

Hello Weekly Pile Readers

Included is the Weekly Pile of Information for the week of October 22nd, 2017 Extension's Equine related educational information & announcements for Rockingham & Guilford Counties. To have something included in the Weekly Pile, please follow these simple guidelines.

- *Information included needs to be educational in nature &/or directly related to Rockingham or Guilford Counties.*
- *provided information is a resource to the citizens of Rockingham & Guilford Counties.*
- *provided information does not require extra time or effort to be listed.*
 - *Listings for Swap Shop will not list pricing details.*
 - *Please E-mail information to me by Wednesday each Week.*
 - *Please keep ads or events as short as possible – with **NO FORMATTING**,*
- NO unnecessary Capitalization's and NO ATTACHED DOCUMENTS.***
 - (If sent in that way, it may not be included)***
 - *Please include contact information - Phone, Email and alike.*
- ***PLEASE PUT WEEKLY PILE IN SUBJECT LINE when you send into me.***
- *The Weekly Pile is not for listings for Commercial type properties or products.*

If I forgot to include anything in this email it was probably an oversight on my part, but please let me know!

If you have a question or ideas that you would like covered in the Weekly Pile, please let me know and I will try to include. As Always, I would like to hear your comments about the Weekly Pile or the Extension Horse Program in Rockingham or Guilford Counties!

I NEED YOUR FEEDBACK & IDEAS!

Included in The Pile this Week:

1. Acorns & Horses

2. Do Not Feed Moldy Hay to Horses

3. Ringworm in Horses

4. You Asked

5. Important Considerations for Pasture Fertilization

6. Nitrogen Sources for Pasture and Hay

**7. Frequently Asked Questions
about Fertilizing & Horse Pastures**

8. What's Supp?

9. Forage Tips: October-December

10. Start Thinking about Winterizing Your Barn

11. THIS SATURDAY - Upper Piedmont Research Station Field Day

12. HorseFriends Schooling Hunter Show & Tack Sale - 10/28

13. The Ag Tax Issues Short Course Nov 3

14. Amazing Grazing Workshop Workshop 11/11

15. Farm Service Agency Reminder

16. NCSU Equine Grazing & Pasture Management School 12/2/17

17. HAY DIRECTORY

18. Swap Shop

19. Take A Load Off

+++++

1. Acorns & Horses

Research Source: Plants Poisonous to Livestock and Pets in North Carolina

NCSU Bulletin No. 414

The cooler temperatures seem to bring along with them the change and turnover of a year. Grazing livestock & horses enjoy the annual escape from the oppressive summer heat. But with the cooling of the season, there are a few dangers for our pasture animals that need to be avoided. Oak trees and acorns are scattered everywhere and very common in North Carolina & North America. While good for wildlife, grazing

livestock & horses are often around pastures that contain oak trees, which opens the door for the the possibility for animals to consume acorns. There are 28 species of oak trees in North Carolina and are usually considered dangerous (can toxic) when other forage is scarce.

Hold On, there is a BUT: If acorns/young leaves are over-consumed, they have the potential for fatal poisoning. Although acorn poisoning has been widely documented in cattle & sheep, there are fewer cases in horses & goats. In the rare instances in which horses have been known to eat large amounts of acorns, young shoots (leaves) without other feed they have sometimes experienced severe and even fatal reactions. (If taken with other forage, the oak leaves not only are harmless but contain valuable nutritional elements)

The toxic compound in acorns is gallotannins (tannic acid), and possibly other compounds identified as quercitrin and quercitin. One mystery is why livestock can be poisoned. Hogs, deer and squirrels seem to shell acorns and because the toxin is concentrated in the shell, this may explain their resistance to poisoning. They may also learn (or maybe naturally select) to not eat too many.

Typically, acorns are not a favorite food for most livestock. If they have plenty of pasture to graze, acorn toxicity is usually not a problem. Usually in spring when other food is scarce and the young oak leaves are tender & palatable; or tender sprouts from cut trunks. **However, sometimes there is an animal that, for whatever reason, just seems to love acorns and will gorge themselves on them.** Some animals can apparently eat acorns with no ill effect, while others develop kidney and digestive problems that can lead to death.

Ingesting a small amount of acorns is probably not a risk to most horses. Unfortunately, we don't know how many it takes to make a toxic dose because of several varying factors. The concentration of toxic compounds varies depending on the time of year being higher in younger acorns, buds and branches than in more mature ones. Acorns can also vary year to year in concentration of these compounds.

Horses

Those horses that would probably most at risk would be the most inquisitive type horses, especially young horses, who like to put everything in their mouths, may be more at risk of overeating acorns than older horses, who are less likely to experiment with different foods. In general, acorns and other parts of the oaks trees are not desirable to horses. Fresh immature leaves are more palatable than mature ones, so they may be more tempting in the spring. In general, though, most horses still prefer to eat grass and good-quality hay. Symptoms of acorn toxicity include depression and loss of appetite followed by digestive-tract issues, such as colic, gastric upset and diarrhea (often bloody). Kidney and possibly liver damage may also occur as well as bowel obstructions and ruptures. The more acute the symptoms, the higher the likelihood of death. Horses experiencing a gradual onset of symptoms—over a number of days rather than hours—have a better prognosis.

Cattle

Generally, cows and large calves will be directly affected, but baby calves also appear to be affected through the milk and possibly before birth. Brood cows consuming acorns during the second trimester of pregnancy have the chance of malformed calves. Acorns can also cause agalactia (no or little milk) in fall calving cows. Affected cattle will first show signs of constipation, followed by an abnormally (dark or yellowish) colored thick diarrhea, sometimes with blood. Clinical signs of illness occur several days after consumption of large quantities of acorns in the fall. Most cattle that have the advanced gastrointestinal problems will lose condition rapidly, and have a gaunt, rough, “humped up” appearance with a diarrhea stained tail and rump. In mild cases, gastrointestinal distress may be the only result, and the affected animals will sometimes recover. In severe cases, kidney damage (tubular necrosis) occurs, and animals can die within several days.

The best way to prevent acorn poisoning is to keep animals away from acorns. If pastures contain a substantial number of oaks, the trees should either be removed or animals fenced out, but if you fence off an area covered with acorns, you may have to leave the fence up for a while. Acorns retain high levels of tannic acid for several months. An alternative would be to set up a management program that will keep animals off those pastures from the time acorns start to fall, until several weeks after the leaves have fallen. Promptly remove fallen branches and acorns after heavy windstorms. Most importantly, supplement inadequate forage with plenty of good-quality hay.

For **Cattle**, there is also a grain/protein based supplement containing 10% calcium hydroxide (hydrated lime) that has helped in some situations, but not in others, and probably should not be an alternative to designing a program to keep cattle from eating acorns.

+++++

2. Do Not Feed Moldy Hay to Horses

Dan Undersander, University of Wisconsin - Marvin Hall, The Pennsylvania State University - Richard Leep, Michigan State University - Krishona Martinson, University of Minnesota - J. Liv. Sandberg, University of Wisconsin - Glenn Shewmaker, University of Idaho - Don Westerhaus, Kemin AgriFoods North America - Lon Whitlow, North Carolina State University

Haymaking conditions have been poor, some hay was rained on or left lying in the field for prolonged time periods due to storms and heavy rains along with humid conditions which reduced drying rates. The long drying periods with high humidity allowed field growth of mold on the hay.

Poor drying weather has also meant that some hay was put up wetter than usual and mold growth occurred in storage. With wet weather and high humidity, normal drying in storage may not occur and hay can retain elevated levels of moisture allowing mold growth. Mold will grow on hay without preservative added at moisture levels above 15%. The mold growth produces heat and can result in large amounts of dry matter and TDN (total digestible nutrient) loss – a loss of

carbohydrates and binding of proteins. In some cases, heating can be great enough to cause spontaneous combustion and fire. Drying of stored hay (moisture loss) is enhanced by increasing ventilation, creating air spaces between bales, reducing stack size, stacking in alternating directions, and not placing tarp directly over a stack in the field as the tarp traps moisture. Since moisture tends to move up and out the top of a stack of bales, ample head space should be provided above a stack in a barn, allowing moisture to evaporate.

Molds commonly found in hay include *Alternaria*, *Aspergillus*, *Cladosporium*, *Fusarium*, *Mucor*, *Penicillium*, and *Rhizopus*. These molds can produce spores that cause respiratory problems, especially in horses and, under some conditions, will produce mycotoxins.

Horses are particularly sensitive to dust from mold spores and can get a respiratory disease similar to asthma in humans called Recurrent Airway Obstruction (RAO), commonly referred to as heaves. A horse with RAO will have a normal temperature and a good appetite, but will often have decreased exercise tolerance, coughing and nasal discharge. Labored breathing occurs during exercise and, in some cases, while at rest. Hypertrophy of the abdominal oblique muscle used for expiration creates the characteristic 'heave line' seen on horses with RAO. Some horses are highly allergic to certain mold spores while others seem to be minimally affected. Even among horses with symptoms of RAO, can be variations of their sensitivity levels to additional detrimental stimuli such as dust and poor air quality. To decrease exposure, horses should spend more time outside on pasture rather than on a dusty paddock or inside the barn. Additional ways to reduce dust exposure are as follows:

- Do not feed dusty and moldy hay and grains.
- Use dust-free bedding such as shredded paper or rubber mats.
 - Place feed at a lower level so particles are not inhaled through the nostrils.
- Keep your horse out of the stable when you are cleaning and sweeping to reduce exposure to dust.
- Feed hay outside to minimize dust problems. In severe cases, hay may be replaced by hay cubes.
- Soak dusty hay for 5 to 30 minutes before feeding so that the horse can eat it while it's wet.
- Store hay away from your horse as much as possible and ensure any hay in the vicinity is kept dry to reduce mold.
- If the horse is housed indoors, ensure that there is good, draft-free ventilation through the stable.

Mold Spore count per gram *Feeding Risk and Cautions*

<u>Under 500,000</u>	<u><i>Relatively low Risk</i></u>
<u>½ to 1 million</u>	<u><i>Relatively Safe</i></u>
<u>1 – 2 million</u>	<u><i>Feed with Caution</i></u>
<u>2 – 3 million</u>	<u><i>Closely observe animals & performance</i></u>
<u>3 – 5 million</u>	<u><i>Dilute with other feeds</i></u>
<u>Over 5 million</u>	<u><i>Discontinue feeding</i></u>

^a Risks refer primarily to effect of mold per se without regard to possible mycotoxin content. Dust may also reduce feed consumption.

Data from Richard S. Adams, Kenneth B. Kephart, Virginia A. Ishler, Lawrence J. Hutchinson, and Gregory W. Roth. 1993. Mold and mycotoxin problems in livestock feeding. The Pennsylvania State University.

Sometimes mold spores are counted on moldy feeds to obtain an indication of the extent of molding and relative risks in feeding them. **Table above**, contains classification of risks at various mold spore counts. While most molds do not produce mycotoxins, the presence of mold indicates the possibility of mycotoxin presence and animals being fed moldy hay should be watched carefully for mycotoxin symptoms.

Mycotoxins effects on animals:

1. Intake reduction or feed refusal;
2. Reduced nutrient absorption and impaired metabolism, including altered digestion and microbial growth, diarrhea, intestinal irritation, reduced production, lower fertility, abortions, lethargy, and increased morbidity;
3. Alterations in the endocrine and exocrine systems;
4. Suppression of the immune system which predisposes horses to many diseases. A suppressed immune system may also cause lack of response to medications and failure of vaccine programs;
5. Cellular death causing organ damage.

If you have mold in hay, watch for the symptoms mentioned above. If hay is dusty, take care in feeding to sensitive animals and those, especially, in areas with poor ventilation. If hay is moldy, the recommendation is to not feed it to horses at all. If symptoms of mycotoxin poisoning are observed (which can occur from mold not visible), check with a nutritionist to make sure the ration is properly balanced and with a veterinarian to eliminate other disease/health problems. Quick test kits (ELISA kits) are available to determine presence of a limited number mycotoxins but they can give false positives. Some forage testing laboratories will provide other mycotoxin tests. Often, the best strategy is to remove a suspected mycotoxin-contaminated feedstuff from the diet and see if symptoms disappear. If mycotoxins are present, the feedstuff can often be fed at a diluted rate and/or with approved feed additives.

In summary:

- * Do not feed moldy hay to horses.

- * Most moldy hay problems are due to mold spores which can produce respiratory disease in horses.

- * Many of the commonly diagnosed mycotoxins from molds are produced in the field when harvest is delayed.

- * If a mycotoxin problem is suspected, a comprehensive review of animal nutrition and health is essential – i.e. problems blamed on mycotoxins may be other disorders or nutritional issues. Diagnosing a mycotoxin problem is difficult and often involves the elimination of other possible factors.

*** The physical dust problem associated with moldy forage can be reduced by feeding in a well ventilated area, mixing with a high moisture feed or wetting the hay, but these will not reduce mycotoxins if present.**

+++++

3. Ringworm in Horses

Horse ringworm, also known as girth itch, is an unsightly, although common, winter skin ailment. Ringworm is caused by a fungus and can be a source of stress for horse owners due to the unattractive skin lesions it causes and the time consuming efforts required to treat and control it. The fungus typically enters the body via a break or tear in the skin, such as a minor scratch, allowing it access to invade your horse's hair follicles. Once in the follicles the fungus begins to breakdown the skin cells in a circular pattern, causing the well-known hair pattern associated with ringworm. The most common type of ringworm horses contract is *Trichophyton equinum* but since ringworm is not species specific you or your horse can get ringworm from other animals on your farm such as cows, cats or dogs.

The direct cause of ringworm is a fungal infection, but there are certain conditions that can increase your horse's risk of catching or transmitting it. The close quarters that horses often keep during cold months can cause a huge increase in the incidence of ringworm on your farm. The skin-to-skin contact that may occur with animals being housed together allows for the fungus to easily transfer between animals. A stressed animal is also more likely to develop a ringworm infection. Keep this in mind when traveling for shows or training. Young, sick or immunosuppressed animals may also be more susceptible to a ringworm infection.

Horse ringworm commonly starts as a small patch of dry, scaly skin which grows to larger circular lesions. If these lesions are draining or open it can allow bacteria to enter, complicating the infection and treatment of the area. Most horse ringworm infections originate from the face, neck or girth area but this can vary depending on the type of fungus.

There are multiple skin infections that can look like ringworm, so if you suspect your horse may have it a vet visit is in order. The vet will be able to determine if it is a true ringworm infection using a Wood's lamp or doing a skin scrape/culture. It is important to get a proper diagnosis from a vet because the wrong type of medication may make the condition worse.

Treatment of a ringworm infection is a multi-step process. The vet will typically prescribe a topical anti-fungal cream but the use of medicated shampoos can dramatically decrease the duration of the infection. Shampoos containing lime-sulfur, iodine or chlorhexidine are shown to be very effective in treating a ringworm infection. These treatments will most likely need to be repeated daily, then weekly until the ringworm has gone and the vet has medically cleared your horse. To avoid reinfection disinfect all combs, brushes, tack and blankets after each use. Disinfect stalls of infected horse. Bleach water solutions (10:1) are great at killing fungal spores. Untreated fungal spores can live on surfaces for up to a year! Keep uninfected horses separated until treatment of infected horse is completed. Also keep your horses skin dry and clean, allow for lesions to dry out.

Since ringworm can be transmitted to other animals (including humans) it is important to use good sanitary practices when handling your infected horse. Use gloves when applying treatment or sanitizing tools, try to

refrain from hugging your horse until the infection has cleared and wash, wash, wash your hands!!

+++++

4. You Asked: When is the best time to fertilize pastures? Should you fertilize the pastures in the fall?

I am going to try to address your question of the timing or when to fertilize, but this is just a piece of the overall fertility program. The fertility program will be addressed in the remainder of this newsletter.

Production for many of our pastures and hayfields are low. Given the variety of forage species and soil and terrain conditions, managing pastures and hayland requires viewing these resources as a system that includes the animals foraging on them.

Research shows that fertilizing, weed control, and rotational grazing increases production from pastures, resulting in greater livestock production. Fertilizing and controlling weeds on pastures/hayland also increases production.

Important factors to consider when evaluating the economics of fertilization include the cost of fertilizer, value of hay or pasture, plant type and response to fertilizer, and risk. Risk can be associated with things such as changes in hay value, timing and amount of rainfall, and the year to year variability in the yield response to the fertilizer. As would be expected, low hay or pasture prices results in low levels of economic success, and high fertilizer prices result in less chance of breaking even.

When fertilizing pastures, grazing management that results in livestock efficiently consuming most of the extra forage growth is needed. Fertilization usually isn't economical if one pasture is continuously grazed throughout the season, because this wastes much of the additional growth. If additional forage can be purchased or pasture rented at a lower cost than fertilizer, these alternatives may be better choices.

Nitrogen (N) increases both grass yield and protein content. It also improves the vigor of grass plants, which can thicken stands and reduce weed invasion. When adequate soil moisture is present, economical rates of nitrogen more than double forage production. *Fertilization with nitrogen is most economical where weeds have been controlled, and where additional grass growth is needed and utilized by livestock.*

**Fertilizers, including waste products containing nutrients, are generally best applied during the periods of active forage growth to maximize nutrient uptake, productivity, and competition against weeds. This is especially true for N, K, and S. Phosphorus can usually be applied at any time during the growing season because it is generally immobile in soils. If P requirements are high at the time of planting, better results will be attained by incorporating P into the top 4 to 6 inches of soil when preparing a seedbed for planting.

Depending of the type of forage and the location in the state, periods of active forage growth/re-growth differ (see AG-789 Forages of North Carolina: General Guidelines and Concepts - <https://content.ces.ncsu.edu/forages-for-north-carolina-general-guidelines-and-concepts>), and fertilization requirements may also differ. In general, soil amendments can be applied one month earlier

in the eastern part of the piedmont and coastal plain regions compared to the mountains. For farms utilizing animal waste as a nutrient source, manure applications cannot be made more than 30 days before planting or breaking dormancy.

Split-application of fertilizer, especially N, K, and S, should increase the efficiency of utilization. This is especially important for intensively used pastures and sites in sandy soils. For example, in hay production systems the total N rate can be split-applied after each harvest to ensure high nutritive value of the harvested forage. Nevertheless, split application may not always be necessary or possible. Since S is a companion nutrient to N and helps N utilization by plants, S is best applied when N is applied.

Nitrogen fertilizer applied just prior to the period of most rapid grass growth ensures that the applied nitrogen is available to the plants and produces the most pounds of additional grass growth per pound of nitrogen applied.

For perennial cool season forages, such as fescue and orchardgrass, apply half of the N rate in mid-February to March for spring growth and the other half in mid-August to September for fall growth. In general, Mid-August is best for western piedmont and mountain pastures. September is best for the eastern piedmont and coastal plain. The application timing of N for pure grasses is different than for P₂O₅ and K₂O. Nitrogen is generally used or possibly lost (through leaching or volatilization) within six to eight weeks after application; therefore, split applications at planting and in the subsequent growing seasons are recommended. Fall planting of grasses would require up to 60 lb N/ac at planting and the additional maintenance application for the subsequent spring and fall. Thus, the annual amount of N recommended by the soil test report should be split-applied in two to three applications.

For winter annual grasses, such as ryegrass, rye, oats, wheat, barley, and triticale, split-apply N into two to three applications. For annual ryegrass, N may be applied one-third at planting in September-October, one-third in February to March, and one-third in early April. Small grains should not receive N after mid-March unless the subsequent crop has the potential to use it.

Warm-season forages

For the warm season perennial grasses, such as bermudagrass, dallisgrass, switchgrass, indiagrass, big bluestem, and gamagrass, split-application in two to three applications of N is recommended. If production is mainly for hay, it is recommended to split-apply the total recommended N rate between cuts (generally every four to six weeks between cuttings). Phosphate and potash may be applied in early April when growth begins; however, on sandy soils 50% K₂O should be split-applied in two applications.

For annuals such as pear millet, sorghum sudan (sudangrass), and crabgrass, an evenly divided N application is recommended at planting and every four to six weeks, or after each cutting, up through August. Phosphate and potash should be applied at planting.

Legumes

The recommended amount of nitrogen for establishment is usually 10 to 30 lb/ac; however, the recommendation for maintenance is zero, assuming that adequate nodulation of the legumes' roots exists for N fixation. Make sure seeds are inoculated prior to planting legumes. For cool-season legumes, such as alfalfa (perennial) or red clover (annual), P₂O₅ and K₂O may be applied in March or late autumn. In sandy soils, apply 50% of K₂O after the second cutting. Boron may be applied with the first spring application of P₂O₅ and K₂O or applied with insecticide on alfalfa.

For warm-season legumes, such as lespedeza (perennial), apply the fertilizer in spring. Total fertilizer rates should be based on the results of the soil test.

Grass-legume mixtures

A functional grass-legume mixture is generally considered to contain at least about 35% legume of the total biomass. Common perennial cool-season mixtures include white clover in combination with tall fescue, orchardgrass, prairiegrass, and Kentucky bluegrass. Phosphate and potash may be applied in the spring (February to March) or fall. Nitrogen

fertilization is generally not required in grass-legume mixtures because it is expected that legumes will provide N through the N₂ atmospheric fixation process. The application of N fertilizer may, however, shift the balance of the mixture by encouraging grass growth over the legume.

WEBSITE RESOURCES

- Soil Testing: Agronomic Division, North Carolina Department of Agriculture and Consumer Services:
<http://www.ncagr.gov/agronomi/sthome.htm>
- Agronomic notes, North Carolina Department of Agriculture and Consumer Services.
Note 3: Fertilization of Field Crops: <http://www.ncagr.gov/agronomi/pdffiles/stnote3.pdf>
- Note 12: Fertilization of Forage & Pasture Crops: <http://www.ncagr.gov/agronomi/pdffiles/stnote12.pdf>
- Forages North Carolina—NC Cooperative Extension: <http://www.forages.ncsu.edu/extension.html>
- Nutrient Management in North Carolina: <http://nutrients.soil.ncsu.edu>
- Realistic Yield Expectations for North Carolina Soils: <http://nutrients.soil.ncsu.edu/yields/>
- Web Soil Survey: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

REFERENCES

- Castillo, M.S., J.P. Mueller, and J.T. Green. 2014. Forages for North Carolina: General Guidelines and Concepts. AG-789. Raleigh, NC: North Carolina Cooperative Extension Service. Available online: <http://www.forages.ncsu.edu/assets/forages-for-north-carolina-.pdf>
- Crozier, C, and D.H. Hardy. 2003. Soil Acidity and Liming for Agricultural Soils. AGW-439-50. Raleigh, NC: North Carolina Cooperative Extension Service. Available online at: <http://content.ces.ncsu.edu/20694.pdf>
- Franzluebbers, A.J., S.R. Wilkerson, and J.A. Stuedemann. “Bermudagrass management in the Southern Piedmont USA: X. Coastal productivity and persistence in response to fertilization and defoliation regimes.” *Agron. J.* 96 (2014): 1400–1411.
- Haynes, R.J., and P.H. Williams. “Nutrient cycling and soil fertility in the grazed pasture ecosystem.” *Adv. Agron.* 49 (1993): 119–199.
- Hardy, D.H., M.R. Tucker, and C.E. Stokes. 2014. Crop fertilization based on North Carolina soil tests. Raleigh, NC: North Carolina Department of Agriculture and Consumer Services, Agronomic Division. Circular No. 1. Available online: <http://www.ncagr.gov/agronomi/pdffiles/obook.pdf>
- Havlin, J.L., S.L. Tisdale, J.D. Beaton, and W.L. Nelson. 2005. *Soil Fertility and Fertilizers*. Upper Saddle River, NJ: Pearson Education, Inc.
- Osmond, D.L., and J. Kang. 2008. Nutrient Removal by Crops in North Carolina. AG-493-16W. Raleigh, NC: North Carolina Cooperative Extension Service. Available online: <http://content.ces.ncsu.edu/20688.pdf>

Much of this response was taken from Forage Fertilization in North Carolina: Concepts and Guidelines

+++++

5. Important Considerations for Pasture Fertilization

— Written By John Cothren and last updated by JoAnne Gryder

Unlike fertilization of most field crops, where the decision as to the amount and type of fertilizer to apply is largely driven by trying to achieve optimum production, pasture fertilization should be more controlled by careful consideration of the individual goals for the pasture. Factors to consider include: 1) production needed for the animals; 2) time of forage needs; 3) species present; and 4) expected methods of management.

With nitrogen and fertilizer costs being high, this has convinced many to take a closer look at the need to lime and fertilize. While cutting back on certain fertilizer and liming practices will help your immediate economic cash flow, it could reduce your overall profits and productivity for the year. Pastures require nutrients to be productive. These nutrients are derived from several sources including residual nutrients in the soil, nitrogen produced by Nitrogen-fixing organisms in legumes, nitrogen from rain and snow, nutrients derived from the breakdown of manures and organic matters in the soil and lastly nutrients applied from fertilizers and lime.

In some situations, a fair percentage of nutrients can be derived from these residual fertilizer sources, however; seldom can the entire nutrient needs be met without some commercial fertilizer application. The only way to know what residual nutrients are available is to soil test. Never has it made more sense to soil test than now!!! Another factor that needs consideration is the availability of these nutrients to the plant. While most soils have some level of nutrients present, if the soils are acidic (low pH), the negatively charged particles bind some of these nutrients to the soil so that they are not available for the plant to utilize. In these soils, the most economic beneficial application would be that of lime rather than higher levels of fertilizer. Pastures that have significant percentages of broom sedge often need lime or phosphorus. The only sure way to know is to soil test! Following are a few tips to help make the best economic use of your lime and fertilizer budget:

- 1. Soil test.** Even though it will likely take about 6 weeks to 2 months to get your results, you can use a standard recommendation of 50-60 lbs. of actual nitrogen (150 -175 lbs. of 34-0-0) per acre and make up any deficiencies in a later application in summer or fall. The only true way to know what you need is to know what is available in your soil and what nutrients the forage you are growing needs. (GET YOUR SOIL SAMPLES SENT IN NOW! April through November, routine NCDA&CS soil tests are provided at "no direct cost" to N.C. residents because of funding derived from a statewide fee on commercial fertilizer. **From ~ Thanksgiving through March, however, a peak-season fee of \$4 is charged for the processing of all soil samples.**)
- 2. Lime.** If you have not limed in the last 2-3 years, chances are you will need an application of lime (1-2 tons per acre), especially if you are noticing an increase in broom sedge. Pastures that receive higher levels of nitrogen to increase yields will tend to become acidic more rapidly requiring more frequent applications of lime.
- 3. Utilize livestock and poultry manures whenever it is economically and environmentally feasible.** These sources are often available at a lower cost than commercial fertilizers. There are also by-product and municipal waste sources available that make excellent liming and/or fertilizer sources. However, often there is paperwork required in the utilization of these low cost resources and there may also be a limitation as to how much can be used.
- 4. Apply only the nutrients you need!** Fertilizers are sold based on the percent nitrogen (N), phosphorus (P) and potash (K) in the blend. 100 lbs. of 17-17-17 contains 17 percent nitrogen, 17 percent phosphorus and 17 percent potash. 100 lbs. of 18-46-0 contains 18 % nitrogen, 46% phosphorus and 0% potash. Many of our soils have adequate levels of potash. On these soils, utilizing 17-17-17 to meet fertility needs would give unneeded levels of potash. **Soil test and match the ratio of N-P-K in the fertilizer blend used to the ratio of N-P-K recommended for soil.**
- 5. Split Nitrogen into 2 or more applications.** Soil test reports will give a standard recommended rate of 120-200 lbs. of N per year. Nitrogen is very volatile and can move or leach from the soil rapidly compared to P and K. Usually a majority of the nitrogen applied in a commercial fertilizer is gone in 60 days. Applying the entire N in one application would put more N than a crop could use at one time and leave pastures deficient towards the middle and end of the season giving us a reduced annual yield.
- 6. Interseed – Mix clovers into your grass stand to help provide N for your grasses.** Clovers are legumes and have the ability to fix nitrogen in the soil making it available for grasses to utilize. This is an excellent way to economically increase production of grass pastures and even lower your fertilizer bill. (Legumes do require a higher pH than grasses; so, be sure to provide adequate lime)

After soil test is done and if fertilizer is needed, a good fertilizer program may divide your recommended fertilizer amount in 2 or 3. Look at a fertilize schedule like events on calendar: Memorial Day, 4th of July and/or Labor Day. The later first application will slow the growth in the spring and boost productivity in the heat of summer. Depending on if it's a warm or cool season forage, the application in September will help extend the grazing season and help the grass store up reserves for over-wintering and the following spring. This routine will help keep the grass from getting ahead of your horses in the spring, and supply more forage in heat of summer.



6. Nitrogen Sources for Pasture and Hay

Hugh Savoy, Associate Professor Biosystems Engineering and Soil Science

University of Tennessee Extension

Nitrogen is one of the major nutrients required by forage grasses for proper growth and development. Yield and forage quality response to added nitrogen can be dramatic. Unlike the other two major nutrients, phosphorus and potassium, nitrogen is not retained in the soil from year to year in a form that forage plants can readily use. Nitrogen applied to the soil is rapidly converted to nitrate-N and is then often incorporated into organic materials, leached out of the rooting zone by rainfall or lost back to the atmosphere. Nitrate-N is rapidly available to the forage plant but, especially in lighter soils, moves with the soil water out of the croprooting zone. In wet or poorly drained soils, the nitrate-N can be converted back to gaseous forms and lost to the atmosphere. Urea nitrogen on the soil surface is subject to volatilization loss as ammonia.

Nitrogen can be supplied to forage grasses by accompanying legumes such as clovers or alfalfa, which can fix nitrogen directly from the atmosphere. In forage systems without legumes and in some legume grass management schemes, nitrogen must be added as a fertilizer material to achieve the best forage grass production and quality. Several types of nitrogen fertilizer materials are available. The best one for you will depend on factors such as fertilizer material availability, price, equipment available, time of year and tillage practice.

UREA-CONTAINING SOURCES

Urea

Urea is perhaps the most commonly available and utilized nitrogen source in Tennessee. It contains 45 percent actual N or 45 pounds of N per 100 pounds of fertilizer material. Urea has good handling and storage properties because it does not absorb water as quickly as ammonium nitrate. These properties enable fertilizer dealers to store and process this material during humid weather, making it a material of choice for bulk storage and blending operations. Urea is generally one of the lower-priced nitrogen fertilizer materials.

To minimize potential for nitrogen loss, all inorganic nitrogen fertilizer materials should be applied close to the time of expected forage production. Volatilization loss (loss as ammonia gas from surface-applied and nonincorporated urea) is of particular consideration for ureacontaining fertilizer materials. Research shows that the potential for nitrogen loss as ammonia gas increases as temperature, soil pH and moisture increase, and as rate of application increases (1) .

The percent of surface-applied nitrogen from urea volatilized can increase about four-fold as the soil temperature increases from 45 to 90 degrees F. This information suggests that fertilization of cool-season forages in March would result in lower potential for nitrogen loss than might be realized for fertilization of warm-season forages or for fertilization of fescue in August. Addition of the urease inhibitor to urea is especially important for these warm-season forages or for fertilization of fescue for stockpiling in August or early September.

High soil pH or free lime on the soil surface can enhance nitrogen loss from surface- applied urea when the urease inhibitor is not used. Research has demonstrated an 11-fold increase in amount of nitrogen loss as the surface soil pH increased from 5.0 to 7.0. Urea itself has an alkaline effect upon the soil initially, so the higher the rate of application, the higher the soil pH change in the zone around the urea particles. A surface application of 200 pounds of nitrogen per acre as urea (about 444 pounds of actual urea per acre) has been shown to increase surface soil pH from 6.5 to above 8.5 within the zone of application. The surface soil pH returned to 6.5 in about 30 days after application. This suggests that surface application of lime (without subsequent incorporation) in fall or spring should follow nitrogen application (especially when urea is used and not incorporated) whenever it is practical to manage. This allows for rainfall to incorporate the nitrogen into the soil before lime is applied.

Volatilization loss can be avoided by addition of a urease inhibitor to the fertilizer material. This increases the price of the material, but the cost is usually still lower than or equal to that of ammonium nitrate.

Potential for foliage burn with urea materials is low, and when incorporated into the soil by rainfall or tillage, it is as efficient a source of nitrogen as any source, even without the use of a urease inhibitor. Although burn potential is low, application of the material when the forage is dry should reduce the amount of fertilizer sticking to foliage where it is more susceptible to volatilization loss than if it makes contact with the soil.

Urea Ammonium Nitrate Solutions (UAN)

Interest in liquid nitrogen materials is increasing. UAN usually contains 32 percent nitrogen and weighs 11.06 pounds per gallon (3.54 pounds of nitrogen per gallon). Price is competitive per pound of nitrogen and often somewhat lower than ammonium nitrate or urea. Availability of the material or equipment for application is a problem in some areas. Potential for volatilization loss of N is somewhat lower than with urea, because about one-half of the nitrogen in UAN comes from ammonium nitrate, with the remainder supplied by urea. Addition of a urease inhibitor should be strongly considered prior to surface application without incorporation.

Research (2,3,4,5) suggests that application of UAN in a band (coarse stream) can often but not consistently result in more efficient use of that material than what may be achieved when the material is broadcast. UAN may be broadcast by spraying through a flat-fan spray nozzle or in a band application by dribbling in a coarse narrow stream (remove nozzle tips).

In rhizome-forming forage like bermudagrass, distance between bands (6) (up to about 24 inches) does not appear to be as critical as for fescue. In clumpforming sod such as fescue, best results appear to be with narrow band spacings³ (about 10 inches).

Potential for burn and/or irreparable destruction of sod appears to be greater when using liquid nitrogen solutions than for solid materials, especially at nitrogen rates above about 50 pounds of N per acre. When application rates much higher than this are needed, a split application would be needed to avoid excessive destruction of forage grass. Even at low nitrogen rates, some yellowing and burn of forage is often noted after application, and when banded at wide spacings, some streaking occurs. The streaking may later disappear in rhizome-forming grasses as nitrogen is moved to the growing points of the forage. The wider the band spacing, the longer it takes for the streaking effect to go away.

NON-UREA SOURCES

Ammonium Nitrate Ammonium nitrate is the primary non-urea source used in hay and pasture systems. It contains 34 pounds of N per 100 pounds of fertilizer material (34 percent nitrogen). It is usually the most expensive of the commonly used nitrogen sources. Availability may become a problem in some areas due to regulatory issues and storage problems.

Ammonium nitrate is usually applied in a broadcast application. There is little potential for volatilization loss of nitrogen from this material. The fertilizer material should be applied when forage is dry to minimize potential for burn.

The main problem with storage of ammonium nitrate is its tendency to take up water. Because of this problem, many farm supply stores are unable to carry it in bulk supply, especially during the humid summer months. Bagged material is usually available, but often more costly and time-consuming to apply and handle.

OTHER SOURCES OF NITROGEN

Animal Manures Animal manures have a long history of use in our farming systems. In fact, when inorganic fertilizers first came into use, they were sometimes called "those chemical manures." In recent years, the low cost, ease of spreading and widespread availability of the "chemical manures" has resulted in most producers paying little or no attention to the fertilizer potential of animal manures. Indeed, in recent years, animal manures are probably most often regarded as a waste to be disposed of rather than a valuable fertilizer resource. Extension literature (7,8) is available to assist producers in determining the most appropriate rates of animal manures to use in various cropping systems.

The larger bulk that must be handled and spread is a definite disadvantage of animal manures over commercial fertilizer materials. Also, special equipment for spreading is not always available, making even spreading of the material a difficult chore. In Kentucky (9), research indicates that use of broiler litter may result in building of soil phosphorus and potassium levels. An increase in soil pH was observed in the Kentucky studies and is attributed to the high base content of the broiler litter. For the short term, this is a very desirable effect, as many of our pasture/hay systems suffer from the effects of low soil pH.

In Tennessee, broiler litter is one of the more widely available manures, having a rather high nutrient content. Short-term application (7,8,9,10) (when broiler litter tests about 60 pounds of total N per ton of material) on cool-season pasture/hay systems needs to be about 4 to 5 tons per acre per year when P and K soil tests are in the low range. Apply 2 to 3 tons per acre in early March and about 2 tons per acre in late July to early August for stockpiling of fescue. Fall nitrogen application for fescue stockpiling is done even in grass/clover systems, as clovers generally make little growth (therefore no nitrogen contribution) during the hot summer months. Once P and K soil test levels build to the high or very high range, application rates should be reduced to about 2 tons per year and only applied about every other year. Use conventional fertilizer materials to meet nitrogen needs when manures can not be used because of high P and/or K.

In Virginia, application at or greater than about 10 tons of broiler litter per acre in a single application resulted in temporary depression of fescue forage production. Application at rates higher than suggested in the previous paragraph should be avoided because of potential for environmental harm and yield or forage quality problems (high nitrate content of forage, enhancement of grass tetany problems).

For bermuda pastures, apply 3 tons in early May and July. For improved bermuda hay fields, apply 4 to 6 tons in early May and again in July. Over the long term, as phosphorus and potassium fertility builds and soil pH increases, *application rates may need to be lowered*, with inorganic nitrogen sources making up the difference.

SUMMARY

Selection of nitrogen source materials is a primary consideration in our pasture/hay systems, because nitrogen has a consistent and dramatic effect on forage yield and quality. Generally, for surface applications that are not incorporated by tillage or rainfall, ammonium nitrate performs better than UAN, which performs better than urea. When possible, apply nitrogen in advance of lime application, especially when using urea-containing nitrogen sources. Broiler litter has been shown to equal or better the performance of inorganic nitrogen fertilizer sources in pasture/hay systems and to build soil test levels of phosphorus, potassium and raise soil pH. When fertilizer nitrogen is incorporated by tillage or rainfall (within two days of surface application) there is no difference in performance among the sources discussed in this publication. Use of material coated with a urease inhibitor is strongly suggested with non-incorporated urea-containing materials in Tennessee forage systems. Banding of UAN can increase the efficiency with which the nitrogen from that material is utilized in our pasture/hay systems. UAN is more likely to burn forage grasses than solid fertilizers and application rates should be under about 50 pounds of nitrogen per acre in any one application, especially in non-rhizome-forming forage like fescue. All inorganic nitrogen sources should be applied as close to the time of anticipated forage plant growth as possible. Animal manures should be applied about two weeks ahead of anticipated forage production where possible. For spring application, the amount of N needed for multiple harvests of hay systems can be applied in one application when using animal manures as the fertilizer source.

REFERENCES

1. Savoy, H. J. 1996. Nitrogen Fertilization Strategies in Conservation Tillage Corn Systems. University of Tennessee, Agricultural Extension Service Publication 1548. Knoxville, TN.
2. Raczkowski, C. W. And D. E. Kissel. 1989. Fate of Subsurface-banded and Broadcast Nitrogen Applied to Tall Fescue. Soil Sci. Soc. Amer. J. Vol 53 (2) 566-570.
3. Lamond, R. E., L. S. Murphy and P. J. Gallagher. 1984. Effect of Nitrogen Solution Application Method on Smooth Bromegrass Performance. J. Fert. Issues 1:91-94.
4. Moyer, J. L. And D. W. Sweeney. 1990. Tall Fescue Response to Placement of Urea-Ammonium Nitrate Solution. Soil Sci. Soc. Amer. J. 54: 1153-1156.
5. Moyer, J. L., R. E. Lamond, and K. W. Kelley. 1985. Effect of Fertilizer Solution Application Method on Tall Fescue Performance. J. Fert. Issues (2) #4 11-116.

6. Haby, V. A., J. V. Davis and A. T. Leonard. 1987. Effect of Fluid Fertilization on Coastal Bermudagrass. I. Spacing Between Dribble Bands of UAN. IN Forage Research in Texas. Texas Agricultural Experiment Station CPR-4537.
7. Savoy, H. J. 1994. Manure Application Management. University of Tennessee, Agricultural Extension Service Publication 1510. Knoxville, TN
8. Lucero, D. W., D. C. Martens, J. R. McKenna and D. E. Stamer. 1995. Poultry Litter Effects on Unmanaged Pasture Yield, Nitrogen and Phosphorus Uptake, Botanical Composition. Communications in Soil Sci. Plant Anal. 26 (5/6) 861-881. Marcel Dekker, Monticello, N. Y.
9. Rasnake, Monroe. 1996. Broiler Litter Production in Kentucky and Potential Use as a Nutrient Resource. Cooperative Extension Service, University of Kentucky Publication AGR-168. Lexington KY.
10. Walker, F. and Stacy Clark. 2007. Verbal Communication. University of Tennessee Extension.



7. Frequently Asked Questions about Fertilizing & Horse Pastures

Rutgers Extension

When fertilizing a pasture, what kind of fertilizer should be used and how often? I have a small farm with approximately 5 acres of grazing pasture. The pastures are a mix with clover. Is there an all-purpose liquid fertilizer product(s) that you would recommend that will not break the bank? And how often do I need to fertilize?

The best way to find out how much fertilizer your pastures need is to take a soil test. Your grasses, just like your horses, need certain nutrients (such as nitrogen, phosphorus and potassium) to keep them healthy and the only way to know what may be missing in your soil is to get it tested. It is a simple and inexpensive process which may actually save money that might have been spent on unnecessary fertilizer.

How long do I need to keep horses off of a newly-fertilized pasture?

I have 3 horses on my pasture. I want to spray a liquid fertilizer on the pasture. How long do I need to keep the horses off the grass after I apply the fertilizer?

Horses should be removed from pastures when nitrogen based fertilizers are being applied and should not be returned to the pastures until adequate rainfall has removed the fertilizer from plant tissues and leached all nitrogen from the soil surface into the ground. Generally, approximately ½ inch of rainfall is sufficient to dissolve granular nitrogen; less is needed when the fertilizer is in liquid form. Under ideal circumstances, it is best to leave the horses off of the pastures for at least 2 - 3 weeks after fertilizing the grasses to allow time for the grass to regrow.

Liquid fertilizers are becoming increasingly popular. The major disadvantage when comparing liquid fertilizers to dry formulations is that they are generally higher in price and usually have a lower analysis. Remember that when making calculations of liquid fertilizer, the analysis is given on a weight percentage, NOT on a volume or "per-gallon" basis. Most fluids weigh between 10 and 12 pounds per gallon. As an example, if you choose a liquid fertilizer with a 10-34-0 analysis that weighs 11.4 pounds per gallon, the gallon will contain only 1.14 pounds of nitrogen (11.4 x .10) and 3.87 pounds of phosphorus (11.4 x .34). Approximately 48 gallons of this liquid fertilizer would be needed per acre to supply the 50 pounds of nitrogen that is recommended for spring applications to pasture grasses.

Depending on the productivity of your pastures and your grass species, additional nitrogen applications should be considered in early and late summer. Conducting a soil test will allow you to determine if you need to add lime to maintain proper pH conditions or add any potassium or phosphorus to your pastures.

Will horses founder on freshly-fertilized pasture? I was going to fertilize and lime our 6-acre horse pasture, but was advised by a friend not to, as there have been cases of founder linked to over-fertilization and nitrogen left in the soil. I lost a horse last summer to a mysterious case of founder a few months after my pastures were treated. Are the two events related?

Fertilizing and liming pastures is a very important component of pasture management. There is no risk to horses as long as the correct protocol is followed as outlined below:

Soil Testing Pastures It is always advisable to conduct a soil test on pastures before applying fertilizer so that you are only applying nutrients that are necessary for the forage in your particular pastures. Call or come by Extension office for a soil test kit.

Liming Pastures Pastures can be limed with ordinary limestone without removing the horses from the pasture. It may be advisable to remove horses from limed pastures until rain has removed the limestone "dust" from the forage leaves, but agricultural lime has no toxic properties.

Fertilizing

Pastures Horses should be removed from pastures when fertilizer is being applied to the pastures. Nitrogen (N) fertilizer is toxic and horses should not be allowed to graze pastures until rain has completely removed all of the fertilizer from the leaf surfaces and carried it into the soil. Ammonium-based nitrogen fertilizers bind to soil particles but are quickly (within 2-3 days) converted to nitrate nitrogen when the soil is warmer than 50 degrees. Nitrate nitrogen is quickly leached from soil. Generally, it takes about ½ inch of rainfall to dissolve the fertilizer. Therefore, as a *general rule* of thumb, horses should be removed from fertilized pastures and not returned until at least ½ inch of rainfall has occurred and the fertilizer is no longer visible on the soil surface. Best management practices dictate that after fertilizing pastures, horses should not be returned to the pastures for 2-3 weeks in order to provide ample time for the pasture grasses to grow and recover from grazing.

Sources of nitrogen fertilizer Pastures should receive an application of 50 lbs. of nitrogen per acre in spring and late summer. There are many different chemical and physical forms of nitrogen fertilizer. The nitrogen in urea (46-0-0) is completely water soluble and is readily available to plants upon application to the soil. If ½ inch of rain does not fall after application, significant loss of nitrogen will occur from volatilization. Therefore, urea should be used only if rainfall is imminent. Other sources of nitrogen, including ammonium nitrate and ammonium sulfate as well as complete fertilizers such as 10- 10-10 or triple 15 are not subject to volatilization and will remain on the soil surface until rainfall leaches the fertilizer into the ground.

A note of caution: Turf -type fertilizers should not be used for horse pastures since the nitrogen is specially formulated so that it is released very slowly. Slow release fertilizers can exist on the soil surface for several weeks.

Laminitis

As far as laminitis being caused by fertilizers, there is no evidence that pasture grasses that are fertilized correctly cause laminitis. It is important to introduce horses to new pasture slowly since any abrupt change in diet can trigger digestive problems that can result in laminitis. If your horse has foundered in the past, you may want to restrict access to pastures. Two periods of time to be especially careful in grazing laminitis-prone horses are in spring and fall.

If you think back to your biology classes, you will recall that grasses produce sugar through photosynthesis during the day. At night plants use up some of the sugar through respiration. It has long been known that the sugar content of pasture grasses is higher in the afternoon than in the morning. If nighttime temperatures in spring and fall drop below 45 degrees, respiration slows or stops and the sugar remains in the grasses. Fairly high sugar contents can occur in cool season grasses if several cold nights occur in succession and are followed by bright sunny days.

This is a normal process that does not affect most horses. However, there is some discussion and research occurring at present to determine whether the high sugar concentration in pasture grasses caused under specific environmental conditions can contribute to laminitis in horses that are predisposed to metabolic problems.

Is there a lawn fertilizer that is safe for horses? I was wondering if you could recommend a commercial fertilizer for that includes an agent for weed and crabgrass control that would be safe for horses. This would be for my home lawn. Although our horse lives on a nearby farm, he is brought to the house on occasion to graze.

No fertilizers or weed control products that are labeled for lawn use should be used on grasses that are used for grazing. They are not labeled for pasture use and it is illegal to use these products on pastures or lawns that are used for grazing. Lawn fertilizers are frequently time-released products. The nitrogen is often encapsulated to allow a slow release of fertilizer. Slow release nitrogen fertilizers can remain in the soil for many weeks. Nitrogen is toxic and horses should not graze in areas that have received fertilizers marketed for lawns.

Lawn weed control products also cannot be used on grasses that are being grazed either. The products have not been subjected to the rigorous testing that is required when the products are used for pastures. If you truly need to graze your lawn, then you should manage it as a pasture and only use agricultural fertilizers and herbicides that are labeled for pasture use.

What’s so bad about horse poop in the environment?

It’s not that it’s stinky... The real problem is that horse manure contains a lot of two everyday chemicals – nitrogen and phosphorus. These chemicals really act as a fertilizer; it helps plants grow. But when too much of it gets into water sources/stream, it helps too much of something else grow – algae. Too much nitrogen and phosphorus in water can mess up the food chain wherever the stream goes, all the way to the ocean.

What’s good about horse poop in the environment?

Horse manure contains a lot of nitrogen and phosphorus, which works as a fertilizer, but, it needs to be managed. It has to be stored and used correctly, and prevented from getting into the water supply.

+++++

8. What’s Supp?
A guide to equine supplements.

<http://www.horsechannel.com/horse-health/whats-supp.aspx>

+++++

9. Forage Tips: October-December

*Finish using warm season grasses before grazing cool season ones. * Overseed warm season grasses with winter annuals. * Check alfalfa plantings for nodule formation. * Take soil samples to be overseeded or planted next spring. * Take feed and forage test to ensure adequate nutrition. * If riding pastures Drag to break up manure piles.

* Rotate/Clip pastures as needed. * Allow lactating Mares access to best quality pastures. * Stretch forages by utilizing rotational grazing. * Don't graze fall planted permanent pastures until they have developed sufficient root system. * Early planted winter annual pastures may need nitrogen application (30-50 lbs/acre) * Weed control in fall plantings of legumes should be done November through early January. * Take soil samples



10. Start Thinking about Winterizing Your Barn

The temperatures are beginning to drop, telling us winter is not to far off. Start now to prepare for harsh weather by making sure your barn and horses will be ready when it hits.

Start with the barn by making sure there are no leaks or rust in the roof and windows. Make sure doors can be closed tightly to keep out strong winds but be sure windows can be easily opened and closed to provide proper ventilation if the horses have to stay in their stalls. Wrap and/or insulate pipes, spouts, and faucets to prevent water from freezing. Have a tool, like a hammer, that is easy to get to when checking water troughs and breaking ice. If your horses are outside all the time, provide them with an area to get out of the bad conditions, like a run-in shed. Stock up on feed and hay. Hay supplies could run out or prices may increase and bad driving conditions could prevent you from getting to the feed store. Clean the barn and get rid of cobwebs, dust, and other debris that could be a potential fire hazard. Check fences and gates to ensure they are in proper working order.

Be sure your horses are up-to-date on their fall shots to help prevent respiratory issues during the winter. Getting your horse to drink an adequate amount of water during the winter is a challenge. Encourage them to drink by providing warm water. Giving them salt or electrolytes can also help. When deciding whether or not to put a blanket on your horse it's better to wait for them to get a thick coat before putting a blanket on. Putting a blanket on too early will discourage hair from growing. If you keep your horses on pasture and there is bad weather, provide them with good quality, free-choice hay to help keep them warm. When they eat hay their digestive system works slower and generates a lot of heat keeping them warmer than if they were eating grain with limited access to hay. If your horses have to be locked in their stalls for an extended period of time, be sure to provide plenty of fresh air. If the footing allows, turn them out when you're picking their stalls to allow them to stretch their legs.

Don't forget about your farm equipment. Inspect hydraulic, fuel, and electrical systems on all equipment, along with the ignition, brakes, exhaust, heater, defroster, and windshield wipers. Make sure there is enough anti-freeze in the system. Have proper fuel additives for diesel tractors for when the temperatures get below zero. Try to always keep fuel tanks full. If you have a generator, check to make sure that is in working order. If your electricity does go out and you do not have a generator, keep some water stored in the barn so it doesn't freeze to ensure you can still get water to the horses.



11. THIS SATURDAY - Upper Piedmont Research Station Field Day - 10/28

Come one, Come All to the annual North Carolina Beef Cattle Field Day that will be held at the Upper Piedmont Research Station on Saturday, October 28, 2017.

Registration will begin at 8:00 a.m. and Dr. Joe French will kick off the North Carolina Beef Cattle Field Day with a welcoming address and provide a brief history of the Angus herd and the research station. The station tours, starting at 9:30, will provide an overview of livestock and forage research being conducted within the NC Beef System.

There will be a 3 tour stops in the morning at various locations on the **Piedmont** Research Station. The tours will consist of the following stations.

Focus on Feed Efficiency Station: Using the historic Black Angus herd at UPRS, we have been collecting data to identify cow families that produce feed efficient progeny. These projects monitor growth and development in heifers in an effort to produce more pounds of beef with less feed. By selecting only those that are very efficient in converting feed to pounds, costs can be lowered. Dr. Joan Eisemann, Professor of Animal Science, will discuss how this **feed efficiency** research could lead to the discovery of a gene or genes responsible for efficient feed conversion in beef cattle. Understanding these genes could decrease the cost of beef production and revolutionize the beef cattle industry. Additionally, Kelli Retallick, Angus Genetics Inc. Genetic Service Director, will expand on this topic and convey how this information is a benefit all beef producers. The heifers evaluated on this feed efficiency study are fed **sorghum silage**, produced by forage-type sorghum with higher digestibility than corn silage. Sam Ingram, Animal Science PhD student, will share his research demonstrating the advantages sorghum silage has in NC over the traditional corn silage. Heifer development is a critical component of selection the next generation of brood cows in your herd. Dr. Harrison Dudley, Clinical Assistant Professor, Ruminant Health Management, conducts **heifer breeding soundness exams**, including reproductive tract scoring and pelvic area measurement to improve the reproductive efficiency of our replacement heifers. He will discuss how application of these techniques in your herd can add values to your replacement heifers.

Winter Feeding Area Station: Most all cattle operations have winter feeding areas. These sites are usually on well drained soils and easily accessible. However, using the same place over many years can lead to nutrient accumulation which can pose environmental risks and wastes a valuable nutrient source that could be used in other areas. After **winter feeding** is complete these sites can be seeded with annual forages to capture nutrients, alleviate soil compaction and provide high quality summer grazing. In addition, some producers have used management strategies to more efficiently use the nutrients that pass through their cattle's digestive system. Johnny Rogers, Coordinator of the Amazing Grazing Program, will discuss options for rotating feeding areas and/or unrolling hay to improve nutrient distribution. Furthermore, extending the grazing season with stockpiled Tall Fescue can reduce hay requirements and reduce the impact of winter feeding. **Stockpiling Tall Fescue** starts with close grazing or clipping in early September (August 15th in the Mountains) and nitrogen is added to increase the quantity of accumulated forage. But do you receive enough added forage growth to cover the nitrogen cost? In **healthy soils** the microbiology cycles plant available nitrogen which could allow for optimum forage production. Yield response to nitrogen fertilizer is small in soils with high soil biological activity, but large and cost-effective only in soils with low biological activity. Some commercially available soil health tests could be beneficial in determining the value of supplemental nitrogen in stockpiled fescue. Dr. Alan Franzluebbers, USDA Professor of Soil Science, will address how grazing principles will improve soil health and add value to pasture-based livestock systems.

Forage systems/Tall Fescue Station: Forages provide the feed base for all beef production systems in North Carolina. Mountain and Piedmont forage systems are typically based on tall fescue and other cool-season forages, while Coastal Plain forage systems are typically based on bermudagrass. Either system is imbalanced in terms of season of production, so without complimentary species a long hay feeding season is required. Recently there have been new opportunities and interest in the use of annual species to fill specific gaps in growth, and also to provide a higher level of nutrition than is supplied by the base forages. Producers with bermudagrass-based systems have long used overseeding with rye or ryegrass to give them winter and spring production, but often this still leaves a significant autumn and winter feeding situation. In fescue-based systems very few producers have used annuals in the past due to the tenacity of the base forage, and the challenges to implement a successful annual system. Additionally, most of the tall fescue in North Carolina is infected with an endophytic fungus that produces toxins that negatively impact the health and well being of the cattle. Conversion of some or all toxic fescue is a common goal of many progressive producers in North Carolina, but many of the same factors that limit adoption of annuals also limits the conversion of toxic fescue to non-toxic varieties.

Topics to be explored at the Forage systems/Tall Fescue Station will include how to build a successful forage system, with a primary focus on the Piedmont region. **Selection of annuals** for use as complimentary forages, and the use of mixtures or single species will be discussed by Dr. Deidre Harmon, Extension Mountain Livestock Specialist. Non-toxic fescue is ideally suited to the Piedmont and Mountains of North Carolina but adoption rate has been slower than expected. Research at NCSU funded by the NC Cattle Industry Assessment Program is exploring the most commonly recommended system for **converting toxic fescue to non-toxic fescue** (Spray-Smother-Spray) as compared to a longer-term process using two years of annuals. At the Field Day, Dr. Matt Poore, Professor & Extension Ruminant Nutrition Specialist, will be discussing the progress of this research project, and we will discuss the process of selecting a variety of non-toxic infected fescue.

While conversion to non-toxic fescue has great potential it will be virtually impossible to eliminate toxic fescue from our farms, so finding animals that are naturally tolerant of fescue toxins must be part of our long-term strategy to enhance the efficiency of fescue-based systems. A number of projects funded by the NC Cattle Industry Assessment Program have focused on identifying animals that are tolerant to fescue toxins, and determining the biological basis behind the **fescue tolerance**. Dr. Dan Poole, Associate Professor of Animal Science will share results of that recent research and include the usefulness of commercial tests being offered for fescue tolerance.

Lunch starting at 12:30 pm, sponsored by NC State University and North Carolina Department of Agriculture & Consumer Services, will conclude with Dr. Carrie Pickworth, Assistant Professor of Animal Science, introducing you to the multiple pathways to NC State with her talk entitled “Red Brick Road: connecting with NC State from 9 to 99”.

Following lunch, there will be an **Open Heifer Sale** starting at 1:30. There will be approximately 20 Open Heifers offered at the sale. They will consist of approximately 10 Open Registered Angus heifers from the Upper Piedmont Research Station and 10 Commercial Open heifers from Butner Beef Cattle Field Laboratory and the Center for Environmental Farming Systems. We will have a link to the sale catalog after the first of October on the North Carolina Cattlemen’s Association website. The website address is www.nccattle.com. Lastly, producers will have opportunity to take the Beef Quality Assurance recertification test after the open heifer sale.

NOTE: This Field Day has been approved for 1 Hour of Pesticide Credit (D,N,O & X) and have for 2 Hours of Animal Waste Credits!



12. HorseFriends Schooling Hunter Show & Tack Sale

Saturday, October 28th

HorseFriends, a therapeutic horseback riding program dedicated to helping individuals with special needs, will host a Schooling Hunter Show & Tack Sale at their riding facilities at Flintrock Farm in Reidsville on Saturday, October 28, 2017 from 9:00 a.m. to 5:00 p.m.

The show will include Walk/Trot, Walk/Trot/Canter, Young Entry, Short Stirrup, Schooling Hunter, Hopeful Hunter, Special Hunter, Green Horse, as well as a Costume Division. \$10 per class or \$75 for the day. High point awards will be presented. HorseFriends Schooling Hunter Class List

Not a rider, but looking for something fun to do with the family? Bring a chair and come out and watch the competition. Horses in costumes are always fun to see! Enjoy hamburgers and hot dogs, and learn more about HorseFriends therapeutic riding program. Plus, enter to win a beautiful fire pit, valued at \$1,000 from Fleet Plummer in Greensboro! Purchase your tickets in advance at the HorseFriends website, or in person the day of the show. No need to be present to win.

The Tack Sale includes a variety of items for riders and horses of all ages and sizes.

With 100 plus horses and hundreds of acres, Flintrock Farm is one of the largest horse farm facilities in North Carolina. It’s located at 221 Flintrock Trail, off 158 – across from Greensboro National. At Flintrock Farm, HorseFriends is able to use a lighted indoor arena for classes, as well as an indoor activities area. Donations to HorseFriends go directly to the needs of the horses and operation of the program.

About HorseFriends

HorseFriends is a Christian ministry whose mission is to help individuals with disabilities to experience joy and strength through horses, regardless of participants' individual beliefs. We provide FREE therapeutic horseback riding to those with special needs. We are registered with the IRS as a 501(c)3 non-profit corporation, and all gifts are tax-deductible. Visit our website for more information www.horsefriendsnc.org.

+++++

13. The Ag Tax Issues Short Course

Guilford County Nov 3

The Ag Tax Issues short course is a day long class in which tax issues relative to production agriculture and agri-business are discussed. Attendees generally are professional tax preparers though farmers (or the farm's bookkeeper/accountant) are most welcome. A working knowledge of taxation is needed to understand discussion topics. Topics in the past have covered income and deduction reporting, Special issues such as Christmas trees income reporting and renewable energy taxation have also been discussed.

Attendees receive a text which is the basis of the course framework. The short course is not a straight "lecture" course as questions and topics of interest are brought to the session by attendees. A goal of the course is to provide a suggested 8 hours of continuing education for professional income tax preparers.

This will be either the 19th or 20th year this program has been available. Though the "farming community" is not the primary target audience, farmers are welcome to attend. This is a fee based program.

To register for this or other Tax Short Courses go to:

<https://www.ncsu.edu/mckimmon/cpe/brochures/pdf/taxSchools.pdf>

+++++

14. Amazing Grazing Workshop Workshop 11/11

Amazing Grazing

Pasture Based Livestock Education Program

**Amazing Grazing Workshop
for New and Small Scale Farmers**

November 11, 2017

10:00 AM—3:00 PM

Butner Beef Cattle Field Lab

8800 Cassam Road

Bahama, NC 27503

Workshop Topics

- **Proper Operation of Agricultural Sprayers and Spreaders**
 - **Handling Pasture Chemicals Safely**
 - **Soil Sampling Techniques**
 - **Principles of Pasture Improvement**

Cost: \$10 (Payable at the door Cash or Check made to NCFGC)

To register online: <http://go.ncsu.edu/amazing-grazing-workshop>

For more information:

april_shaeffer@ncsu.edu

jrroger3@ncsu.edu

+++++

15. Farm Service Agency Reminder

November 15th is the deadline to report acreage planted to perennial covers (grass acreage) and apiculture (honey bees) to the USDA Farm Service Agency in Rockingham & Guilford Counties. Most Farm Service Agency programs require a complete acreage report for the entire farm, which often includes grass fields and pastures. Failure to report your grass and apiculture crops timely may result in a late filed crop report penalty. Visit the Rockingham/Guilford County Farm Service Agency before November 15 to complete your crop reports on grasses and apiculture. **Note: You may have signed a continuous certification for your grass acreages after certifying your 2017 crops. If you did, your grass acreages have rolled over into 2018 and you will not have to visit the office to complete your acreage report by the above deadline as long as no changes have been made. However, to avoid possible late filed crop report penalties, you should contact the office to verify if you need to complete an acreage report by November 15th.**

+++++

16. NCSU Equine Grazing and Pasture Management School 12/2/17

Presented by NC Forage and Grasslands Council,

NC Horse Council, Amazing Grazing and NC State Extension

Saturday 2 December 2017

8:30 AM to 5 PM

NCSU Beef Educational Unit

3720 Lake Wheeler Rd Raleigh NC 27603

Registration Now Open

Registration \$20

Online registration/payment

<https://www.nccattle.com/nc-forage-grasslands-council/events/equine-grazingworkshop-registration>

For questions: pdsicili@ncsu.edu or jrroger3@ncsu.edu

Topics

- Learn to improve horse health through sound grazing management
- Learn the latest principles and practices of pasture management/renovation
- **Live demonstrations and multiple opportunities for hands-on training One-half day of lecture + one-half day of hands-on-training**

+++++

17. HAY DIRECTORY

A Hay Directory is maintained by the North Carolina Cooperative Extension Service for the Rockingham County & Guilford County area. This directory is intended as a service to both hay producers and buyers in the area. If you are in need of hay or would like to be added (or removed) from this list please call me at **1-800-666-3625 or **342-8235** and let me know your name, address & phone #, type of hay, number of bales, (square or round bales) and weight per bale. **MANAGE YOUR PASTURES & If you have hay to sell, hay is in short supply, especially quality hay, so please let me know & I will put you on the list!****

+++++

18. Swap Shop

FIORE FARMS

Premiere Equestrian Facility, turn key is FOR SALE

~117 Ac total. Min available purchase ~92 Ac.

Private treaty

www.fiorefarms.com

Round-Up Yard Sale - November 4, 2017 @ Piedmont Saddle Club, Colfax, NC. Rain or Shine. Open to the public, breakfast & lunch available, see www.piedmontsaddleclub.org for details. Come shop for just what you've been wanting or bring your items to sell and be a vendor. No Live Animals! Call 336-403-2296 with your questions.

Rockingham County Soil & Water has a no-till drill (grass specific) available to rent. The cost is \$10 per acre planted. Call **336-342-8230 for more information.**

**(One also available in Guilford County at
336-641-2440)**

+++++

19. Take A Load Off

Elderly Moment

An elderly couple had dinner at another couple's house and, after eating, the wives left the table and went into the kitchen. The two elderly gentlemen were talking, and one says: "Last night we went out to a new restaurant, and it was really great. I would recommend it very highly." The other man says: "What's the name of the restaurant?" The first man knits his brow in obvious concentration, and finally says to his companion: "Aahh, what is the name of that red flower you give to someone you love?"

His friend replies: "A carnation?" "No, no. The other one," the man says. His friend offers another suggestion: "The poppy?" "Nahhhh," growls the man.

"You know - the one that is red and has thorns." His friend says: "Do you mean a rose?" "Yes! Thank you!" the first man says. He then turns toward the kitchen and yells: "Rose, what's the name of that restaurant we went to last night?"

Three Hymns

A pastor explained to his congregation that the church was in need of some extra money, so he asked them to consider being more than generous. He offered that whoever gave the most would be able to pick three hymns. After the offering plates were passed about the church, the pastor glanced down and noticed that someone had graciously offered a \$1,000 bill. He was so excited that he immediately shared his joy with his congregation and said he'd like to personally thank the person who placed the money in the plate. A very quiet, elderly, saintly lady in the back of the church shyly raised her hand. The pastor asked her to come to the front, so she slowly she made her way towards him. The pastor told her how wonderful it was that she gave so much, and in thanks he asked her to pick out three hymns. Her eyes brightened as she looked over the congregation. She pointed to the three most handsome men in the church and said, "I'll take him and him and him."

A Brazilian

A Lady is watching the news with her husband when the newscaster says:

"Two Brazilian men die in a skydiving accident."

The Lady starts crying to her husband, sobbing,

"That's horrible!!! So many men dying that way!"

Confused, he says,

"Yes dear, it is sad, but they were skydiving, and there is always that risk involved."

After a few minutes, the Lady, still sobbing, says,

"How many is a Brazilian?"

I *always* need more "Help" with Clean jokes!

+++++

+++++

++++
++++

I always want to know what you think of the **Weekly Pile**, good or bad,
Especially if it has had **ANY IMPACT** on you. Let me hear from you!

PLEASE SEND TO ME YOUR IDEAS FOR ARTICLES IN FUTURE NEWSLETTERS!

I WANT TO HEAR FROM YOU!!!!

Have A GREAT SAFE Weekend!

++++

North Carolina State University and North Carolina A&T State University
Is committed to equality of educational opportunity and does not
discriminate against applicants, students, or employees based on race,
color, creed, national origin, religion, gender, age, or disability.
Moreover, North Carolina State University and North Carolina A&T State
University is open to people of all races and actively seeks to promote
racial integration by recruiting and enrolling a larger number of black
students. North Carolina State University and North Carolina A&T State
University regards discrimination on the basis of sexual orientation to
be inconsistent with its goal of providing a welcoming environment in
which all its students, faculty, and staff may learn and work up to
their full potential. The Universities values the benefits of cultural
diversity and pluralism in the academic community and welcomes all men
and women of good will without regard to sexual orientation.

++++

The use of brand names or any listing or mention of products or services does not imply endorsement by the NC Cooperative Extension Service nor discrimination against similar products or services not mentioned.

- Based on USDA requirements, our equal opportunity statement is required on all materials produced for public information, public education and public distribution (regardless of quantity produced).
- This includes all printed and non-printed public communication resources, such as pamphlets, brochures, newsletters, letterhead, websites, news releases, advertisements, outreach letters and so forth.
 - It may appear in the most convenient spot on your communication piece and can be as small as 6pt type.

NC State University and N.C. A&T State University are collectively committed to positive action to secure equal opportunity and prohibit discrimination and harassment regardless of race, color, national origin, religion, political beliefs, family and marital status, sex, age, veteran status, sexual identity, sexual orientation, genetic information, or disability. NC State, N.C. A&T, U.S. Department of Agriculture, and local governments cooperating. Accommodation requests related to a disability should be made at least 10 days prior to the event by contacting:

In Rockingham County - Will Strader, County Extension Director, at (336) 342-8230 or by email at william_strader@ncsu.edu or In Guilford County – Karen Neill, County Extension Director, at (336)641-2400 or by email at karen_neill@ncsu.edu

--

Ben Chase
Rockingham and Guilford County Extension Agent
Agriculture & Livestock

North Carolina State University
North Carolina Cooperative Extension,
525 NC 65, Suite 200, Reidsville, NC 27320
(336) 342-8235 800-666-3625 Fax: 336-342-8242
Email : ben_chase@ncsu.edu
<http://rockingham.ces.ncsu.edu/index.php?page=animalagriculture>