AGRONOMY NOTES

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DATES TO REMEMBER

August 3: Extension Row Crops Field Day, Jay, Florida.

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Drought Stricken Corn

Care should be taken in grazing drought stricken corn and other annual summer grasses. During these conditions it is possible for nitrate to accumulate and result in nitrate toxicity in animals. Highest levels of nitrates are always found in the bottom parts of the stalk and decrease as they go up the plant; leaves commonly have the lowest nitrate levels. Therefore, the upper portion of plants can often be utilized with less possibility of toxicity to the grazing animal than if grazed to the ground. However, when rains begin, nitrate levels will be reduced and the plants again become suitable forage. It is important to note that if there is any doubt about the suitability of the forage, a sample should be sent for analysis or the crop should be destroyed as to not threaten animal health.

David Wright

Late Planted Corn

Certain types of corn can be planted in July and early August with satisfactory yields for grain and silage. Most of the corn hybrids that produce satisfactory levels of grain or silage came from tropical countries and are often called "tropical corn". However, these hybrids are not radically different from hybrids developed from the Midwest, but disease resistance is often greater in these lines. There are some tropical corn hybrids that have very good resistance to diseases and we have one commercial hybrid that has the Bt gene for insect control (mainly fall armyworm and corn earworm). Be sure to select tropical hybrids for planting in July and August since most of the other hybrids have been shown to have less than 50% of the yield of these hybrids. The Bt hybrids tend to add more to yield in June, July, and August planting than they do to April or May plantings.

David Wright

Cutout in Cotton and Drought

Cotton has prematurely bloomed out the top or reached cutout in many cotton fields due to dry weather. Cotton is only 15-30" tall in many of these fields with white blooms showing in the top of the plant. "Cutout" in cotton is when there is a marked decrease in growth, flowering, and boll retention. It is usually not a clearly defined event, but occurs over a 1 to 2 week period. The best way to monitor this is to count nodes above the highest white flower. When you have only 4-5 nodes above white flower (NAWF), the cutout stage has been reached. This is often noticeable when many white blooms near the top of the plant are obvious. NAWF declines by about one node for every week of bloom. However, this decline is affected by the use of growth regulator, fertility, and moisture. If the plant is stressed before bloom as has been the case with drought this year, the plant may start out blooming at 7 NAWF. However, if you get into a rainy period, this may stay at 7 for several weeks. It normally takes 4-5 weeks of effective bloom to make a high yielding crop. Cotton will normally have an effective bloom period from early to mid July until the first week of September, depending on planting date. These late blooms often contribute little to final yield. If NAWF is decreasing too rapidly, growers should attempt to determine the cause of the stress and alleviate it if possible. If cutout is due to a high boll load, this is good and will lead to early maturity and harvest. If cutout is due to water stress, or fertility, appropriate steps should be taken to keep the plants growing and setting fruit until an appropriate boll load is set. On some extremely fertile, moist soils, cutout may not occur until weeks past the effective bloom date (about 7-10 of September since it takes at least 60 days to mature a boll late in the fall). Defoliation should then be determined by the larger, earlier set bolls that will contribute most to final yield with little thought for the status of the late bolls. Fields near cutout in the first week of August were either planted early or have some stress factor such as the drought that has occurred this year. Cotton may begin to grow again this year if normal summer rains start in August. This may activate any nitrogen that was applied and can result in vegetative growth at the expense of boll set. Yield has already been impacted in many fields due to the dry weather and it may be too late for many of

these fields to make an average crop if weather conditions improve.

David Wright

Peanut Growth and Management in Dry Weather

Peanuts have not grown as rapidly as normal with dry soil conditions. Although many fields of peanuts have not lapped in the middles, there is plenty of season left to make a peanut crop. Management for the remainder of the season includes weed and disease control as well as applications of boron (B) if needed. Boron is a highly mobile nutrient and many deficient fields were found in 2005 with the high amount of rainfall during the growing season. High application rates of other nutrients can, in turn, make B deficiency more pronounced. Deficiencies are most often found on highly weathered, sandy soils. The deficiency that we most often associate with B deficiency is internal fruit damage that we call "hollow heart", which reduces the quality and value of the crop. However, in more severe cases, B deficiency can result in split stems and roots, on the lower part of the stem with shortened internodes, terminal death, and extensive secondary branching. Leaves may be dark green and mottled with few or no peanuts developing on stubbed pegs. Boron application is a routine recommendation for peanuts grown in Florida even if deficiencies are not seen. Boron may be applied early with herbicides or with fungicides to keep from making additional trips across the field. Split applications are desirable on sandy fields with a total of ½ to ¾ pound of B per acre for the year. The crop may take up less then a tenth of a pound per acre but it is still important for crop production.

David Wright

Is There a Difference Between Milestone and Forefront?

Milestone is a relatively new herbicide that has been heavily advertised in Florida for the past year since it provides excellent control of tropical soda apple (TSA). In just a few months, it replaced Remedy as the most common herbicide used for TSA control. However, UF IFAS research has shown that Milestone is a very specific herbicide that fails to control many common weeds such as dogfennel and blackberry. In light of the limited weed control spectrum of Milestone, Forefront herbicide is also being sold in Florida. These two products hitting the market so close together that it has caused some confusion about which product is best to use.

Forefront is a combination of Milestone + 2,4-D. The 2,4-D in this mixture comes at little or no additional cost and it improves control of dogfennel and several other weeds. Therefore, you will likely see more weeds controled with Forefront that Milestone for an equivalent price.

When spot-treating TSA, either Milestone or Forefront will be effective options. When broadcasting the herbicide to the entire field, Forefront will generally control more weeds than if using Milestone alone.

Jason Ferrell

Goatweed in Pastures

Goatweed has been a problematic in Florida for many years, primarily in citrus (Figure 1). However, we are now seeing more and more goatweed invade pastures and rangeland. This weed is particularly troublesome, and dense, in areas that have been overgrazed or previously harvested for sod.

Goatweed (*Scoparia dulcis*) is considered an annual weed, but it can also be exist as a perennial in south Florida. Plants can grow at least 36 inches tall, with leaves 0.5 to 3 inches long on short petioles. Each goatweed plant is capable of producing thousands of seeds that are approximately 0.25 mm in diameter that can be spread by wind, water, and equipment. In north Florida, this weed flowers and sets seeds many times until frost. In south Florida, it appears that flowering and fruiting can occur year-round.

A study was conducted at the University of Florida in the mid- to late 1980s that investigated goatweed seed germination. The authors found that goatweed seeds do not germinate under dark conditions. This means that there must be at least some light for germination to occur. In fact, as little at 6 hours of light resulted in approximately 18% germination, with maximum germination occurring with 9 to 13 hours of light. Therefore, a thick, healthy sward would limit the amount of goatweed germination in a pasture.

Proper pasture management can go along way in controlling this weed, especially if you consider that this plant can tolerate 2 lb/acre of glyphosate quite well. To date, the only sure-fire herbicide for goatweed control in pastures is Cimarron at 0.3 oz/acre. However, this is problematic for producers who graze bahiagrass since Cimarron has the potential for severe bahiagrass injury. For bahiagrass, at least 3 pints/acre of WeedMaster will be needed for suppression (not control).

Brent A. Sellers

How Herbicides Work – GARLON/REMEDY

Garlon and Remedy are herbicides that contain the active ingredient triclopyr. Garlon is registered for use in forestry and industrial sites, while Remedy is used for weed control in pasture and rangelands. There are other registrations for triclopyr in aquatic areas under the trade name Renovate. Regardless of triclopyr formulation or label specifications, this herbicide is active on a wide range of broadleaf weeds, both annual and perennial species.

Triclopyr is classified as a growth regulating herbicide. It is applied postemergence, over-the-top of weeds and desirable vegetation. Most often, the desirable vegetation is pasture or rangeland grasses. Triclopyr is readily absorbed through the foliage and diffuses into leaf cells. This herbicide is systemic, meaning it is mobile within plants.

Once inside the cell, triclopyr will do one of the following:

1) Cause herbicide activity, resulting in injury or death of the plant
2) Be metabolized into non-toxic compounds
3) Be moved out of the cell and translocated into other areas of the plant

If triclopyr is absorbed into the leaf, it either causes injury or is metabolized. Movement of triclopyr is dictated by whether the plant is actively growing and moving sugars out of the leaf. Triclopyr is, therefore, termed phloem mobile and tracks with the flow of sugar. If the leaf is exporting sugars, then triclopyr will likely be moved out with the sugars, and subsequently accumulate in those tissues that are the sugar sink.

We do not know exactly how triclopyr affects plants. However, we do know that triclopyr causes uncontrolled growth, resulting in twisting of stems, curling of leaves and sometimes split stems. Some theorize that triclopyr is so similar to the growth regulator auxin that the plant becomes overloaded with this growth hormone and essentially grows itself to death. Other researchers suggest that triclopyr make the cell walls loosen, inducing uncontrollable cell elongation. Further work in this area has also shown excess RNA and DNA biosynthesis, leading to the thought that this stimulates excess cell division.

Regardless of which theory you believe, the bottom line is that some cells of the plant growth more rapidly than others. This results in cells that grow unevenly, with some cells/tissues

getting crushed and destroyed in the process. The vascular system is disrupted, blocking water flow and sugar movement; ultimately leading to plant starvation and death.

Triclopyr has limited soil activity and does not persist for a long time in the environment. As mentioned previously, most tolerant plants (grasses) are able to metabolize triclopyr very rapidly into non-toxic compounds.

Greg MacDonald

Progress of EPA's Review of All Pesticides

The 1996 Food Quality Protection Act (FQPA) has required EPA to review all pesticides every 15 years, including ones that have been registered in the past and are still being used by applicators. Reregistration Elgibility Decisions (REDs) are then published for each reviewed pesticide, outlining the risk mitigation measures and any changes to the pesticide's uses, crops, label, etc. Organophosphates and carbamates were the first group of pesticides targeted under FQPA.

As 2005 ended, a number of risk assessments and REDs were published as part of the extensive reregistration process under FQPA. Some of the remaining organophosphates and carbamates are being reviewed and risk mitigation measures put into place. EPA has an online document on pesticide reregistration status. It provides the status of all pesticide active ingredients in the review process. Details on active ingredients are available via EPA's Fact Sheets. Another quick access route to online information about pesticides on the EPA website is their "A – Z Index." The entry point for these and all pesticide-related topics is at EPA's Office of Pesticide Programs http://www.epa.gov/pesticides/

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