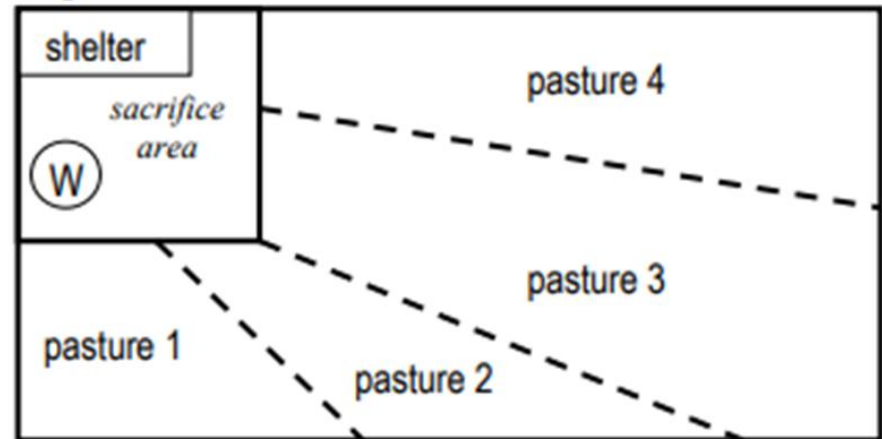
- Usually not successful unless bare areas are common
  - This usually occurs due to overgrazing
    - Need to fix overgrazing problem
  - Seed with like species in the pasture
    - Drilling in the seed is most successful technique

# Grazing Strategies

- Grazing strategies
  - Continuous grazing
  - Limiting turnout time
  - Rotational grazing

- Rotational grazing

**Figure 1**



## Rotational Grazing

Grazing Strategies for Horse Pastures – Publication by Extension Equine Specialist at Colorado State University by Lori K. Warren, PhD  
[https://www.whatcomcd.org/sites/default/files/farm\\_assist/smallfarm/Grazing%20Strategies%20\(Extension%20Colorado\).pdf](https://www.whatcomcd.org/sites/default/files/farm_assist/smallfarm/Grazing%20Strategies%20(Extension%20Colorado).pdf)



# Rotational Grazing

Table 1 provides an example of rotational grazing in a midwestern, cool season grass pasture system.

Number of paddocks	Spring		Summer		Fall	
	Days of grazing /paddock	Days rested per paddock	Days of grazing per paddock	Days rested per paddock	Days grazing per paddock	Days rested per paddock
2	14	14	42	42	28	28
3	7	14	21	42	14	28
4	5	15	14	42	10	30
5	4	16	11	44	7	28

Table 1. Rotational grazing paddock designs (at recommended stocking rates) for horses based on 2, 3, 4, or 5 paddocks in the Northern U.S.

eXtension  
<https://horses.extension.org/grazing-systems-for-horses/>

# Fencing

Table 1. Common equine fence types, costs, longevity and installation.

Fence Type	Cost Estimate	Maintenance Estimate	Expected Life (yrs)	Installation Labor Required
Wood (post and rail)	High	High	15-20	High
Plastic (post and rail)	High	Moderate	20-30	High
Steel Pipe	High	Low	15-20	High
High Tension Wire	Moderate	Moderate	20	Moderate
Electric Wire	Low	Low	20-25	Low
Electric Tape	Low	Low	10	Low

<https://extension.umn.edu/horse-pastures-and-facilities/horse-fencing-considerations>

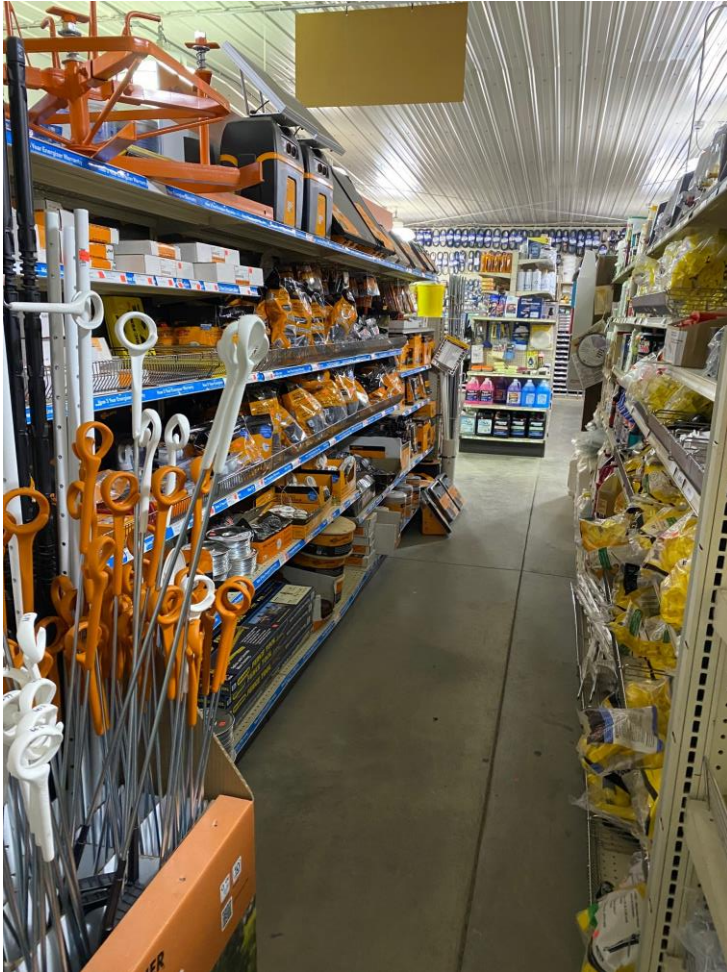
# Perimeter Fencing



# Temporary or Cross Fencing



# What That Looks Like.....

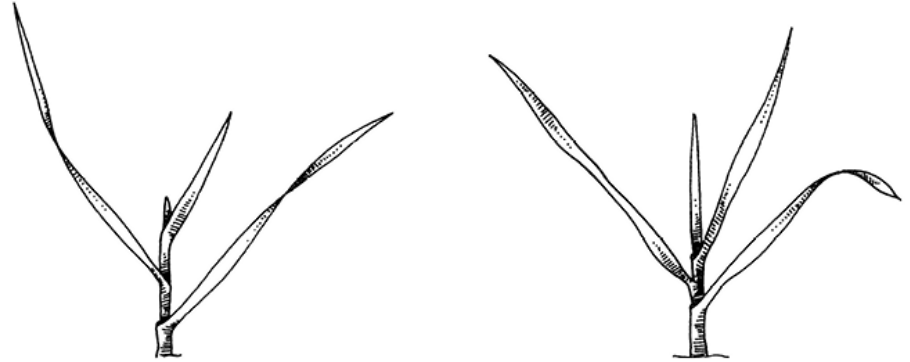


## There are OPTIONS!

- Braided electric wire
- Electric tape
- High tensile electric wire
- T-posts with insulators
- Step in posts
- Semi permanent or permanent paddock fences

# When to Initiate and Cease Grazing

- Leaf growth stage
  - Most accurate
  - 3-3.5 leaf stage
- Height rule of thumb
  - Start when majority of grasses are 6-8” tall
  - Stop grazing when majority of grasses are 4” tall
  - “Take Half, Leave Half”
- NDSU publication R1061, Determining Grazing Readiness for Native and Tame Pastures



# Grazing Too Early

- Reduces plant leaf area needed for photosynthesis
  - Reduced plant vigor
  - Thinner stands
  - Lowered total forage production
  - Increased risk of weed, disease, and insect infestation
- May take several years to regain productivity
- Can also graze too late
  - Reduced palatability and waste

# Overgrazing

Percent leaf of volume removed	Percent of root growth stoppage
10	0
20	0
30	0
40	0
50	2-4
60	50
70	78
80	100
90	100

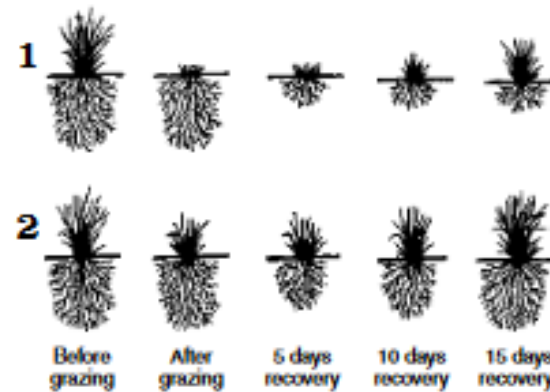


Figure 5. Plant regrowth rates depend on the amount of leaf removed by a grazing event. Plant 2 regrows more quickly because it can fix more energy through photosynthesis than Plant 1, which must draw on its root reserves for energy to regrow. (Reprinted with permission from "Pasture Vegetation – The Monitoring Tool Box" Land Stewardship Project, June 2000.)



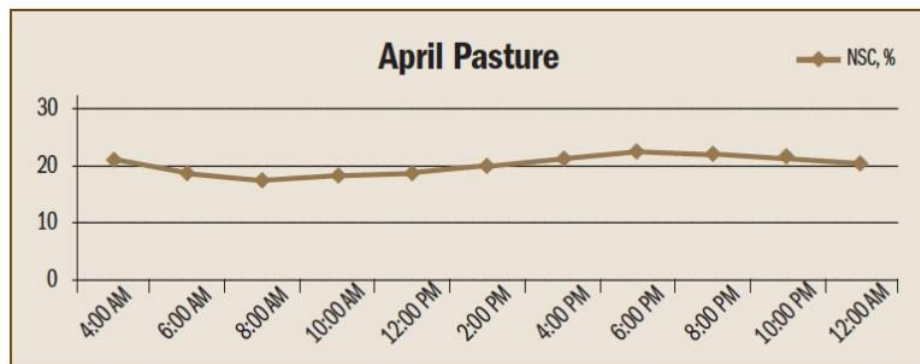
# Transitioning Your Horse to Spring Grass

- Spring, cool season grasses (also fall regrowth)
  - Rapid growth and NSC production (sugars, starches, and fructans)
- Increased laminitis risk
  - Even higher risk in horses with IR, Cushing's, or high BCS
- Adapt to spring grass slowly
  - Start with 30 minutes of grazing
  - Increase by 30 minutes every few days
- Monitor closely



# Managing High Risk Horses

- Avoid grazing on sunny afternoons
- Turnout overnight
- Use grazing muzzles
- Even at lowest NSC levels in the early a.m. can still exceed intake for at-risk horses



Total NSC content is highest on sunny days in the late afternoon and lowest during the overnight hours. McIntosh suggests turning horses out during the overnight hours (10:00 p.m. to 6:00 a.m.) and avoiding afternoon turnout (12:00-8:00 p.m.).

# Dry Lot Management

- A sacrifice area or dry lot is your animal's outdoor living space.
- Giving up land that could be used as a pasture in order to **protect the remaining pasture area**
- Saved for rotational grazing, hay production, forage stockpiling, etc.

# Dry Lot Management

- Gives you a place to keep the horses when you need to keep them off the pasture.
- Examples:
  - When the ground is muddy
  - When there is frost on the grass
  - Anytime the grass needs rest from grazing

# Example of Why to Dry Lot



# Dry Lot Considerations

- Location of dry lot (click for Manure Management presentation)
  - Surface and groundwater pollution
- Soil characteristics and structure
  - Clay vs. sand
  - Hoof traffic
- Ease of use
  - Dry lot can be the hub of the grazing wheel
- Manure collection - weekly
  - Location relative to manure storage area

# Dry Lot Considerations cont.

- The manure you pickup can be composted and applied to your pastures in the dry months.
- Large enough to provide exercise area
- Minimum of 400ft<sup>2</sup>/adult horse
  - Example: 20'x20' area or 10'x40' area
- <https://njaes.rutgers.edu/fs1190/>

# Why Manage Manure?

- Manure contains valuable nutrients plants need. If the nutrients are not used they become a pollutant and are wasted.
- **Improper manure storage and land application**
  - Excess soil nutrients
  - Surface runoff
  - Leachate
  - Water-contaminated with manure



Harmful algal bloom. Photo courtesy: NDDEQ.



# Manure Management Considerations

- Flies
- Bacteria and Pathogens
- Rodents
- Odors
- Internal parasites
- Weed seeds



# Review

- What kind of plants is your horse grazing?
- Do you have a grazing fertility plan?
- When should you seed your pasture?
- Which grazing strategy works for your lifestyle, your pastures and the health of your horse?
- Using a dry lot gives you a place to keep the horses when you need to keep them off the pasture.
- Manure contains valuable nutrients plants need. If the nutrients are not used they become a pollutant and are wasted.

# The End

## Thanks for your time!



# Resources



- **NDSU Livestock Environmental Mgmt. Spec.**
  - Mary Keena, Carrington Research Extension Center, 701-652-2951
  - [mary.keena@ndsu.edu](mailto:mary.keena@ndsu.edu), [www.facebook.com/ndsulem](https://www.facebook.com/ndsulem), [www.twitter.com/ndsulem](https://www.twitter.com/ndsulem), @ndsulem
- **Manure Management Webinar:**
  - <https://www.ag.ndsu.edu/lem/horse-management-webinars>
- **eXtenion Horse Learning Community**
  - <https://horses.extension.org/horsequest-learning-lesson-horseexploration/>
- **Determining Grazing Readiness for Native and Tame Pastures**
  - <https://www.ag.ndsu.edu/publications/environment-natural-resources/determining-grazing-readiness-for-native-and-tame-pastures>
- **NDSU Extension Composting Animal Manures**
  - <https://www.ag.ndsu.edu/publications/livestock/composting-animal-manures-a-guide-to-the-process-and-management-of-animal-manure-compost>
- **The North Dakota Grazing Monitoring Stick: A Way to Measure Range and Pasture Utilization**
  - <https://www.ag.ndsu.edu/publications/livestock/the-north-dakota-grazing-monitoring-stick-a-way-to-measure-range-and-pasture-utilization>
- **Ranchers Guide to Grassland Management IV**
  - <https://www.ag.ndsu.edu/publications/livestock/ranchers-guide-to-grassland-management-iv#section-89>

# Q&A From Live Webinar

**1. Do you see much for horses getting sick from bur oak in ND?**

A. Normally not! Acorns are most toxic, so when acorns fall in early September, if grass is short, then toxicity can be more prone.

**2. I have a few different small pastures to rotate my horses to. Often, I see my horses grazing the same spots in the pasture and not really touching other areas. Why is this? And what can I do to make them graze the whole pasture? Also, if I see this happen, should I mow down the areas they didn't graze when I rotate them out of that pasture?**

A. Horses are selective grazers and often will not graze certain areas, especially those where they choose to defecate. After rotating horses out of the cell they are in, mow those areas to keep them in a vegetative growth stage to increase palatability.

**3. What can be seeded if we have some alkali in our pasture?**

A. A mixture of green wheatgrass, western wheatgrass and slender wheatgrass. 8 lb/a green wheat, 4 lb/a western wheat, and 3 lb/a slender wheat if you drill it in. If you broadcast, use 1.5 times the seeding rate.

**4. I know April to May is best time to fertilize pasture but it has just been too wet in my area. To go in there now with spreader will tear it up. If things don't dry up soon would I better off to wait until next year or should I still do it even if it is a bit past the prime window?**

A. You can fertilizer into late May or early June if the temperatures don't get above 70-75 degrees. If you time your fertilization with a coming rain, that helps to get it incorporated before it becomes volatile.

**5. Getting ready to plant a 20 acre field to alfalfa/orchardgrass mix. Do you have any guidance as to a variety of alfalfa and orchardgrass? What is the seeding rate (# per acre) of the alfalfa and orchard grass? This would be baled for winter feed.**

A. I like the variety Kayak orchardgrass in the north. Use an alfalfa blend. Seed 10 lb/a orchardgrass and 2 lb/a alfalfa if drilled in. If you broadcast and drag, double the seeding rate.

# Q&A From Live Webinar cont.

6. **Do we need to keep horses off a pasture for a certain amount of time after fertilizing?**
  - A. Normally I recommended 7 days, but it may depend if you received rain to incorporate the granules.
7. **Will orchardgrass dominate alfalfa?**
  - A. No! Alfalfa is a faster germinating plant and will establish first. The 2 lb/ac alfalfa is assuming 25% of the stand. If you want 50:50, then use 3-4 lb alfalfa, but never more than 4 lb or alfalfa will dominate the first 2 years.
8. **We just bought a no-till drill seeder and seeded 2 weeks ago. We also fertilized the day after. Was this the right thing to do? Should we have fertilized first?**
  - A. You are good! Your timing is good.
9. **Should a dry lot be dirt or gravel or does it matter?**
  - A. As long as your base is impermeable (clay) so you're not leaching nutrients and you have proper surface grading and drainage it doesn't matter.
10. **Someone told me that the soil had to be 50 degrees F before planting. True?**
  - A. 40 degrees F for cool-season grasses and alfalfa.
11. **Is it okay to fertilize when seeding?**
  - A. Yes.
12. **Who can we work with about weed control (wormwood)?**
  - A. You can contact your local Extension agent ([ND Directory](#)) or your county weed officer (<http://www.ndweeds.com/>)