

AGRONOMY

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NOTES

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IN THIS ISSUE

FORAGE

Castor Bean	2
Coffee Weed	2
Frosted Pastures May Bring Problems	3
Frosted Sorghums	3
Grass Tetany in Cattle	3
Hay: Unusual Problem	4
Hay Feeding Losses	5
Judging Hay Quality	5
Sources of Hay	7
Smutgrass Control – Does Mowing Help?	7

PEANUTS

Peanut Inoculation	7
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SOYBEAN

Soybean Rust	8
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TOBACCO

Tobacco Buyout Update	8
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MISCELLANEOUS

Fertility Recommendations for Small Grains	8
November Estimates of Crop Production	8
Variety Trial Information	9

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Castor Bean

Castor beans can sometimes be found in a pasture. Yes, castor bean is poisonous. Castor bean is a perennial in the tropics and subtropics, but acts as an annual in much of the south (where frost occurs). “ Found throughout the Southeast; cultivated and occasionally escaping and persisting in pinelands, waste places, and roadsides.” I have seen it growing in South Florida along roadsides and on mounds of topsoil stockpiled by the highway department.

Toxicity: “ The poisonous principle is a phytotoxin called ricin. In the Southeast the plant is commonly planted not only as an ornamental but also in vegetable gardens to repel moles. Horses are most susceptible to poisoning, but all livestock and humans can be affected. All parts of the plant are toxic, especially the seeds. Toxicity is seen most often in spring and summer.”

Control: Mowing of very large plants may provide all of the control that is needed especially in the fall. If only a few plants are present and if they are carrying seed, removal by hand will prevent the spreading of seed.. In the spring as seed germinates and new plants develop, commonly used pasture herbicides will likely control small plants.

CGC

Coffee Weed

A publication SP 57, “Poisonous Plants of the Southeastern United States” is available from the University of Florida Institute of Food and Agricultural Sciences for the cost of \$4.00.

Recently, there have been reports of animal deaths from eating coffee weed. There are two plants commonly called coffee weed that can cause a problem; these are sicklepod (*Senna obtusifolia*) and coffee senna (*Cassia occidentalis*).

The following comes from the older book entitled “Poisonous Plants of the Southern United States”: Both plants are summer annuals. Coffee senna is very similar to sicklepod but has mostly 8 or more leaflets rather than 4 to 6. The pods on coffee senna are flattened while those of sickle pod are nearly four-sided. Also, coffee senna pods tend to be straighter and shorter than those of sicklepod. [The end of leaflets of coffee senna are pointed whereas those of sicklepod tend to be rounded]. These plants are found throughout the south but are more abundant on sandy soils of the coastal plain, and are most abundant in cultivated fields, roadsides, waste places and open pinelands.

Toxicity: The toxic principles have not been clearly established. The seeds appear to exert their toxicity upon the skeletal muscles, kidney, and liver. The leaves and stem also contain the toxin, whether green or dry. Sicklepod is much more prevalent but somewhat less toxic than coffee senna. Animals can be poisoned by consuming the plant in the field, in green chop, in hay or if the seed is mixed in grain. Toxicity has been observed in cattle. It should be assumed that other animals are susceptible to the effects of these plants.

Symptoms: Diarrhea is usually the first symptom observed. Later, the animals go off feed, appear lethargic, and tremors appear in the hind legs, indicating muscle degeneration. As the muscle degeneration

progresses, the urine becomes dark and coffee-colored and the becomes recumbent and is unable to rise. Death often occurs within 12 hours after the animal goes down. There is no fever.

Treatment: Once animals become recumbent, treatment is usually ineffective. Selenium and Vitamin E injections have been used with variable results.

CGC

Frosted Pastures May Bring Problems

Over the past few years I have seen and had reports of cattle eating coffee weed soon after a frost event. Cattle producers should be aware of this potential problem and mow these poisonous plants before frost occurs. Animals may not have grazed coffee weed all year but may start grazing them after a frost.

CGC

Frosted Sorghums

Sorghums, sudangrass, and johnsongrass will produce prussic acid after a frost or freeze. The frosted forage will produce large quantities of prussic acid when the plant cells break down in the cow's rumen. This may cause prussic acid (HCN) poisoning.

If the forage is allowed to dry for 3 to 6 days it should be safe to consume. As the plants dry, the toxic compound will be released to the atmosphere as a gas. In the fall remove animals from these pastures when frost is imminent. [Pearl millet does not produce prussic acid.]

Also do not allow animals to graze young regrowth (south Florida) that may appear after the tops have been killed by a frost. At any time during the growing season, always allow these plants to reach a height of 18 to 24 inches before grazing since the young plants have a higher concentration of prussic acid, frost or no frost, and can be dangerous.

Frosted sorghums can be harvested for silage. The danger of prussic acid poisoning is minimized since the foraged is chopped coming out of the field and then handled again when taken out of the silo. This provides ample opportunity for the toxin to escape to the atmosphere. A light frost may even be helpful if sorghum is harvested for silage since it will allow the plant to dry down. The forage sorghums often contain too high a level of moisture when harvested direct (without wilting) for silage.

Sorghums and other warm season annual grasses that have received moderate to high rates of nitrogen fertilizer and have been under drought stress may contain toxic levels of nitrates. If levels are high enough, nitrate poisoning can occur. Drying or harvesting the plants for silage does get rid of the nitrate. In some situations, the potential for nitrate poisoning may be greater than for prussic acid poisoning.

CGC

Grass Tetany in Cattle

Grass tetany sometimes called grass staggers or hypomagnesemia, can be a serious problem in Florida with cattle grazing small grain or ryegrass pastures. The problem is usually confined to lactating cows. The exact cause of the disease is unknown, although it is always associated with an

imbalance in the mineral components of blood serum, especially reduced magnesium levels. In Florida, the disease is more severe when cattle are grazing young forage, particularly the first flush of growth during December and January. Once the forage becomes more mature, the likelihood of problems occurring is reduced. The disease is apt to appear under conditions of nutritional stress. Placing cattle on winter pasture directly after being on frosted or other low quality pasture may cause such a nutritional stress.

The symptoms of hypomagnesemia closely resemble those of milk fever or ketosis. These include nervousness, lack of coordination, muscular spasms, staggering and death. When the disease is suspected, a veterinarian should be called immediately to diagnose and to initiate treatment. However, in beef herds, the herdsman does not always have the opportunity to observe the signs of the disease and affected cattle may be found dead in the pasture.

Factors which have been associated with this disease include low levels of magnesium (Mg) and high protein and potassium levels in the forage. Use dolomitic limestone, which contains magnesium, to increase forage magnesium levels if the level of soil magnesium is low. On soils with a high pH level, magnesium can be included with fertilizer materials. Excess nitrogen in conjunction with high levels of potassium fertilization tends to reduce the magnesium level in most forage plants. Consequently, these fertilizer elements should not be applied in excess on temporary winter pastures. Follow recommendations based on soil test results.

Grass tetany can be prevented by feeding mineral supplements that contain magnesium. Commercial mineral mixtures containing 10-15% magnesium are available for feeding during periods of increased grass tetany probability. Cattle need to consume 6-12 ounces/head/day of this mineral. (For additional information on this problem, see the publication Agronomy Facts SS-AGR-64 "Grass Tetany in Cattle").

CGC

Hay: Unusual Problem

As everyone should know, we had 3 or 4 hurricanes come through Florida this season. This has had an adverse impact on hay producers in more than one way. Hay harvest has been delayed and some fields were probably flooded. But, another problem has appeared that is not all that common. Dry bermudagrass hay stored in a barn was discovered to have picked up moisture, going from approximately 10 percent to 18 to 20 percent moisture as measured by an electronic moisture meter. This hay had started to mold, and of course the possibility exists that it could heat to the point of spontaneous combustion. Hurricane winds and rain not only produced high humidity, but may also have blown excessive moisture into the barn since the east end of the barn was open. Also, the barn may not have had adequate ventilation. It has been known for years that alfalfa brought into Florida from any of the alfalfa growing areas will pick up moisture and cannot be stored for an extended period of time. Evidently, under the right circumstances grass hay will also pick up moisture.

CGC

Hay Feeding Losses

This is the time of year when we need to be concerned about hay feeding losses. This is especially true when feeding large round bales that have not only been stored outside (where considerable weathering loss has occurred), but will also be fed outside on the ground. Feeding losses can occur with any feeding system; the objective should be to minimize the loss so that animals can consume most of the hay given to them.

Most large hay packages are fed on sod whether stored inside or outside. Feeding hay on sod offers the advantage of distributing hay on pasture land rather than concentrating it along a feed bunk or in a barn. When hay is fed on sod, livestock usually waste and refuse less hay in situations in which they have a solid footing. Dry, well-drained, sites should therefore be chosen for feeding hay outside.

Feeding in only one area permits selection of a convenient feeding location which is easily accessible and which minimizes the size of the area in which sod is killed. However, it causes excessive sod destruction, may create muddy conditions, often results in heavy spring weed pressure, and can result in soil compaction and/or ruts in the pasture.

Some livestock producers who feed in only one area prefer to feed on concrete or to haul in large gravel so the hay can be placed on a solid foundation. Also, some producers feed the lowest quality hay first, thus initially causing excessive hay wastage but providing a foundation for further feeding.

Frequently moving the feeding area allows manure to be spread more uniformly over the pasture(s) and therefore improves the

soil fertility in bare or thin spots, while reducing the severity of (though not necessarily the total area which sustains) sod damage.

When hay is fed on sod, the amount of hay wasted will be much less when only a one-day hay supply is given, and when hay is fed in such a manner that all animals have access. However, unrestricted animal access to large round bales or stacks will result in grossly excessive feeding waste.

If substantial quantities of hay must be put out at one time, erecting a barrier between the hay and the feeding animals will reduce waste. The barrier can be an electric wire, feeding racks or rings, panels, wagons or gates. Feeding racks and rings are available in a variety of shapes and sizes (racks which prevent hay from contacting the ground are particularly effective).

When racks or panels are not used, enough animals are needed to eat the amount of hay offered in a relatively short period of time. Waste can be reduced by having at least one cow for each foot of outside dimension (circumference) of the hay package. (Source: Don Ball et.al. in *Minimizing Losses in Hay Storage and Feeding*).

CGC

Judging Hay Quality

Most of the hay fed to beef cattle in Florida is bermudagrass, bahia, or some other warm season perennial grass. Alfalfa and other temperate forages are often purchased and fed to horses. If a laboratory test is not available for protein and digestibility values, one can get some idea of the feeding value of a hay by “sensory” examination of the hay.

First determining the plant species in the hay

can be helpful. Does one species tend to be higher in quality than the other. If the hay is pure perennial peanut, it is likely to be more digestible, more palatable, and have a higher protein content than a hay that is 50% peanut and 50% common bermudagrass. Mixed bermudagrass and bahia may have a nutritional value equal to a pure bermudagrass hay, but may be discounted by the buyer because of the difference in color of the two grasses in the hay.

Maturity of the plants at the time they are cut to make hay is the most important factor in determining hay quality. If you know when the previous cutting was made then you can determine the age of the hay crop. This can be very helpful with bermudagrass or bahiagrass hay. Temperate grasses (timothy and others) produce seed heads as they mature and therefore the presence of seed heads in the hay is an indication of advanced maturity and perhaps lower quality, but the warm season grasses do not always produce seed heads before they are overly mature.

Examining the texture of the hay can be useful in determining maturity. Plant stems that are soft and pliable indicates young immature plants. As the plant matures the stems become more lignified and therefore stiffness of the stem increases. Are the stems stiff or even brittle?

Texture of the hay can be an important clue to maturity and forage quality. Very young immature hay is soft and pliable and stems are hardly distinguishable from leaves. Hays can range from very soft to harsh and brittle. Leaf content and moisture level at baling can also affect texture.

Leaf content affects hay quality. The higher the leaf content, the higher the forage quality. Plant species, maturity at harvest, and handling of the hay that results in leaf loss affect leafiness of the hay. The producer must be especially careful when tedding, raking and baling legumes hays in order to avoid excessive leaf loss.

Color is the first thing many buyers consider when purchasing hay. Color may or may not be a good indicator of forage quality. A bright green or light green color indicates that hay was dried quickly and stored under a cover. A hay crop will lose color when rained on due to leaching. Mold or fungal growth may discolor the hay. Prolonged exposure to sunlight will bleach hay. Baling at a moisture content of 20% or greater may result in heating and internal browning in the hay bale.

Smell the hay. A pleasant odor indicates hay was cured properly. Moldy, musty odors may occur in hay stored at moisture contents greater than 15%. Such odors may reduce intake by the animal. A caramelized odor is caused by heating to temperatures greater than 125 degrees F. Heating occurs when hay is baled at too high a moisture content. Is the hay dusty? Dust usually results from soil being thrown into the hay as it is raked. Excessive mold or mold spores may appear as a dust when the hay bale is fed.

Look for weeds. Often weeds do not dry completely and may cause localized molding. How much weed content is there in the hay? Does the weed have any nutritional value? Is it toxic? Coffee senna in a bale of alyceclover hay would be a serious problem.

Look for trash. Tree leaves, cow dung, plastic, aluminum cans, sticks and dead snakes are undesirable.

CGC

Sources of Hay

Check the November 2004 issue of the Florida Market Bulletin for the Florida Hay Directory. This is a listing of hay sources in the state. The "Florida Market Bulletin" is published monthly by the Florida Department of Agriculture and Consumer Services. Also, if you have access to the Internet, you can go directly to the hay directory at <http://www.florida-agriculture.com/hay/flahay.htm> or to the home page at <http://www.fl-ag.com/>.

CGC

Smutgrass Control – Does Mowing Help?

Smutgrass, both the giant and common variety, is a very common pasture weed. This unpalatable grass invades both bermudagrass and bahiagrass fields and reduces grazing and hay quality.

One problem with smutgrass is that Velpar is the only pasture herbicide that will effectively control this weed. However, Velpar will often cost \$20 to \$25/A and managers are hesitant to invest this much money for smutgrass control. Therefore, it has been questioned if mowing prior to herbicide application will allow lower Velpar use rates that will result in a cost savings.

Research conducted separately by Drs. Mislevy and Mullahey at the University of

Florida have documented the effect of mowing 0, 1, 2 or 3 times prior to Velpar application on smutgrass control. However, it was observed that mowing prior to Velpar application did not improve smutgrass control in over 4 years of experimentation. This means that mowing prior to Velpar application is likely an unwarranted expense.

Another common practice is to apply Velpar at 2 pt/A in order to save on herbicide cost. Experiments have shown that the 2 pint rate can control smutgrass, **IF** weather conditions are ideal during and immediately after application. However, if overly wet or dry conditions occur after application, Velpar applied at 2 pt/A will provide only 60 to 90 days of acceptable control. Therefore, it is often best to apply Velpar (as stated on the product label) between 2.75 and 4.5 pt/A. It has been my observation that applications between 3 and 4 pt/A will provide the most consistent smutgrass control at the lowest cost.

JAF

Peanut Inoculation

There may be considerable acreage of peanuts planted in 2005 on soils that may not have adequate populations of nitrogen-fixing bacteria to result in satisfactory nodule formation on the roots of the crop. Much of the land that was in trees may not have had legumes present that are in the same cross-inoculation group as peanuts. Florida beggarweed, hairy indigo, cowpea, alyceclover, and certain other legumes use the same strain of bacteria as peanuts. If such legumes were not present, then a commercial inoculant should be added at planting. Inoculation is cheaper than use of

nitrogen fertilizers to provide the needed nitrogen to the peanuts.

EBW

Soybean Rust

We are not certain what soybean rust will mean as far as yield reduction or the necessity of a fungicide for the control of the disease in another year. We do know that there is no varietal resistance at the present time. We do not think that rust had a major impact on soybean yields this year. It may have occurred late in the season with one of the hurricanes. We do expect it to be worse if weather conditions are right earlier in the year since it is present on kudzu and beggarweed is also a host. It is expected that both peanut and cotton acreage will increase before soybean acreage due to economic considerations and the value of crop insurance. Soybean acreage may not increase and therefore may not be a major concern for most Florida growers. However, for those growers who do grow soybeans, scouting for both insect and disease symptoms should be done in August and into September. Most soybeans require an application of insecticide in late August or early September for velvetbean caterpillar and corn earworm and could have a fungicide applied at the same time if needed.

DLW

Tobacco Buyout Update

An initial meeting was held in late November to plan the establishment of the Tobacco Trust Fund, which will receive payments from tobacco companies that will then be passed on to quota owners and growers through the USDA's Farm Service

Agency. Local FSA offices will prepare the list of eligible recipients. There is a court case that involves the effect of the buyout on the end of Phase II payments. The buyout ends Phase II payments, but the suit that was brought before the court should specify the ending date. The judge is expected to rule on some of the issues during December.

EBW

Fertility Recommendations for Small Grains

As with all crops, soil tests should be done to determine the proper rates and kinds of nutrients that need to be applied. Without knowing the status of soil fertility, growers may use a material like 17-17-17 or a similar fertilizer. Most of our row crop soils that have been fertilized for a number of years will have adequate amounts of phosphorus and do not need more each year. Therefore, more expense than needed was used for the small grain crop which is marginal for grain production and can add expense for forage for cattle. Growers can often save as much as \$30/A by pulling soil tests and applying proper amounts without a reduction in yield or quality. Soil tests should be done at about the same time each year and records kept to determine nutrient needs of all crops.

DLW

November Estimates of Crop Production

Production of certain agronomic crops in the United States will be even higher in 2004 than forecasted earlier, according to the November estimates of the National Agricultural Statistics Service. Corn production is now estimated at 11.7 billion bushels, which is 16 percent above the

previous record set in 2003. Average yields are forecast to be 160.2 bushels per acre, which would also be a record. Soybean production is forecast to be 3.15 billion bushels, or 28 percent above the 2003 figure. Yield per acre is estimated to be a record 42.6 bushels per acre. Cotton production is forecast to be 22.5 million bales, or 23 percent above 2003. A record yield of 815 pounds per acre is also forecast. State estimates for Florida are not made for the above crops, but peanuts and sugarcane forecasts were included. Florida peanuts are predicted to yield 2600 pounds per acre on 130,000 acres, while the national figures are for an average yield of 3027 pounds on 1,388,000 acres. Florida sugarcane, for sugar and seed, is estimated to produce 36 tons per acre on 420,000 acres, with the US figures at 31.6 tons on 961,400 acres.

EBW

Variety Trial Information

Information on corn, cotton, soybean, and other crops may be found on the web at www.griffin.uga.edu/swvt . Deciding on best varieties is a very important decision. Many varieties of crops have resistance to disease, insects, and nematodes. Other varieties are transgenic with resistance to herbicides that may be applied over the top of the crop. There is often a 30-50% difference between some of the best varieties and the lower yielding varieties. Quality may vary as well making a difference in the prices received for the commodity or animal performance.

DLW

The use of trade names does not constitute a guarantee or warrant of products named and does not signify approval to the exclusion of similar products.

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