

# Agronomy Notes

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## Features:

### Crops:

- Corn Seed Supplies.....Page 2*  
*Nitrogen Applications on Small Grains.....Page 2*

### Forage:

- Burning of Pastures and Hay Fields.....Page 3*



### Weeds and Pesticides:

- Control of Common Winter Weeds in Pastures and  
Hay fields .....Page 4*  
*Herbicides and Cold Weather .....Page 8*  
*EPA Approves Soil Fumigant Phase 2 Labels .....Page 9*



### Miscellaneous:

- Calendar of Events.....Page 10*

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## **Corn Seed Supplies**

Irrigated corn growers did very well in 2011 due to being in a La Nina weather cycle. This weather is noted as warm, dry weather from planting through May before the cycle succumbs to weather systems from the Gulf during summer months. The cloudless days during the growing season result in high photosynthesis and low humidity which helps keep diseases low. Low rainfall amounts result in little leaching of nutrients and yields of 250-300+bu/A were common last year. Many of the hybrids that produced the 300+bu/A are not available this year due to weather patterns in the seed producing areas. Growers should be aware of this and start working with their seed suppliers in getting the best hybrids available for the 2012 year. Even though we are in the same weather pattern as last year, water tables and soil moisture are lower than this time last year across the deep southeast. If there is concern about wells holding out for corn this year, consider putting half of the pivot in another crop that requires water at a different time (peanut, cotton).



## **Nitrogen Applications on Small Grain**

Early February is usually a good time to apply nitrogen to small grains for grain. Most growers will use an herbicide for broadleaf weeds at the same time that N is being applied. There may be some temporary burn with liquid nitrogen especially in wheel tracks of the sprayer or tractor. These will go away after a few days and not impact yields. Another good source of N for small grains is 18% N material which is a byproduct from the mines at Attapulgus. Research from UGA has shown that it performs as good as or better than conventional liquids (28-0-0-5) and is a better product for most grass crops when combined with sulfur. The only drawback with the lower % N product is that more material will have to be transported and applied in the field. N rates for wheat and other small grains should not exceed 100 lbs/A total in most cases. Lodging can be a problem when more than 120lbs/A of N is applied. Oats tend to lodge more than the other small grains with excessive N is applied and lodging is often seen on edges of fields where the N rate is overlapped.

## Burning of Pastures and Hay Fields

Prescribed fire can be a useful tool to eliminate competition from volunteer vegetation such as woody shrubs, or old growth and thatch that builds up through the winter season or when pastures are not well utilized. It is also used in pastures or fields to control insects or fungal diseases that require the thatch material to survive. Burning in Florida is usually done in February or late winter, a few days sooner or later depending on the year and where you are located in the state.

During late spring and early summer, spittlebugs can be seen in significant amounts affecting pastures throughout the state. In south Florida, it causes significant and extensive damage to limpograss fields, and in north Florida, the problem is mainly on bermudagrasses. Burning the old growth and thatch removes the conditions that harbors the eggs and young of these insects.

In addition to insect control, burning fields that have dry forage in later winter helps to eliminate the winter and/or weed vegetation that tends to suffocate the emerging bermudagrass in the spring. For control of noxious weeds such as smutgrass, burning early followed by a heavy stocking rate (mob grazing) has been observed to decrease the size and number of plants and increase the cover of bahia or limpograss.



Burning of Limpograss.

Photo by Yoana Newman

Another use of prescribed burning is in seed production of bahiagrass. Better yields are obtained when the grass residue from the fall (previous growing season) is removed in late April and May and then fertilized. If there is sufficient dead grass to burn, proceed with burning, and during the spring keep the grass low (if grazing)—don't let the grass grow tall or accumulate growth because seed yields will be low. Bahiagrass is a long day plant and flowering will occur with long days in summer.

Always make sure to get your burning permit before proceeding to burn.

## **Control of Common Winter Weeds in Pastures and Hay Fields**

Winter is here, literally, as nighttime temperatures the past couple nights have been near or below freezing in south Florida. For weeds like TSA, pigweed, crotalaria and other “summer” weeds freezing temperatures bring on their demise, which is what I like to think of as Mother Nature’s herbicide program. Unfortunately, winter annual weeds have adaptations to survive these extremely cold temperatures and will continue to flourish. Additionally, these plants are often the only green tissue in pastures and hayfields after a frost. In this article, we will provide some information on several of the most common winter annual weeds and their control.

**Fireweed.** Fireweed (*Urtica chamaedryoides*) is native to Florida, but has only recently become problematic in pastures (Figure 1). This winter annual species is commonly observed in bare ground areas (near feeding pens and under fences) as well as near and under trees where forage grasses tend to be less dense. Fireweed is particularly troublesome because it possesses stinging hairs that easily embed in skin. Once exposed to the toxin, severe irritation can occur for several hours. Though generally avoided by cattle, horses are more likely to browse fireweed and develop stress symptoms.

Fireweed leaves are opposite in arrangement and resemble that of a strawberry plant, but the plant as a whole has little resemblance to strawberry. Leaves are triangular to heart-shaped in outline, but are bluntly and coarsely toothed. The plant has square stems that are generally 4 to 20 inches tall. Stems are relatively weak and are often supported by surrounding plants. The plant flowers in spherical clusters and individual flowers are small and pale green in color. Small stinging hairs are found on the stems, petioles and leaves. These hairs contain irritants which have been shown to cause respiratory stress and local allergic reactions when ingested or inhaled.

Our research with this season species showed that 2,4-D and Telar were ineffective on fireweed. GrazonNext, Remedy (triclopyr), and Pasturegard were found to be highly effective. Within 2 weeks of application, over 90% of the fireweed plants were dead and the remaining individuals were yellow and dying. By 6 weeks after treatment, no fireweed could be found.

**Wild Radish.** Wild radish (*Raphanus raphanistrum*; Figure 2) is a member of the Brassicaceae plant family with cabbage, turnip, and mustard, and is one of the most common and problematic pasture weeds in the Florida Panhandle. Generally, wild radish germinates during the fall months when soil temperatures drop below 65° F. Studies indicate a chilling requirement is necessary to break dormancy. In addition, wild radish has a thick fruit pod from which the seed does not shatter free easily. Therefore, the pod must decay before the seed can be released to germinate.

After emergence, wild radish forms a rosette of leaves throughout the winter and early spring. Seedling wild radish plants possess heart-shaped cotyledons and the first true leaves will be slightly serrated and indented about two to three times as long as wide. As the leaves mature, the serrations will be jagged and more deeply indented. In addition, the leaves are covered with stiff hairs, giving a bristly feel to the touch. The wild radish plant remains in rosette form through most of the winter, reaching approximately 10 to 14 inches across at the base. In the late winter to early spring, as the temperature and day length increase, the plant bolts. Bolting is a process in which the internodes (regions of the stem between leaves) begin to lengthen and a flower stalk forms at the top. In wild radish, multiple flower heads form on several branches arising from a single flower stalk. The flowers are generally yellow but occasionally may be white.

Some of the most effective and inexpensive herbicides for wild radish control are growth regulators such as 2,4-D and dicamba (Banvel, Clarity, etc.). These herbicides provide excellent control of wild radish when properly applied. Tolerance of cool season forages to herbicides will vary according to species. Generally, wheat is the most tolerant and oats are least tolerant to 2,4-D applications. The timing of an herbicide application is critical for effective wild radish control. Research has shown that >90% wild radish control can be consistently achieved when 2,4-D is applied to plants less than 6 inches in height. By delaying the application until the plant reaches 12 inches, control drops to approximately 70%. However, if wild radish begins to flower before 2,4-D is applied, less than 50% control should be expected. Therefore, herbicides should be applied early to achieve the greatest wild radish control while avoiding herbicide injury to winter forage. For bermudagrass hay fields, control of wild radish is usually attempted well after flowering and seed development. Control of fully mature plants with 2,4-D can be very difficult. In these situations, metsulfuron (MSM 60, others) at 0.2 oz product/A is most effective. Depending on temperature at time of application, metsulfuron may require 3 to 5 weeks to control mature wild radish. But this herbicide is highly effective on wild radish and is safe on bermudagrass at any stage from dormant to full green up. **(Continues next page)**

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**Carolina geranium.** Carolina geranium (*Geranium carolinianum*; Figure 3) is a multi-branched low-growing winter annual that is problematic in bare areas of pastures as well as roadsides. However, some research has stated that this species is readily grazed and digestibility ranges from 68 to 78% with 11-19% crude protein. Stems are greenish to pink-red, and are densely hairy. Leaves are deeply lobed, and generally are no larger than a quarter in diameter. Flowers are pinto to purple in color and the seedpod resembles a “stork’s bill” at maturity. Seed production is relatively high and germination commonly occurs as early as September in some regions of the state.

Control of Carolina geranium is relatively easy as it is sensitive to many of the growth regulating herbicides including 2,4-D and dicamba. We have also found that it is extremely sensitive to Milestone and GrazonNext herbicides. For bermudagrass hayfields, metsulfuron (MSM 60, others) at 0.3 oz/A is highly effective and will control many other winter annual weeds as well.

**Butterweed.** Butterweed, or cressleaf groundsel (*Packera glabella*; Figure 4) is a winter annual weed that appears to be increasing in density over the past several years. This is problematic as this species is toxic to all livestock. Butterweed initially forms a large rosette of leaves in the late fall and winter months prior to bolting in early spring, a growth habit similar to wild radish. Rosettes are highly variable in shape and leaves are deeply lobed. Bolting stems are hollow, succulent, and light green in color with many red veins running the length of the stem. Many bright yellow flowers are produced on the end of the stems.

While we do not have a tremendous amount of data on this species, we have observed that applications of 2,4-D + dicamba during the rosette stage provides satisfactory control of this species, while products like Milestone, GrazonNext, and Pasturegard are more effective once plants have begun bolting. In bermudagrass hayfields, metsulfuron at 0.3 oz/A has provided satisfactory results.

**Heartwing sorrel.** Heartwing sorrel (*Rumex acetosella*; Figure 5), also known as sheep sorrel, sourgrass, Indian cane, and many others, is another common winter annual (sometimes classified as a creeping perennial) that most do not recognize until the reddish flowers appear in late spring. The stem is somewhat woody at the base of the plant and plant height ranges from 1 to 2 feet, with little or no branching. Lower leaf blades are somewhat arrow-shaped with one to two basal lobes. Upper leaves on the flowering stalk tend to be more slender and usually without the basal lobes. Presence of sorrel species in a pasture may be an indicator of low pH as this species tends to thrive under acidic conditions, however, it has been observed growing in pastures where the pH is optimum for forage growth.

Control of sorrel species can be achieved by applying 2,4-D or 2,4-D + dicamba prior to flower stalk emergence for optimum control. After bolting, Pasturegard and triclopyr products have provided more satisfactory results than 2,4-D-containing products. In bermudagrass hayfields, 0.3 oz/A of metsulfuron is extremely effective.

**Cut-leaf evening primrose.** Cut-leaf evening primrose (*Oenothera laciniata*; Figure 6) is a winter annual, or sometimes biennial, that is found throughout Florida. While this weed is more often found in citrus groves, it has been observed in some pastures and many hayfields, especially those that have been converted from an abandoned citrus grove. Germination typically occurs in late fall and a basal rosette is formed with untoothed leaf margins. As the plant matures, leaf margins are deeply toothed, and hairs cover the top sides of the leaves. Most often cut-leaf evening primrose has a prostrate growth habit and stems can reach 3 feet in length. Stems are usually reddish in color, hairy, and can be either simple or branched from the base of the plant. Flowers are bright yellow and typically open in the evening and petal fall from the plant within 24 hrs of opening.

Control of this species is relatively easy as size of the plant at application is not as restrictive as with other species. Herbicides such as 2,4-D, 2,4-D + dicamba, triclopyr, Pasturegard, Milestone and GrazonNext all provide excellent control of cut-leaf evening primrose. Metsulfuron can be applied at 0.3 oz/A in bermudagrass hayfields.

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**Cudweeds.** There are around three different cudweed (*Gnaphalium* sp.; Figure 7) species that are common in Florida. In general, the plants have basal rosettes and the leaves and seedheads are covered with white hairs, giving the plants a wooly appearance. Some species only have hairs on the underside of the leaves, whereas others have hairs on all surfaces. Generally, cudweeds begin to emerge as early as October and begin to grow an upright stem as early as January in some parts of the state. Typically, cudweeds are problematic only in hayfields, but they are also commonly found in bahiagrass pastures. Herbicides that are effective on cudweed include 2,4-D, dicamba, 2,4-D + dicamba. GrazonNext, although it contains 2,4-D has not performed consistently on these species. Metsulfuron at 0.3 oz/A has resulted in approximately 85% control in our research plots in bermudagrass hayfields.

**Henbit.** Henbit (*Lamium amplexicaule*; Figure 8), a member of the mint family, is a winter annual with square stems that is typically found in hayfields. Stems are usually purplish in when growing in full sunlight. Leaves are opposite, egg-shaped with bluntly toothed margins. Flowers are reddish purple. Henbit is typically found in north Florida, but some infestations have been observed as far south as Polk County.

Henbit control is relatively tough compared to the other previous species. Applying 2,4-D alone is often inconsistent and is control is often considered fair at best. Applying dicamba, or 2,4-D + dicamba appears to provide fair to good control. If henbit is in a bermudagrass pasture, paraquat can be used as long as the bermudagrass is dormant, and this treatment is likely the best option for controlling this species.

Winter weed control can be relatively easy and inexpensive in most cases. Typically, these weeds are less problematic in bahiagrass pastures than in bermudagrass, stargrass or limpograss hayfields. The first hay cutting of the year is usually accepted as low quality due to winter weeds. A single, well timed herbicide application can eliminate many of these weeds, resulting in premium quality hay from the first cutting. Additionally, removing these weeds will allow the hayfield to transition from dormancy more quickly. *(Continues next page)*



Figure 1. Representation of fireweed.

Photo by B. Sellers

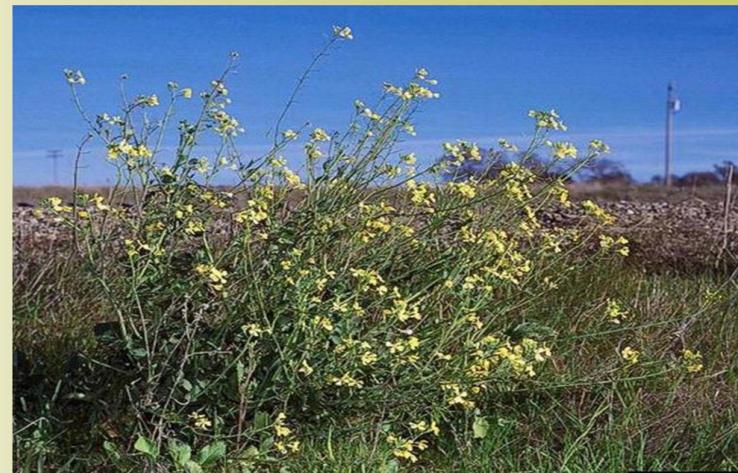


Figure 2. Wild radish is most difficult to control at this growth stage.

Photo by Joseph M. DiTomaso, University of California-Davis, Bugwood.org

# Weed Science

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**...Continued from page 5**



Figure 3. Carolina geranium.

Photo by B. Sellers



Figure 4. Butterweed/Cressleaf groundsel, a toxic weed, is becoming more common in Florida pastures.

Photo by B. Sellers



Figure 5. Heartwing sorrel is not usually noticed until the flower stalks elongate.

Photo by J. Ferrell



Figure 6. Cut-leaf evening primrose has relatively large showy flowers that wither within 24 hours after opening.

Photo by B. Sellers



Figure 7. Cudweeds typically have a dull appearance due to the hairs that may be found on leaves and stems.

Photo by B. Sellers



Figure 8. Henbit tends to be more problematic in North Florida.

Photo by J. Ferrell

## Herbicides and Cold Weather

Recent freezing conditions experienced in south Florida have implications on herbicide use for weed management in sugarcane. The question asked by many sugarcane growers is how cold is too cold for herbicide applications.

The answer to this question is that ideal temperatures for application of most postemergence herbicides are 65 to 85 F. Most herbicides are most effective on actively growing weeds. Cold conditions makes many weed species to slow growth and/or harden off cell walls which can both limit the uptake and translocation of many herbicides, and result in slower and reduced weed control. In addition, cold stressed crops including sugarcane poses high risk for herbicide damage.



Above: Cold damage on sugarcane.

Photos by D. Calvin Odero .

Below: Herbicide application to sugarcane several days after following cold damage



Crop selectivity of many herbicides derives from their ability to rapidly degrade herbicides to nontoxic metabolites. However, crop metabolism slows during cool or cold conditions, which extend the period of time required to metabolize and degrade herbicides in crops, consequently resulting in injury. For example, there will be increased risk of injury of cold stressed sugarcane to early postemergence application of atrazine. Consequently, it is important to delay herbicide applications on cold stressed sugarcane until conditions have improved and the sugarcane has begun to recover.

A good rule of thumb to avoid sugarcane injury or reduced weed control is to make herbicide applications after day temperatures exceed 60 F. But, if herbicide application is absolutely needed under cold conditions, then check the herbicide label for any warnings or precautions before use.

## **EPA Approves Soil Fumigant Phase 2 Labels**

EPA has completed review and approval of nearly all soil fumigant product labels incorporating the second phase of mitigation measures required by the 2009 Reregistration Eligibility Decisions (REDs) for the soil fumigants methyl bromide, chloropicrin, metam sodium/metam potassium, and dazomet. New risk reduction measures include buffer zones and related measures that will help protect workers and bystanders from exposure to potentially harmful airborne concentrations of these pesticides. This represents a major step toward full implementation of the risk mitigation measures outlined in the 2009 REDs.

Measures added to labels in the first phase of implementation included Fumigant Management Plans (FMPs), good agricultural practice requirements, and new worker protection measures among other things. Phase 1 labels were approved in 2010.

Existing stocks of products bearing Phase 1 labels may be sold and distributed by registrants until December 1, 2012. After that date, only products bearing the newly approved labels may be sold or distributed by registrants. Distributors and retailers who are not registrants may sell and distribute products until their supplies are exhausted. Likewise, growers and applicators may apply products bearing old labels until those supplies have been exhausted.

The newly approved labels will be available through the Pesticide Product Label System (PPLS) ([www.epa.gov/pesticides/ppls](http://www.epa.gov/pesticides/ppls)) within a few weeks as the labels are processed and entered into the system.



Left: Soil fumigant application.

*Photo by Fred Fishel*



Above: Warning of fumigant-treated site

*Photo by Fred Fishel*



Above: Shovel crew sealing tarps.

*Photo by Fred Fishel*

Visit the Office of Pesticide Programs' Soil Fumigant Toolbox, [www.epa.gov/pesticides/reregistration/soil\\_fumigants/](http://www.epa.gov/pesticides/reregistration/soil_fumigants/) for more information about soil fumigants and new requirements for their safe use.

Left: Soil fumigant application.

*Photo by Fred Fishel*

# *Calendar of Events*

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

- 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. 14**   **2012 Florida Strawberry Expo—Univ. of Florida/IFAS Gulf Coast REC,** Balm, FL  
<http://2012berryexpo.eventbrite.com/>
- 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
- Apr. 11**   **FL Certified Crop Advisor (CCA) workshop.** Lake Alfred, FL  
[http://www.crec.ifas.ufl.edu/crec\\_websites/cca/program.shtml](http://www.crec.ifas.ufl.edu/crec_websites/cca/program.shtml)
- May 2-4**   **61st Annual Florida Beef Cattle Short Course,** Gainesville, FL  
<http://animal.ifas.ufl.edu/extension/beef/BCSC/BCSC2012/short.shtml>
- May 10**   **5th Annual Biomass Supply Chain & Logistics Conference,** Tone Mountain, GA  
<http://www.biomassupplychain.com/>
- May 16**   **Cool Season Workshop—by Cool-season grass initiative,** Rogers, AR  
<http://www.afgc.org/docs/2012TentativeAgenda.pdf>
- Mayo 20-26**   **Caribbean Food Crop Society meeting,** Mexico  
<http://cfcs.eea.uprm.edu/>
- June 18-22**   **FL Cattlemen Association Annual Convention and Allied Trade Show,** Marco Island, FL— <http://www.floridacattlemen.org/events.html>