

Agronomy Notes

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Features:

Forage:

The Timing for Forage Fertilization.....Page 6

Weeds and Pesticides:

For Palmer Amaranth, Scout Early and Often.....Page 3

Nutsedge control in sugarcanePage 4

Review Security Procedures for Pesticide StoragePage 5

Miscellaneous:

New Hires in AgronomyPage 2

Calendar of Events.....Page 7



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“Agronomy Notes” is prepared by: Maria Gallo, Chair and Y. Newman, Extension Forage Specialist (ycnew@ufl.edu); J. Ferrel, Extension Weed Specialist (jferrel@ufl.edu); F. Fishel, Pesticide Information Officer (weeddr@ufl.edu); D.C. Odero, Extension Weed Specialist (dcodero@ufl.edu); 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.



Agronomy New Faculty Hires

The Agronomy Department is very pleased to announce and introduce to our agronomy community two new faculty members that have recently joined the department:

Dr. S. Luke Flory (flory@ufl.edu) – Assistant Professor in Invasion Ecology, Gainesville campus.

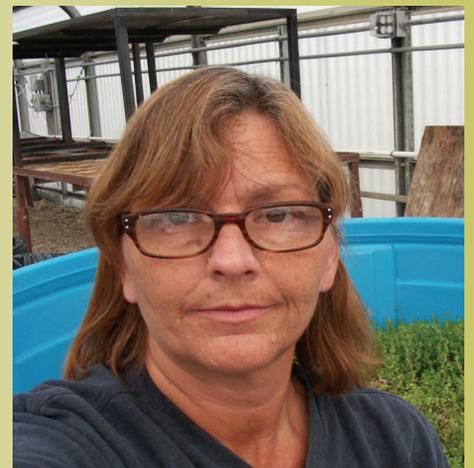
Dr. Flory joined the Agronomy Department in August, 2011. He received his Bachelor of Science degree in Biological Sciences, from DePauw University in 2001. He received his MS in Environmental Science with focus on Applied Ecology from the School of Public and Environmental Affairs at Indiana University (2003) and his PhD in Ecology and Evolutionary Biology from the Department of Biology, Indiana University (2008). His appointment is 70% research and 30% teaching. Dr. Flory's work has focused on cropping systems and management for enhanced environmental sustainability. New projects under development will investigate the invasion risk of biofuel crops and the interaction between invasions and climate change. For additional information on Dr. Flory's research and interests, please visit The Flory Lab Invasion Ecology website!

<http://www.florylab.com/research/>



Dr. Lyn A. Gettys (wlgettys@ufl.edu) – Assistant Professor of Aquatic and Wetland Plant Science, Fort Lauderdale REC (Fort Lauderdale).

Dr. Gettys joined the Agronomy Department in January 2012. She received her bachelor's degree in Horticulture from the University of Florida (1996), her MS in Plant Breeding/Horticultural Science from North Carolina State University (2000) and her PhD in Plant Breeding and Genetics/Agronomy from the University of Florida in Gainesville (2005). Dr. Gettys brings expertise in the areas of aquatic plant reproduction and biology, aquatic weed science, experimental herbicide evaluation and lake restoration methods and techniques. Her appointment is 60% research and 40% extension. Dr. Gettys will evaluate methods to control Florida's aquatic invaders and improve the success rate of lake restoration efforts in Florida; she will also provide leadership for the University of Florida's annual Aquatic Weed Control Short Course in Coral Springs.



For Palmer amaranth, scout early and often

Over the past 30 years, increasingly effective herbicides have been released for weed management in peanuts. These compounds permitted us to forgo soil applied herbicides and rely totally on postemergence sprays. They also would kill big weeds which allowed us to “catch up” if we got behind and the weeds got a little too big. But as everyone is now aware, Palmer amaranth has changed everything.

Palmer amaranth possesses two qualities that have required us to renovate our weed management strategies. These are: 1) Resistance to ALS inhibitors like imazapic (Cadre, others) and 2) growth rates up to 1 inch per day. If imazapic can't be used for this weed, the program of choice is overlapping residuals (Prowl + Valor, followed by Dual, etc) and early postemergence applications of paraquat or other burners like Cobra, Ultra Blazer, or Storm. But in order to make a timely application, these fields must be scouted regularly.

I have scouted fields for years by driving by and looking out the truck window. This can be a quick and effective way of managing coffeeweed and crabgrass, but simply will not cut it if Palmer is in the field. By the time you see a Palmer plant from the window, it is likely too late to kill it. So when should a more intense scouting schedule start? Our experience is that Valor will provide 30 to 45 days of effective control, if you get an activating rainfall within 5 days of application. Personally, I would scout a few times after planting to ensure proper activation of my preemergence herbicide.

Then around 30 days after planting I would start scouting on a 4-5 day schedule until you see the Palmer seedlings emerge. A newly emerged seedling will grow relatively slow for 10-14 days depending on temperature and soil moisture. After emergence, I would recommend scouting those fields on a 2-3 day schedule with plans to spray when the average weed height is 2-3”.

When the weeds are ready to spray, what product should you choose? After extensive testing we have concluded that if you target small weeds, Cobra, Ultra Blazer, and Storm are all equally effective and will provide >95% control. However, when Palmer reaches 3” the growth really takes off. Missing this window by a mere 3 days will result in 6” weeds. What are the options at this point? Again, extensive testing has shown that Cobra, Ultra Blazer and Storm are equally ineffective at this height. Will adding 2,4-DB help? It will help, but not enough to clean up a field of overly-tall Palmer amaranth. At this point, the only viable option is paraquat in a wiper.

For this weed, we have no backup plan. It is vitally important to use our residual herbicides and then be ready when the weeds begin to escape. Early intervention from a peanut producer is the best weapon we have for Palmer amaranth control.



Above: *Palmer sprayed at 3”.* Note carcass in bottom right..
Below: *Palmer sprayed at 6”.* Note injury and regrowth.
Photos by Jason Ferrell



Nutsedge control in sugarcane

Nutsedges are common weeds in sugarcane fields in south Florida. The two common species of nutsedge in south Florida are yellow nutsedge (*Cyperus esculentus*) and purple nutsedge (*Cyperus rotundus*) with the former being the most prevalent. Nutsedges are grass-like perennial plants that have triangular stems and leaves that grow in three vertical rows from the base of the plant. The leaves of yellow nutsedge taper gradually unlike purple nutsedge that taper abruptly to a sharp point. Both nutsedges have much branched fibrous roots and rhizomes with underground tubers that grow from rhizomes. Yellow nutsedge produces solitary tubers that arise either from the basal bulb or from a rhizome in contrast to purple nutsedge that produces chains of tubers that develop along the entire rhizome.

There are several new plant cane fields that are presently infested with nutsedges. This has mainly been attributed to heavy rains at planting and poor control during the summer fallow months. Infestations of nutsedges are also presently high in stubble cane fields. Control of these nutsedges in the fall is very important to minimize their interference in sugarcane in the spring. To control nutsedges in plant or stubble cane, Sandea (75% halosulfuron by weight) should be applied at a broadcast rate of 1.0 to 1.33 oz/A with a nonionic surfactant at 1 to 2 qt/gal (0.25 to 0.5% v/v) or crop oil concentrate at 4 qt/100 gal (1% v/v). Sandea can be tank-mixed with glyphosate for pre-plant burn down of emerged annual grasses, broadleaf weeds, and nutsedges in sugarcane. Sandea can also be tank-mixed with Atrazine,

Asulox (asulam), Evik (ametryn), or 2,4-D to provide additional control of broadleaf weeds and grasses in addition to nutsedges. The choice of tank-mix partner(s) should be made after scouting the field to assess the type and number of weeds present. Always refer to labels of these herbicides for use instructions, additive requirements, weeds controlled, the size range of weeds that should be treated, and application restrictions. Yukon, a premix of halosulfuron (12.5% by weight) and dicamba (55% by weight) can be applied at 4 to 8 oz/A to control nutsedges. The dicamba in the premix is helpful in controlling small broadleaf weeds. Yukon should be applied with either crop oil concentrate at 4 qt/100 gal (1% v/v) or nonionic surfactant at 1 to 2 qt/gal (0.25 to 0.5% v/v). Yukon may be tank-mixed with Atrazine, Asulam, Evik, or 2,4-D to broaden the spectrum of weed control in addition to nutsedges. Application of either Sandea or Yukon should be made on actively growing nutsedges at the 3 to 8 leaf stage. Generally, control of nutsedges in fields to be planted to new cane should be first implemented during the fallow period using a systemic herbicide such as glyphosate that can move to nutsedge tubers.



Above: Yellow nutsedge in plant cane. *Photos by D. Calvin Odero .*
Below: Yellow nutsedge in stubble cane



Review Security Procedures for Pesticide Storage

There continue to be reports of agrichemical thefts. Most recently over the Thanksgiving weekend, in Hendry County, a large operation was targeted despite locked gates. Such unfortunate occurrences serve as a reminder to continue or step up your vigilance of your storage facility.

Recommended considerations in evaluating agrichemical security:

- Securing buildings, manufacturing facilities, storage areas and surrounding property: its fundamental, but prevention of intrusion can include elements such as fencing or other barriers, lighting, locks, detection systems, signage, alarms, cameras and trained guards.
- Securing pesticide application equipment and vehicles: consider using an authorization process for persons who have access to such equipment before their use. Also consider specifically marking equipment as well as other tools kept in the operation so that you can identify them.
- Aerial application equipment: the FBI has requested that aerial applicators be vigilant to any suspicious activity relevant to the use, training in, or acquisition of dangerous chemicals and their application. Such activity includes, but is not limited to, threats, unusual purchases, suspicious behavior and unusual contacts with the public.
- Protection of confidential information: as businesses have grown more reliant on computers and communication technology, the need to secure these systems has grown. Efforts to include contingency planning for power losses, monitoring access ports, adherence to password and backup procedures, and maintaining access for authorized personnel only should be taken into account.
- Developing procedures and policies that support security needs: even the best hardware and staffing budgets are only as effective as the procedures and policies that control their use.
- Effective hiring and labor relations are important to obtain and retain good employees who will support and follow safety precautions. For example, the hiring process should ensure that pesticide handlers have all requisite training necessary to handle pesticides safely. Background checks of staff who have access to secure areas, particularly those areas where pesticides may be stored, are also necessary.
- Inventory management policies can help limit the amount of potentially hazardous pesticides stored on site, reducing the risks of accidental or intentional release or theft. Take control of your inventory: request that chemicals be delivered on the days you need them and not before. Return excess chemicals to the chemical distributor. Not having a stockpile of chemicals in your facility will decrease the opportunity for theft.
- Effective advance emergency response procedures can be critical. Business officials and employees need to have an understanding of how to respond and who to contact in the case of an emergency.
- Establish a procedure for locking up the facility at the close of the business day.

Finally, buy only from reputable dealers and do not be tempted to buy "cheap" chemicals from unknown sources - you are only supporting a thief and you may be next. Look out for your neighbor, and if you witness suspicious individuals, activities, and vehicles, contact your local sheriff's office.



The Timing for Forage Fertilization

Pasture fertilization is profitable if timely done but if the timing is wrong you may not see the benefits it provides. Before making any decision, an important reminder to any rancher or grass farmer is to soil test their pastures. A soil test is a low cost investment that can actually save you money by letting you know what soil nutrients you already have and do not need to add. A soil test will also let you know those nutrients that are deficient but critical to your forage plant and will need to be added. Soil test results include the recommendations of the type of nutrients and the levels or amounts needed.



When pasture fertilization is not timely done it may result in more costs than benefits. Below are some examples:

- ◆ There will be a slow response to fertilizer application when the plant is not ready to absorb the nutrients because the soil is too cold and the roots are not growing. Root growth for most warm-season grasses requires consistent soil temperatures of 65°F.
- ◆ When there is a high weed population in the area to be fertilized, a fertilizer application will make the weed problem worse. Take care of the weeds first, then fertilize.
- ◆ When there is over application because the roots are not fully developed, only a small amount of fertilizer is taken up by the plant. Early stage plants require less amount of fertilizer than a full stand.
- ◆ If a fertilizer application is made prior to having soil test results and recommendations, nutrients (and fertilizer) will be over or under applied. Or if pH is too low, lime may be required for better uptake of soil nutrients.
- ◆ When applications are excessive and fertilizer is lost to run-off or leaching, there will be more costs than benefits from fertilization.

Fertilization of forage plants is an investment when there is a need to increase the number of animals that are grazing, or the production in a hay field. In this case, proper and timely fertilization will result in high production of dry matter, which will allow for a higher stocking rate, hay production, and economic returns.

Forage fertilization is very specific depending on forage type. Fertilization recommendations for legumes are different from those of grasses. For example, nitrogen is used in small amounts as a startup fertilizer for legumes that should not exceed 25 lb N/acre/season. While for grass production nitrogen recommendations depending on the situation may well be three or more times that amount. ... ***(Continues next page)***

The Timing for Forage Fertilization (...continued from previous page)

What are the nutrients needed in a forage plant? Nitrogen, Phosphorus, and Potassium (major nutrients), calcium, magnesium, and sulfur (secondary nutrients), and manganese, iron, boron, copper, molybdenum, chloride, zinc, and nickel (Micronutrients), which are required in very small amounts .

Nitrogen – this nutrient is required in large amounts, and because of its mobility in the soil it should be applied in two or more applications during the growing season. Low nitrogen in the soil will likely limit root growth and the ability of roots to access soil nutrients. Nevertheless, excess nitrogen is not desirable either because of the nutritional imbalances that produce in the plant making them susceptible to diseases, insects, freeze damage, lodging, etc. In addition, the potential for N losses (runoff, leaching, denitrification) increases with excess nitrogen applications.

Phosphorus – this nutrient is involved in fruit and seed formation, and proper root growth. Phosphorus is not usually leached from the soil.

Potassium – a major nutrient needed by forage plants in large amounts. It is involved in rhizome production in grasses, and it is also needed for adequate winter survival and root growth. Movement in the soil is intermediate between nitrogen and phosphorus.

For additional information on Forage Fertilization or any other forage related topic, please check the Forages of Florida website at: <http://agronomy.ifas.ufl.edu/ForagesofFlorida/index.php> or just Google “Forages of Florida”.

Calendar of Events

To follow the link, press “Ctrl” and put cursor over link, and “click.”

- Jan. 9-11** **2012 American Forage and Grassland Council (AFGC).** Louisville, KY
<http://www.afgc.org/events.html>
- Jan. 26** **29th Annual Florida Cattlemen & Allied Tradeshow.** Kissimmee, FL
http://www.floridacattlemen.org/d/2012_FCIATS_ad.pdf
- Feb. 5-7** **American Society of Agronomy—Southern branch.** Birmingham, AL
<https://www.agronomy.org/membership/branches/southern>
- Feb. 14** **Best Management Practices Class.** Fort Myers, FL
<http://lee.ifas.ufl.edu/Hort/HortClasses/BMP2012Agenda.pdf>
- Feb. 15-16** **Uf Water Institute Symposium.** Gainesville, FL
<http://www.floridacattlemen.org/d/ufwatersavethedate071211r2.pdf>
- Feb. 29** **The second Generation (G2) of Best Management Practices (BMPs) for Crop Production.** Apopka, Fl. For information, contact 352-273-4814