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U.S. DEPARTMENT OF AGRICULTURE, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF FLORIDA, IFAS, Florida A.
& M. UNIVERSITY COOPERATIVE EXTENSION PROGRAM, AND BOARDS OF COUNTY COMMISSIONERS
COOPERATING.

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Crop Management Specialist. The use of trade names does not constitute a guarantee or warrant of products named and
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Incorporating S-metolachlor (Dual Magnum) with Irrigation

Herbicide resistant weeds have changed how we design our weed management programs. To combat these weeds, we are increasingly returning to soil-applied herbicides. However, a soil-applied herbicide has to be mixed in the soil (activated) to be effective. If that herbicide is simply left on the soil surface, it will often breakdown in sunlight within 7-14 days of the application.

S-metolachlor is an example of a soil-applied herbicide that provides effective control of a wide range of weed species (including herbicide resistant species such as Palmer amaranth).

Other advantages are that this herbicide has a wide window of application timings, can be tank-mixed with multiple preemergence and postemergence herbicides, and has few rotational restrictions. Therefore, S-metolachlor is an excellent tool component of herbicide programs for peanut production. But incorporation after the application is essential.

A fast and cost-effective way to incorporate herbicides, particularly in minimum-tillage systems, is with irrigation. But, how much irrigation is required to properly activate these herbicides?

Research was conducted at the University of Florida to determine how much irrigation S-metolachlor required to work at maximum effectiveness. The herbicide was applied in a location with a sandy soil and heavy Palmer amaranth pressure. The site was tilled to ensure all seedlings were destroyed and the herbicide was applied to the freshly tilled area. We then applied irrigation at rates of 0.5”, 0.25”, 0.12”, 0.06” or 0”. No additional rainfall or irrigation was received within the next 7 days. After 7 days, the whole study received 0.5” or irrigation to stimulate weed germination. The number of Palmer amaranth seedlings emerging in these plots was then counted for the next 35 days to determine effectiveness.

As expected, we found that S-metolachlor performed better as irrigation volume increased. We also found that the minimum amount of irrigation to gain effective control was 0.12” (1/8”). Few differences between 0.12” and 0.5” were observed. We feel confident that a ½” of irrigation is not required to adequately incorporate S-metolachlor, but we would not recommend using less than 0.12”. So somewhere between these two, like 0.25” (1/4”), should work well on most sites. We would also suspect that applying even a low amount of irrigation immediately after S-metolachlor application is better than waiting a few extra days or applying none at all.

S-metolachlor offers many benefits to a weed management program. However, a full 0.5” of irrigation is not always required for effective weed control. Using less irrigation can result in good herbicide activity while also reducing irrigation cost.
Goatweed Control in Pastures and Hayfields

Goatweed also known as sweet broom (*Scoparia dulcis*) has been a problem in Florida pastures and hayfields for many years. With the relatively warm (or hot!), wet fall and winter, we are seeing more and more goatweed infestations.

In most cases where goatweed density is extremely high, the pasture has been overgrazed or sod has been lifted, but limited forage growth due to decreased daylength and environmental conditions has resulted in an increase in goatweed density during the winter months.

Goatweed is considered an annual weed, but it can also be considered 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 a long 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 metsulfuron at 0.3 oz/acre, which is a problem for producers who graze bahiagrass as metsulfuron has the potential for severe ‘Pensacola’ bahiagrass injury.

For bahiagrass, 2 qt/acre of 2,4-D or a tank-mix of GrazonNext HL at 24 oz + 1.5 qt/acre 2,4-D will be needed for satisfactory control. In bermudagrass and stargrass, combining these two herbicides is an option and the rate of 2,4-D could be lowered to 1 qt/acre. In limpograss pastures or hayfields metsulfuron at 0.3 oz/acre or Chaparral at 3.0 oz/acre has provided consistent control.
Legumes have the capacity to associate with rhizobia strains and fix atmospheric N\textsubscript{2}. Ball clover (*Trifolium nigrescens* Viv.) has reseeding ability and when planted in mixtures with annual ryegrass (*Lolium multiflorum* Lam.) contributes by adding N to the system and extending the grazing season.

This experiment tested three seeding rates of ball clover (2, 4 and 6 lb/acre) in a mixture with annual ryegrass compared with annual ryegrass in monoculture, fertilized (45 lb N/acre) or not fertilized with N. Response variables included percentage of ball clover, dry matter yield (DMY) of annual ryegrass, DMY of ball clover, total DMY, percentage of plant N derived from atmosphere (% Ndфа) and N fixed contained in the shoot (Nfix).

The study was performed in a randomized complete block design with 4 replicates. Ball clover proportion in the mixture increased from 32% (at 2 lb/acre seeding rate) to 47% (at 4 lb/acre seeding rate), with no difference observed between 4 and 6 lb/acre.

Ball clover DMY increased linearly with increasing seeding rates, with DMY of 630, 910, and 1040 lb/acre for 2, 4, and 6 lb/acre seeding rates, respectively.
Seeding Rates of Ball Clover in Mixtures with Annual Ryegrass in North Florida

Total dry matter yield (DMY), total shoot nitrogen mass, total nitrogen yield, and ryegrass percentage under different seeding rates of ball clover, in contrast with unfertilized annual ryegrass and fertilized annual ryegrass (45 lb N/acre).

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Total DMY</th>
<th>Shoot N yield</th>
<th>Total N Yield</th>
<th>Ryegrass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb DM/acre</td>
<td>Ryegrass lb/acre</td>
<td>lb/acre</td>
<td>%</td>
</tr>
<tr>
<td>2 lb/acre</td>
<td>1954 b</td>
<td>16 b</td>
<td>28 a</td>
<td>65 b</td>
</tr>
<tr>
<td>4 lb/acre</td>
<td>2034 b</td>
<td>12 b</td>
<td>37 a</td>
<td>50 b</td>
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<tr>
<td>6 lb/acre</td>
<td>2186 b</td>
<td>18 b</td>
<td>45 a</td>
<td>50 b</td>
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<tr>
<td>Fertilized Ryegrass</td>
<td>3399 a</td>
<td>49 a</td>
<td>49 a</td>
<td>97 a</td>
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<tr>
<td>Unfertilized Ryegrass</td>
<td>1624 b</td>
<td>15 b</td>
<td>15 b</td>
<td>96 a</td>
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<td>209</td>
<td>&lt; 0.0001</td>
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<td>&lt; 0.0001</td>
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<tr>
<td>P</td>
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<td></td>
<td>0.0020</td>
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</table>

Annual ryegrass DMY and total DMY were greater in the N fertilized treatment (3400 lb DM/acre). Average % Ndfa was 95% for ball clover and there was no difference among treatments. The Nfix showed a linear increase with seeding rate (P = 0.02) with values ranging from 16 to 25 lb N/acre.

Treatments including seed rates of 4 and 6 lb/acre were similar in botanical composition, DMY of ball clover, DMY of ryegrass, total DMY, and Nfix.

From the producer perspective, it is more economical to use 4 lb of ball clover seed/acre.

Increasing seeding rates of ball clover in annual ryegrass mixtures allowed greater legume contribution in the pasture, improving forage N without decreasing yield.
EPA Takes Strong Steps to Prevent Poisonings and Protect Workers from Paraquat

The U.S. Environmental Protection Agency (EPA) is proposing to take action to stop poisonings caused by accidental ingestion of the herbicide paraquat, which can also cause severe injuries or death from skin or eye exposure.

“We are taking tough steps to prevent people from accidentally drinking paraquat and to ensure these tragic deaths become a thing of the past,” said Jim Jones, assistant administrator for the office of chemical safety and pollution prevention. “We are also putting safety measures in place to prevent worker injuries from exposure to this pesticide.”

Since 2000, there have been 17 deaths – three involving children caused by accidental ingestion of paraquat. These cases have resulted from the pesticide being illegally transferred to beverage containers and later mistaken for a drink and consumed. A single sip can be fatal. To prevent these tragedies, EPA is proposing:

- New closed-system packaging designed to make it impossible to transfer or remove the pesticide except directly into the proper application equipment;
- Special training for certified applicators who use paraquat to emphasize that the chemical must not be transferred to or stored in improper containers; and
- Changes to the pesticide label and warning materials to highlight the toxicity and risks associated with paraquat.

In addition to the deaths by accidental ingestion, since 2000, there have been three deaths and many severe injuries caused by the pesticide getting onto the skin or into the eyes of those working with the herbicide. To reduce exposure to workers who mix, load and apply paraquat, EPA is proposing:

- Prohibiting application from hand-held and backpack equipment, and
- Restricting the use to certified pesticide applicators only (individuals working under the supervision of a certified applicator would be prohibited from using paraquat).

Paraquat is one of the most widely-used herbicides in the U.S. for the control of weeds in many agricultural and non-agricultural settings and is also used as a defoliant on crops such as cotton prior to harvest.

The proposal will be available for a 60 day public comment period. EPA will consider all public comments before finalizing these proposed actions later this year.

For more information on paraquat: https://www.epa.gov/ingredients-used-pesticide-products/paraquat-dichloride.
IFAS/FTGA Great CEU Roundup 2016

For the sixth year in a row, the Florida Turfgrass Association (FTGA) has teamed up with the Institute of Food & Agricultural Sciences (IFAS) to present The Great CEU Round-Up, a full day of education that will be simulcast to locations around Florida from the University of Florida, Gainesville via “MediaSite”. Registration for the event is being handled by FTGA by going to http://www.ftga.org/.

The Round-Up has been designed to award up to six CEUs to attendees in some of the most difficult to attain subject areas, including aquatic weed control, natural areas, right-of-way and forestry, among others.

<table>
<thead>
<tr>
<th>Time (EDT)</th>
<th>Topic</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>9:00 – 9:50</td>
<td>Pesticides, pollinators, and politics in turf and ornamentals</td>
<td>Adam Dale</td>
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<tr>
<td>10:00 – 10:50</td>
<td>Integrating biological controls and herbicides</td>
<td>Jim Cuda</td>
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<td>11:00 – 11:50</td>
<td>When upland invasive plant control meets water: Herbicide label</td>
<td>Stephen Enloe</td>
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<td>interpretations, application techniques, and troublesome species</td>
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<tr>
<td>11:50 – 1:00</td>
<td>BREAK</td>
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<td>1:00 – 1:50</td>
<td>Pesticide spill management and cleanup</td>
<td>Paul Mitola</td>
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<td>2:00 – 2:50</td>
<td>Aquatic weed identification</td>
<td>Lyn Gettys</td>
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<td>3:00 – 3:50</td>
<td>Herbicide injury from off-target application</td>
<td>Peter Dittmar</td>
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<td>3:50 – 4:00</td>
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Registration will close on 7/22/16 and on-site pricing goes in effect on 7/23/16.

- UF/IFAS Employees: $15.00 pre-registration | $22.50 on-site
- Municipal Employees: $30.00 pre-registration | $45.00 on-site
- Industry Professionals: $50.00 pre-registration | $75.00 on-site

Walk-ins are welcome the day of the event at the participating IFAS Extension Office.
IFAS/FTGA Great CEU Roundup 2016

REGISTRATION: There are two (2) ways to register: download registration form or register online.

Download registration form  Online registration

For other questions, you can contact the Florida Turfgrass Association:

*Florida Turfgrass Association*
411 E. Orange Street, Suite 205
Lakeland, FL 33801
Phone: 863-688-9413
Fax: 863-688-9610
e-mail: info@ftga.org

<table>
<thead>
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<tr>
<td>482 General Standards/Core</td>
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<td>Limited Urban Fertilizer</td>
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<td>Limited Landscape Maintenance</td>
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<td>Limited Lawn &amp; Ornamental</td>
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<tr>
<td>Private Applicator</td>
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<tr>
<td>Aerial Application</td>
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<td>Ag Row Crop</td>
<td>2</td>
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<td>Ag Tree Crop</td>
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<td>Demonstration &amp; Research</td>
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</table>
Calendar of Events

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

July 27, 2016  The Great CEU Round-Up
IFAS Extension Offices across Florida-(Participating)
http://www.ftga.org/

September 15-17, 2016  The Landscape Show
Orlando, Florida
http://www.fngla.org/thelandscapeshow/

October 18-20, 2016  Sunbelt Ag Expo
Moultrie, Georgia
http://sunbeltexpo.com/

The Great CEU Round-Up
July 27, 2016 | 8:00 am - 4:00 EDT
Presented by

The 2016 Landscape Show takes place September 15 -17!

Join over 6,500 attendees, and attend the southeast’s premier landscape and horticulture conference and trade event. The Landscape Show features over 200,000 square feet of trees, shrubs, equipment and more from nearly 450 exhibiting companies in 800+ booth spaces!