Now that we’ve had some warm days and a good dose of rain, I suspect our winter annuals will take off with spring growth. With that in mind, it’s always a good time to remember and be cautious of grass tetany, because this is the time we may see symptoms. Grass tetany is a disorder affecting ruminant animals, specifically cattle, sheep, and goats. It is also commonly known as magnesium tetany or grass staggers, and most often occurs in nursing females (cows, ewes, or does) during early lactation, especially during late winter and early spring on tall fescue or small grain pastures. As the name “magnesium tetany” implies, the disorder is a result of low levels of the magnesium mineral in rapidly growing forages, as well as an interference with the absorption of magnesium due to various factors. Grass tetany is known to be one of the most substantial nutritional problems in grazing livestock, with estimated annual losses of up to $150 million in the US.

The causes of grass tetany:
Late winter and early spring is time for calving (lambing, or kidding) in many herds. Because of this, the lactating female requires additional magnesium to offset losses of the mineral through her milk production and urine. Even though the disorder is most often seen in lactating females, stocker cattle may also be affected, especially when grazing small grains. Magnesium requirements are generally greater for lactating animals, and greater for older than for younger animals. In addition, the pastures many of these animals depend on this time of the year are low in magnesium due to many factors. Wet soils that are low in oxygen may prevent plants from taking up sufficient levels of magnesium (Mg) regardless of levels in the soil. Soils that are low in phosphorous, but high in potassium and ni-

(Continued on page 2)
trogen are also a problem, because this tends to counteract the uptake of magnesium. Generally, forages containing less than .2% magnesium are more likely to cause problems.

Grass staggers is another name for grass tetany, and for a good reason. Females that show signs of the disorder generally will have a reduced appetite, dull appearance, and stagger when moving. Other signs include nervousness, frequent urination and defecation, muscle tremors, and excitability, followed by collapse, paddling of the legs and feet, coma, and death. The first sign will often be a dead cow that appeared healthy the last time she was checked.

Grass tetany can be prevented by feeding ruminants supplemental hay or grain, by fertilizing pastures with dolomitic limestone, which contains magnesium, or by providing a mineral mix or supplement which contains magnesium oxide. The supplement during these risk periods is the most practical method of prevention. Supplementing one ounce per day greatly reduces the incidence of the disease. This can be provided in a home-mixed mineral with 30% magnesium oxide, a commercial "high mag" mineral of 10-14% Mg, or mixed at 6% of a grain mix, fed at one pound/head/day (increase to 2 pounds/head if following an outbreak) If a high mag mineral is used, it should be the only source of salt available in the pasture. In addition, it’s important to monitor the herd and make sure that everyone is getting one ounce/day of the mineral. Pastures containing legume forages will normally be less affected, because legumes tend to be high in Mg. Unfortunately, legume growth is often limited in winter months, so this usually won’t fix the problem.

To be safe, as mentioned above, it’s a good idea to provide additional sources of Mg to your herds in the late winter/early spring when grass tetany can be a problem. The only way to know for sure if forages are low in Mg is to have them analyzed, which can be done at the NCDA forage testing lab in Raleigh. Grass tetany isn’t hard to prevent, but sure can be devastating to a herd once affected.

Forage Management Tips

March

- Apply nitrogen, phosphorus, and potassium to cool-season grasses to increase spring production.
- Begin grazing of fall-planted fescue and clovers when growth reaches 6 inches.
- Overseeding ladino clover into grass pastures should be completed early.
- Spread manure accumulated in pastures where hay was fed or where cattle congregated during the winter.
- Dig weed-free bermudagrass springs and plant them before growth begins.
- Consider controlling winter weeds (ex: henbit, hairy buttercup, etc) with herbicides.
- Grass tetany may be a problem as rapid grass growth and cool, wet weather prevails.

April

- Fertilize cool-season grasses if you have not already done so.
- Watch for symptoms of grass tetany.
- Winter annual pastures should be completely used before grazing pastures which may be harvested as hay.
- To maintain clover in grass pastures and to maintain quality, develop a rotational grazing system in which cattle can graze forage to a 2 inch height before moving to another pasture.
- Fertilize warm-season grasses as soon as dormancy breaks.
A good way to ensure you are purchasing a good, sound bull would be by making sure a Breeding Soundness Exam (BSE) has been performed. If one has not been performed on the bull you want to purchase, you could get a licensed veterinarian to perform the exam. The BSE will determine the capability of a bull for breeding purposes. A standard BSE will consist of a physical examination, examination of reproductive organs, and evaluation of semen. A bull must pass a normal physical and reproductive exam, have greater than 30% sperm motility, and greater than 70% sperm morphology. A “satisfactory” rating means that the bull has passed all three criteria and is able to service the herd. If the veterinarian was not able to pass the bull on all three guidelines but feels that the bull’s condition may improve with time, he will give a “deferred” rating. Then the vet may suggest that you have your bull re-evaluated within 60-80 days to allow enough time for new sperm to be created. An “unsatisfactory” bull didn’t pass the BSE and is not suitable for breeding. Breeding soundness exams are usually fairly inexpensive and would strongly recommend one especially if you are using a new or unproven bull.

When thinking about purchasing a new bull, a few things need to be taken into consideration:

- Look at your herd and establish long-term goals. Evaluate strengths and weaknesses of what you currently have and look for a bull to improve your stock.
- Find a reputable source to purchase from. You are investing in genetics and health that will have an effect on your herd and profit for years to come.
- Pick a bull with enough stature to get your calves in medium grade with good muscling and length. Check feet and legs for structural soundness.
- Expected Progeny Difference, or EPD’s, are a set of numbers that will compare how one bull’s genetics matches up to others of the same breed. These numbers will determine a specific bull’s genetic value on traits like birth weight, weaning weight, and calving ease.

Select a bull that has either had a breeding soundness exam or is reproductively sound from external appearance. Avoid bulls with a small scrotal circumference or any obvious deformities.

Relationship of bull age to service capacity during the breeding season.

<table>
<thead>
<tr>
<th>Bull Age</th>
<th>Bull to Cow Ratio</th>
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<tbody>
<tr>
<td>12 - 18 months</td>
<td>1: 15 - 20</td>
</tr>
<tr>
<td>2 years</td>
<td>1: 30 - 35</td>
</tr>
<tr>
<td>Aged (7 plus years)</td>
<td>1: 35 - 40</td>
</tr>
</tbody>
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University of Florida Extension Service
The goat is not able to digest the cell walls of plants as well as the cow because feed stays in their gastrointestinal tract for a shorter time period. A distinction as to what is meant by "poor quality roughage" is necessary in order to make decisions concerning which animal can best utilize a particular forage. Trees and shrubs, which represent poor quality roughage sources for cattle, because of their highly lignified stems and bitter taste, may be adequate in quality for goats. Goats will avoid eating the stems, but don't mind the taste and will benefit from the relatively high levels of protein and cell solubles in the leaves of these plants. On the other hand, straw, which is of poor quality due to high cell wall and low protein, can be used by cattle but will not provide maintenance needs for goats because goats utilize the cell wall even less than cattle.

Goats must consume a more concentrated diet than cattle because their digestive tract size is smaller relative to their maintenance energy needs. When the density of high quality forage is low and the stocking rate is low, goats will still perform well because of their grazing behavior, even though their nutrient requirements exceed those of most domesticated ruminant species.

High quality forage and/or browse should be available to does during the last month of gestation and to lactating does, to developing/breeding bucks, and to weanlings and yearlings. Female kids needed for reproduction should be grazed with their mothers during as much of the milk feeding period as possible and not weaned early. When the quantity of available forage and/or browse is limited or is of low quality, a concentrate supplement may be considered to maintain desired body condition, depending on the cost: benefit ratio. Whole cottonseed makes an excellent supplement for goats when fed at no more than 0.5 lb/head/day. Dry does and non-breeding mature bucks will meet their nutritional requirements on low to medium quality forage (10-12% protein and 50-60% TDN).

Providing a free choice complete goat mineral or a 50:50 mix of trace mineralized salt and dicalcium phosphate is advisable under most situations. Selenium is marginal to deficient in all areas of North Carolina. Therefore, trace mineralized salt or a complete mineral mix containing selenium should always be provided to the goat herd year around. It is sometimes advisable to provide a mineral mix that contains 20-25% magnesium oxide to reduce the risk of grass tetany when heavy milking goats are grazing lush small grain or grass/legume pastures in early lactation. Copper requirements for goats have not been definitively established. Growing and adult goats are less susceptible to copper toxicity than sheep, however, but their tolerance level is not well known. Young, nursing kids are generally more sensitive to copper toxicity than mature goats, and cattle milk replacers should not be fed to nursing kids. Mineral mixes and sweet feed should contain copper carbonate or copper sulfate because these forms of copper are better utilized by the goat than copper oxide.

Suggested Supplemental Feeding Program For Goats

When goats are raised on browse, abundant forage should be made available to allow goats to be very selective and to ingest a high quality diet that will meet their nutritional requirements. When forage or browse is limited or low in protein (< 10%), lactating does (and does in the last 30 days of gestation) and developing/breeding bucks should be fed 1.0 lb/day of a 16% protein mixture (77:20:2.5:0.5 ground corn : soybean meal : goat mineral : limestone). Alternatively, ground corn and soybean meal can be substituted by whole cottonseed for lactating does. Low to medium concentration of protein (> 10%) will meet requirements of dry does and non-breeding bucks. When forage or browse is limited or low in protein (< 10%), weanlings and yearlings should be fed % to 1.0 Ib/day of the 16% protein mixture. Goats can be forced to eat very low quality feed including twigs, tree bark, etc., but producers should be aware that this practice will hurt the productivity of superior meat and fiber goats.
**PLEASE NOTE:** The following is a hypothetical situation and fields will not typically be fallow at any given time if they are in your waste plan. Also, when you are making any changes to your crops / grasses, you must contact your technical specialist so they can make the necessary changes to the plan **BEFORE** you make the change.

Have you ever wondered exactly what to plant that will be the best for your hog operation? In this article we are going to discuss a hypothetical hog operation and recommend a few good options of crops that will work best for your operation. Farmer Brown has three finishing houses and a one-acre lagoon. He has 100 acres of cropland that was most recently planted in soybeans but they are currently fallow. Farmer Brown wonders what options will work the best so he can maintain his lagoon at a manageable level.

**Option one:** First, Farmer Brown needs to make a decision on how many acres of his cropland he needs readily available to pump on. Option one consists of Farmer Brown planting bermuda grass. Bermuda grass is a great option for spring planting. If he decides to plant hybrid Bermuda grass, he needs to in February or March. If he decides to plant seeded bermuda, he needs to in April or May depending on the weather. Also, bermuda grass can tolerate about twice as much nitrogen as fescue. However, on fescue, you can pump just about year-round.

**Option two:** Farmer Brown could pump on his cropland and then plant corn two to three weeks later. The rules of waste management allow Farmer Brown to pump on his fallow cropland with the guarantee of planting a crop within 30 days. If Farmer Brown needs something to pump on as soon as possible this may be an option. This is another good option because his corn will be harvested sometime in September then he can prepare the field for seeding fescue shortly after. This is ideal for Farmer Brown because he needs something to pump on as soon as possible (corn) and then he will have something to pump on year around (fescue).

As you can see, Farmer Brown has a couple of options. When you are deciding what to plant each year you need to consider these things: What type of hog operation you have and how many houses you have, the size of your lagoon, the amount of cropland you have available, and what goals you have for your operation. Once you make a decision about these factors, you will successfully be able to decide what is best to plant on your farm. Once you make this decision make sure a technical specialist documents it in your waste management plan. For more information please contact your local Cooperative Extension Livestock Agent.

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**Calendar of Events**

- **April 12th 9:30 am - 4:00 pm Fencing School**, Schley Grange and Breeze Farm, Hurdle Mills. Deadline to register is April 1st. For more information about registration, please contact the Person County Cooperative Extension Office at (336) 599-1195.

**Animal Waste Certification and Continuing Education Training**

- **March 22nd - Murphy-Brown Vender Expo Educational Program**, Duplin County Events Center, various amounts of CE credit available from 1/2 an hour to 6 hours credit, must pre-register by calling Wanda Hargrove (910) 296-2143
- **March 28th 9:00 am - 3:00 pm - Litter Spreader Calibration Clinic**, Ed Stevens Farm in Grantham, pre-register by calling Wanda Hargrove (910) 296-2143 (Rain date March 30th)
- **April 19th 10:00 am - Type A - Animal Waste Certification Training**, Bladen County CES Center, to pre-register please call (910) 862-4591.
Jr. Livestock Show and Sale Calendar of Events

Pre-show and Sale Workshops:
- **March 21st - 6:30 pm** “Basic Meat Quality Assurance Techniques” Extension Office room 105 - pre-register by March 18th.
- **March 26th - 10 am to 12 Noon** “Preventing Parasites, Disease and Health Problems” Fairgrounds in the livestock arena - pre-register by March 24th
- **March 26th - 1 pm to 4 pm** “Fitting and Showmanship Workshop” Fairgrounds in the livestock arena - beginning at 1 pm with goats, 2:00 pm hogs, and 3:00 pm with feeder calves - Pre-register by March 24th
- **PLEASE NOTE DATE CHANGE April 18th - 6:30 pm, “Final Preparations!”** Extension Office Room 105 - pre-register by April 15th.
- **April 25th - 3 pm - 5pm & April 26th - 10 am to Noon** “Pre-Show Set up day” Fairgrounds
- **April 27th & 28th - Wayne County Junior Livestock Show and Sale**, Fairgrounds
  - April 27th at 6:00 pm Junior Meat Goat Show
  - April 27th at 8:00 pm Junior Feeder Calf Show
  - April 28th at 9:00 am Junior Market Hog Show
  - April 28th at 7:00 pm Awards
  - April 28th at 7:30 pm Sale (Feeder Calf, Market Hogs, Meat Goats)
- **April 29th - 9 am to Noon** Post-Show clean-up day.

*If you have any question or to pre-register your child, please call Kim Davis at (919) 731-1520 or email me at kim.davis@waynegov.com*