U of M Horse Newsletter

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Reduce Storage Losses of Round-Bales

Hay waste can occur during both storage and feeding. Research has shown outdoor hay storage losses of round-bales can range from 5 to 35% depending on precipitation, storage site, and original condition of the bale. For example, the outer 4" layer of a 6' diameter round-bale contains about 25% of the total bale volume, and is most likely to be damaged by weather if stored improperly or unprotected.

There are a number of techniques that minimize outdoor storage losses of round-bales:

- Bale (or buy) a dense bale as the bales will sag less and have less surface area in contact with the ground.
- Use plastic wrap, net wrap, or plastic twine. Research has shown that net wrapped bales reduced grass hay dry matter losses by 32% compared with twine bales when stored outside.
- Store bales on a well-drained surface. A well-drained, 4 to 6" coarse rock base will minimize bottom spoilage, as well as using wood pallets.
- Never store round-bales under trees.
- Store round-bales end-to-end when storing outside. Position round-bales as tightly as possible in long lines on a well-drained site. If more than one line of bales is needed, space adjacent lines at least 3' apart. This will increase air flow and allows sunlight to penetrate the bales. In a South Dakota study, dry matter losses of round-bales were 4% for round-bales stacked individually and less than 1% for round-bales stacked end to end.
- When storing round-bales outside without cover, never stack round-bales in a pyramid. Stacking tends to trap moisture and limits drying action from sunlight and wind. A South Dakota study reported dry matter losses of round-bales stacked in pyramids at more than 10% after one year of storage.
- Storage losses are usually reduced by approximately two-thirds with indoor storage and by one-half with good plastic covering (i.e. a tarp) outdoors.

Author: Krishona Martinson, PhD, University of Minnesota.

Ask the Expert: Crown Rust in Oat Hay

Question: The cover crop of oat in my newly seeding alfalfa hay field has rust. The oat will get cut and baled with the alfalfa, and I'm wondering if this is going to be a problem for the horses?

Response: Crown rust is a fungus that affects the leaves of oat, and spreads from leaf to leaf via spores. There are some varieties of oat that are more resistant to crown rust than others.

Crown rust on oat should not pose a major health risk to your horses once baled. However, crown rust will likely decrease the nutrient value of the hay (decreased protein and digestible energy levels) and may decrease the palatability (the horses willingness to ingest the hay) of the hay. Therefore, it is recommended that you test the hay for forage quality and supplement with a vitamin/mineral mix or concentrate as needed.

More importantly, crown rust may make the hay dusty, which could lead to respiratory issues. Feeding the hay outdoors and pulling apart the flakes prior to feeding may help to decrease the dust level. Wetting (not soaking) the hay with water prior to feeding will also help reduce the chance the horse will inhale the dust and spore particles.

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Upcoming Events

Lunch and Learn Webinar
September 10, 2014
Noon - 1:00 pm
"Equine Winter Care"
presented by Abby Neu, Univ. of Minn. Extension
To join the free webinar, log onto
https://umconnect.umn.edu/wintercare/

75th Annual Minnesota Nutrition Conference
September 17 and 18, 2014
Mystic Lake Casino
Prior Lake, MN
For more information, visit
www.mnnutritionconf.umn.edu
Full day equine session on September 18, 2014

Regional Horse Owner Program
November 6, 2014
6:00 to 8:30 pm
Bluff Country Equine
29161 Wilson Frontage Rd.
Winona, MN

Visit our **Facebook** page for "Research Update Monday", "Tip of the Week Wednesday" and "Friday Funny"

Research Update: Weeds Commonly Found in Drylots

Laminitis (or founder) is a devastating, painful condition for horses leading to losses in performance, increased veterinary costs, and even death. Diets high in nonstructural carbohydrates are a known trigger for laminitis. Horses that are easy keepers, or overweight, are also at a greater risk of developing laminitis and tend to be classified as having equine metabolic syndrome. Some of the most effective management tools for horses prone to laminitis are to limit their nonstructural carbohydrate intake by testing forage for nonstructural carbohydrate content, restricting amounts of feed to encourage weight loss, and confining to dry lots (i.e. dirt paddocks) in order to avoid access to pasture grasses that are commonly high in nonstructural carbohydrates and digestible energy (i.e. calories).

Researchers have recommended a total diet (i.e. hay, grain, supplements, treats) of less than 12% nonstructural carbohydrates for horses diagnosed with laminitis or equine metabolic syndrome. However, recent reports from horse owners indicate horses housed on dry lots are still experiencing recurring bouts of laminitis, despite being fed a low nonstructural carbohydrate diet. Weeds that commonly grow in dry lots may be both palatable to horses and high in nonstructural carbohydrates; therefore, capable of triggering a laminitis episode. The objective of this research, conducted at the Univ. of Minn., was to determine nonstructural carbohydrate content of weeds commonly found in dry lots housing horses or ponies with a history of laminitis.

During the summer of 2013, 10 farms in Minnesota and Wisconsin were visited three times (spring, summer and fall), and up to four weeds growing in dry lots housing laminitic horses or ponies were collected. Samples were sent to a forage testing laboratory and analyzed.

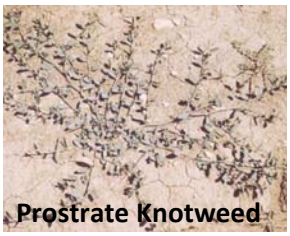
Twenty-seven different weed species were collected. The 6 most common weed species included prostrate knotweed, plantain, redroot pigweed, common ragweed, cinquefoil, and purslane. The average nonstructural carbohydrate content of the weed species varied with plantain have the highest and prostrate knotweed the lowest (see Table). There were no differences in nonstructural carbohydrate content within weed species across farms; however, nonstructural carbohydrate content was higher during the fall. It is common for plants to have higher nonstructural carbohydrate contents in the fall due to weather conditions. Most plants continually produce nonstructural carbohydrates during the day and utilize them at night. However, plants essential shut down during cool nights and therefore do not utilize nonstructural carbohydrates which contribute to higher levels commonly observed in the fall.

The average nonstructural carbohydrate content of plantain, cinquefoil and ragweed was greater than the maximum 12% total diet recommendation for horses diagnosed with laminitis or equine metabolic syndrome. However, the maximum amount of nonstructural carbohydrate content exceeded this recommendation for all weed species (see Table). Nutritive analysis of other components indicated the weeds would be palatable to most horses, especially ones housed in a dry lot on a restricted diet (i.e. horses who might feel hungry). All weed species were relatively low in structural carbohydrate components and high in crude protein. Combined, these results have proven to increase palatability; therefore, it is not surprising the horses consumed the weeds.

Although this research did not directly link the ingestion of weeds to laminitis, the wide range of nonstructural carbohydrate content within the weed species suggests horse owners should control weeds in dry lots, especially if used to house laminitic horses and ponies.

This project was sponsored by a grant from the Minnesota Horse Council. Authors: D. Gunder and K. Martinson, PhD, Univ. of Minn. and J. Wilson, DVM, MN Board of Vet Med.


Plantain


Prostrate Knotweed

Weed Species	Nonstructural Carbohydrate		
	Avg.	Max.	Min.
	% Dry Matter		
Plantain	16	30	4
Cinquefoil	14	21	11
Ragweed	12	16	4
Purslane	11	14	7
Redroot Pigweed	11	15	8
Prostrate Knotweed	9	20	4