FROM THE COUNTY AGENT’S DESK...

Spring appears to have come and gone in a hurry. Cool nights that slowed down bermudagrass production gave way to highs in the 90s and overnight lows around 70 in a hurry.

The good news is that there has been plenty of soil moisture to go with the temperatures and sunshine to really make the bermudagrass go. Fescue, on the other hand, has taken a nose dive on quality in the past few weeks and has mostly matured.

Unfortunately, all this rainfall and soil moisture has another side to the coin. Lots of producers have been unable to get a quality cutting of fescue before it all went to seed. Pay close attention to hay quality. It would be a good idea to test 1st and 2nd cutting hay separately (approximately $40) to determine which is the higher quality. This will give you the option to feed the lower quality hay to those animals with the lower needs (dry cows) and feed the higher quality hay to those with...
higher needs (backgrounding calves and lactating cows). Also, knowing the value of your base winter feed (hay) makes it possible to correctly build a ration with supplemental feed, if it’s even needed at all. For more information on hay sampling, give me a call at 870-895-3301.

**FALL ARMYWORMS**

Kelly M. Loftin, Extension Entomologist

Last week, Les Walz reported fall armyworms in a pasture/hayfield in Cleveland County. This serves as a good reminder that now is the time of year when fall armyworms make their appearance. Fall armyworm damage can appear almost overnight. Infestations can be easily overlooked when the caterpillars are small and eating very little. Once caterpillars grow large and consume more grass, damage becomes apparent. Fall armyworm infestations may occur from now through September. This pest does not overwinter in Arkansas, instead the adult moths catch wind currents and gradually move into the state from the south and lay eggs.

To minimize impact, producers should begin looking for fall armyworms or signs of their presence. Grass blades, stems and organic debris at plant base, and soil should be examined carefully. It is best to take at least 10 one-foot-square random samples across the pasture or hay meadow. Female fall armyworm moths prefer to lay eggs in areas of abundant growth so be sure to include a few of these areas in your sampling. Also, make note of the size of the armyworms. Knowing their size will help producers make sound management decisions. A one-square-foot sampling device made of stiff wire or PVC pipe will make the sampling process much easier.
Device used to sample fall armyworm (size: 1 square foot constructed from ½ inch PVC pipe).  

Other clues to fall armyworm infestations include: 1) field appears “frosted” from small worms feeding on underside of leaves, 2) presence of birds feeding on armyworms or 3) the field has an odor of freshly cut hay. Remember, armyworm outbreaks often occur in waves about 30 days apart, indicating the need for routine scouting. In infestations where various sizes of worms are present, overlapping generations are present and new infestations occur more frequently than 30 days.

There are a few tips to remember about fall armyworm control. First, do not treat when armyworms are tiny, however, get prepared. Several natural enemies such as parasites, predators, and pathogens occur and can possibly eliminate or reduce populations in a short period of time. At times, we may see armyworm abundance decline after a population of small larvae had been observed. Secondly, the fall armyworm has about six larval instars. The last few and particularly the fifth and sixth instar are when most of the damage to pastures occurs. Of the total foliage consumed, greater than 80-85 percent will be consumed by these stages. The best advice is to not get over-anxious and treat before necessary. Likewise, do not wait until the worms become too large. Harvesting an infested hay meadow is an option if the hay is mature. Most of the products recommended will work well on medium sized larvae. Unlike cotton, corn or other crops, the larvae have few places to avoid the insecticide and are easier to kill in pasture situations.
Consider the size of the caterpillars and maturity of the hay crop before making decisions on insecticide application. For example, if a field is heavily infested and the grass is ready to harvest, consider cutting and baling as soon as possible rather than applying insecticide. In contrast, if the field is not ready to cut and you have about three very small (from 1/8 to ¼ inch) fall armyworm caterpillars per square foot, continue scouting and if their abundance does not decline below threshold (3 worms/square foot) by the time they reach ½ inch, then treat. Don’t wait until the armyworms are 1 ½ inches long because they are about ready to pupate and have probably already caused most of the damage that they will do. In addition, large worms are harder to kill than smaller ones. Additional information on armyworms can be found in “Managing Armyworms in Pastures and Hayfields” and is available at: http://www.uaex.edu/publications/PDF/FSA-7083.pdf.

Per-acre insecticide cost will vary from as low as about $3.00 up to over $10.00. When calculating cost, always consider the cost per acre and not the cost per gallon of product. Also consider residual activity of the product especially if you are seeing an overlapping population (all sizes of fall armyworm caterpillars) and heavy armyworm pressure. Remember, pyrethroid insecticides such as Karate® (lambda-cyhalothrin), Mustang Max® (zeta-cypermethrin) and Baythroid XL (beta-cyfluthrin) have shorter-duration residual activity. In contrast, other products such as Prevathon® (chlorantraniliprole), Besiege® (chlorantraniliprole and lambda-cyhalothrin) and Intrepid® (methoxyfenozide) do have longer-duration residual activity and can reduce the number of applications necessary to produce a hay crop. A section 2 (ee) label for Prevathon® recommends 10-13 ounces of product per acre for control of fall armyworms, which is considerably less than the product label rate. Research has shown that this lower rate is effective. For additional information of insecticides labeled for use against fall armyworms in pastures and hayfields, check out the Forages section of the “2016 Insecticide Recommendations for Arkansas” available at: http://www.uaex.edu/publications/pdf/mp144/c-forages.pdf.

From Fulton County Agent, Brad Runsick:

As we round the corner of summer sometime in late August, hopefully, keep an eye on pastures for fall armyworm presence and damage. If you suspect a problem, I’ll gladly come to the farm and help identify the caterpillars, determine if they’re at the threshold necessary for an insecticide application, and assist with insecticide selection and sprayer calibration.
HORSE AND DEER FLIES

Kelly M. Loftin, Extension Entomologist

Over the last few weeks, the horse flies have been tearing me and my horses up. I know other horse and cattle owners are having similar issues. Aside from the painful bite they inflict on us or our livestock, they can transmit several pathogens that cause disease. Important livestock diseases that can be transmitted by horse flies include anaplasmosis in cattle and equine infectious anemia in horses.

Equine Infectious Anemia (EIA), sometimes referred to as swamp fever, is common in the southeastern US and is mechanically (on the fly’s mouthparts) transmitted to horses and other equids. It is a viral disease that causes lethargy, weight loss, and sometimes death in an infected animal.

Anaplasmosis (a Rickettsial bacterial infection - *Anaplasma marginale*), is found frequently in the southeastern US. In adult cattle, this disease can result in anemia, fever, weight loss and possible death. Infected ticks are potential biological vectors of this pathogen.

Horse and deer flies are both members of the Family Tabanidae and can be distinguished from one another by size and wing coloration. Horse flies (Figure 1) are larger (from ¾ to greater than an inch long) than deer flies (slightly larger than house flies), heavy bodied and large headed. Deer flies (Figure 2) have markings on their wings while horse fly wings are clear or of a uniform color. Both are painful biters and readily feed on livestock, wildlife and humans; however, horse flies are commonly associated with feeding on livestock while deer flies frequently attack humans.

Figure 1. Horse fly. (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).

Figure 2. Deer fly (Chrysops reicherti). (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).
Most horse fly eggs (Figures 3) are laid in layered masses on vegetation overhanging aquatic habitats or moist soil such as marshes or pound margins. Eggs hatch and larvae develop in aquatic and semi-aquatic habitats. Developing larvae feed on annelids, molluscs or insect larvae. Some are even cannibalistic. Depending on the species, the larval period lasts from one month to over a year (Figure 4). Fully mature larvae migrate to a drier area of their larval habitat and pupate. Adults emerge from the pupal stage from 1 to 4 weeks following pupation.

Horse and deer flies are attracted to the carbon dioxide that we and other animals exhale. They also hone in on movement, shiny surfaces and warmth. Once they find a suitable host, they use their knife-like mouthparts to slice the skin and feed on the pool of blood that forms. One USDA publication estimated that 20-30 horse flies feeding for six hours would take about 20 teaspoons (~ 100 ml.) of blood. Horse flies feed during the day and prefer sunny areas, seldom entering barns or heavily shaded areas.

Horse flies can be serious pests of cattle and horses through irritation, blood loss and potential disease transmission. The most important species include the black horse fly (Tabanus atratus Fabricius), the black striped horse fly (Hybomitra lasiophthalma Macquart), the lined horse fly (Tabanus lineola Fabricius) and the autumn horse fly (Tabanus sulcifrons Macquart) (Figures 5-8). Horse flies are mechanical vectors of hog cholera, equine infectious anemia, anaplasmosis and tularemia; and biological vectors of Elaeophora schneideri, a filarial nematode causing disease in wild ruminants primarily in the Rocky Mountain States.
Horse flies are effective mechanical disease vectors because they take large blood meals and, as a result of their painful feeding, are often interrupted during feeding. They inject an anticoagulant to prevent blood clotting, sponge up the blood and feed until they are replete with blood (usually taking 3 to 5 minutes). If a fly is interrupted during blood feeding, it will either find another spot on that animal or find another animal to feed upon. Anaplasmosis in
cattle and equine infectious anemia in horses may be transmitted from an infected or carrier animal to a susceptible animal by bloody mouthparts.

**Personal protection:**

Wear light colored clothes when working or recreating in horse or deer fly infested areas. If you are caught off-guard without the proper clothing or repellent, remember that horse and deer flies are less likely to enter shelters and heavily shaded areas.

We can protect ourselves from deer and horse fly bites with the repellents routinely used to protect against mosquitoes. Formulations containing DEET can provide a few hours of protection. Clothing only repellents containing permethrin (Permanone and others) can also provide protection. Never apply permethrin directly to exposed skin and always allow clothing to dry completely before wearing. Closely follow all label directions and precautions for both DEET and Permanone.

**Protecting livestock:**

Horse flies are difficult to control for a number of factors. First, the large size of the horse fly increases the dose required to produce mortality. Secondly, the brief time period a fly would be exposed to the insecticide while feeding on a treated animal adds to control difficulty. Also, the horse fly has the ability to fly a considerable distance from the emergence site to the host and occupies a wide range of larval habitats that limit larval control. Horses and other livestock can be temporarily protected with pyrethroid insecticides (such as permethrin). Pyrethroid insecticides are irritating to horse flies and will cause them to leave before they have a chance to bite. Often the flies are only repelled from the treated areas and will bite untreated areas of the animals, so thorough coverage is important. Frequent reapplication is often necessary. Forced-use self-treatment sprayers have been used with some success to manage horse flies on cattle. Some permethrin formulations also contain a synergist (piperonyl butoxide) and an oil based carrier which provide longer lasting effects. Always read the label and follow all directions and precautions when using these insecticides. A good option to protect livestock is to provide shelter (horse flies seldom enter structures) for the animals or pasturing them away from infested areas. Some traps have shown promise in providing limited control.
FORAGE LIME DEMONSTRATION RESULTS

Brad Runsick, Fulton County Extension Agent

Two demonstration plots are currently ongoing here in the county. One of those is the multi-year, lime demonstration plots where we are measuring the difference in changes in soil pH with various lime materials from different sources and the application rate/acre. pH is perhaps the 2nd most limiting factor to forage growth in our area, just behind rainfall. But, unlike precipitation, it is one we can actually control, and doing so in an effective economical way is one of the foundations of a good farm forage program. A quality liming in a big investment, so we want to get it right.

These plots initially sampled out to an average pH of 5.3 back in January 2016, and the soil test recommended 2 tons lime/acre. This is for lime with an ECCE % of 47% (average Arkansas lime quality). As you can see, treatments 2-8 are very close to that; 9-15 were applied with significantly higher quality lime.

This is below what we would be ideal for grass growth, and well below what we would like it to be for forage legumes. So, it was an ideal spot for some test plots. The lime applications (table below) were made in late January, and to date, follow up sampling has been done at 3 weeks after application and 3 months after application.

Since lime can take 3-6 months to fully break down and actually change the pH in the soil, we are sampling these plots at 3 weeks after treatment, 3 months after treatment (MAT), 6 MAT, 9 MAT, 12 MAT, 18 MAT, 24 MAT, and 36 MAT. The current results are in Chart 1.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Lime rate (lbs/acre)</th>
<th>Cost/Acre</th>
<th>Treatment</th>
<th>Lime rate (lbs./acre)</th>
<th>Cost/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check – no lime</td>
<td>0</td>
<td>n/a</td>
<td>9. Pelletized lime (64% ECCE)</td>
<td>100</td>
<td>$10.00</td>
</tr>
<tr>
<td>2. Pelleted lime (46% ECCE)</td>
<td>100</td>
<td>$11.20</td>
<td>10. Pelletized lime (64% ECCE)</td>
<td>500</td>
<td>$50.00</td>
</tr>
<tr>
<td>3. Pelleted lime (46% ECCE)</td>
<td>500</td>
<td>$56.00</td>
<td>11. Pelletized lime (64% ECCE)</td>
<td>1000</td>
<td>$100.00</td>
</tr>
<tr>
<td>4. Pelleted lime (46% ECCE)</td>
<td>1000</td>
<td>$112.00</td>
<td>12. Ag lime (77% ECCE)</td>
<td>2000</td>
<td>$40.00</td>
</tr>
<tr>
<td>5. Ag lime (53% ECCE)</td>
<td>2000</td>
<td>$10.30</td>
<td>13. Ag lime (77% ECCE)</td>
<td>4000</td>
<td>$80.00</td>
</tr>
<tr>
<td>6. Ag lime (53% ECCE)</td>
<td>4000</td>
<td>$20.60</td>
<td>14. Ag lime (77% ECCE)</td>
<td>6000</td>
<td>$120.00</td>
</tr>
<tr>
<td>7. Ag lime (53% ECCE)</td>
<td>6000</td>
<td>$30.90</td>
<td>15. Ag lime (77% ECCE)</td>
<td>8000</td>
<td>$160.00</td>
</tr>
<tr>
<td>8. Ag lime (53% ECCE)</td>
<td>8000</td>
<td>$41.20</td>
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</tr>
</tbody>
</table>
As of these results, it is still 3 months out from where we'd expect the final pH to settle, but there can be a few takeaways this early. By and large, the pelletized lime, at the rates applied, does not match the neutralizing power of the ag lime. One of the claimed benefits of pelletized lime is that it works faster. Thus far, this study does not support that. Pelletized lime plots have, thus far, failed to reach the optimum pH of 5.8. The only exception is the
The highest rate of 1000 lbs./acre with the higher quality pelletized lime (64% ECCE). The pH was raised to 5.8 at the 3 week mark but had fallen back down to below 5.6 at the 3 month mark. It should be noted that the 1000 lbs./acre rate of pelletized lime would also come at a cost of $100/acre.

This is to be expected, since it is a lower rate of a material that has a similar ECCE value. The ag lime treatment at the soil test recommendation of 2 tons/acre, at the 3 month mark, has shown a rise in pH above the recommended pH for grasses.

**HEMP DOGBANE DEMONSTRATION RESULTS**

Brad Runsick, Fulton County Extension Agent

Test plots on hemp dogbane weed in a fescue pasture have reinforced the recommendations already present in our MP 44 Recommended Chemicals for Weed and Brush Control. Hemp dogbane applications should be done when weeds are 18-24 inches tall. Given hemp dogbane’s heavy, thick leaf, addition of 0.5% NIS surfactant is recommended. Another option, not included in this test, is 1 oz./acre of metsulfuron (60% active ingredient). This should only be used in bermudagrass since metsulfuron will harm fescue. Treatments and results are below. (Results; P=poor, F=fair, E=excellent). Also, see photos on next page.

<table>
<thead>
<tr>
<th>Treatment / Name</th>
<th>rate / ac</th>
<th>Results 3 weeks after application</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D amine</td>
<td>2 pts</td>
<td>P</td>
</tr>
<tr>
<td>Remedy</td>
<td>2 pts</td>
<td>E</td>
</tr>
<tr>
<td>Grazon P+D &amp; Remedy</td>
<td>2 pts</td>
<td>F</td>
</tr>
<tr>
<td>Grazon P+D</td>
<td>2 pts + 1 pt</td>
<td>F</td>
</tr>
<tr>
<td>Surmount</td>
<td>3 pts</td>
<td>E</td>
</tr>
<tr>
<td>Brash</td>
<td>3 pts</td>
<td>P</td>
</tr>
<tr>
<td>GrazonNext &amp; Remedy</td>
<td>1.5 pts + 2 pts</td>
<td>F</td>
</tr>
<tr>
<td>Control</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>
IS BLOAT FROM CLOVER A PROBLEM IN PASTURES AND HAY FIELDS?

Dr. John Jennings, Extension Forage Specialist

Adding legumes to grass pastures and hay fields offers many benefits to forage system sustainability. Legumes in grass pastures improve animal performance, increase nutritional quality of hay and pasture, extend grazing seasons, and reduce the need for nitrogen fertilizer. In the 2011 Legume Management Survey, over 40% of Arkansas producers reported having added clover to pastures within the past five years and over 25% planted clover in fescue pastures to reduce fescue toxicity in their livestock. Bloat of livestock grazing clover is often mentioned as a concern. However, bloat was ranked last in a list of reasons why producers choose not to grow clover (Figure 1). Although bloat is feared, the incidence of bloat in livestock was very low among survey respondents (Figure 2). A forage specialist from Kentucky once stated that more pounds of beef are lost each year from fear of bloat than from bloat itself.
Figure 1. Ranking of reasons producers do not grow clover in pastures. 2011 Legume Management Survey.

Figure 2. Observations of bloat by respondents to the 2011 Legume Management Survey.
What is bloat?

Bloat in ruminant animals is caused when fermentation gases produced in the animal’s rumen during digestion cannot be expelled through normal eructation (belching and cud chewing). Bloat caused by grazing clover is due to highly soluble protein from the clover that forms a stable foam in the rumen. In a way it’s like the foam on top of your soft drink that won’t go away. The foam tends to expand, distending the rumen and putting pressure on the animal’s lungs. Extreme cases can cause death from asphyxiation.

Preventing or managing bloat.

White clover is perhaps one of the most bloat provocative clovers and is also the most prevalent legume in Arkansas. Few cases of bloat on white clover are reported relative to the number of pastures containing white clover. Bloat is also reported on alfalfa and Persian clover. Other species including red clover, crimson, arrowleaf, subterranean, and hop clovers have much lower incidence of bloat. Bloat is also reported for stocker calves grazing wheat pasture in Oklahoma so the problem is not isolated to legumes.

Bloat is not rare, but seems to be more prevalent under the following conditions:

1. In pastures with a high percentage of clover (over 50% clover). This is only a general statement because we have worked with many producers having very high clover percentage in pastures who have never had any bloat in their livestock. Conversely, some producers with low percentage clover have reported bloat where animals selectively grazed clover under the following items 2 and 3.
2. In cases where hungry animals were turned into lush clover pasture without being slowly acclimated to the change in diet.
3. In cases where animals are turned into pasture when clover foliage is wet from morning dew or rain.
4. Some animals are more prone to bloat than others.

Recommendations

The general recommendations to reduce or prevent bloat on clover pasture are:

1. Maintain a good mixture of grass with clover
2. Avoid sudden diet changes of changing from all hay or all grass pasture immediately followed by lush clover pasture.
3. Allow animals to have limited access to clover before turning out to pastures with high percentages of clover. Increase access over several days to slowly acclimate them before turning out to clover pasture.
4. Avoid turning hungry animals onto lush clover pasture.
5. Do not turn non-acclimated animals into clover pastures wet from dew or rain. Allow the forage to dry before grazing.
6. Provide free access to grass hay or to a bloat preventative (such as Poloxalene) when first grazing high percentage clover pasture to reduce bloat.
All of the meetings and activities listed in the newsletter are open to all interested individuals.

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