



Rubber gloves affect the level of pesticide absorption on users as found in a recent study on farmers and their families. (See page 4)

Photo: F. Fishel

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UF IFAS Extension presents . . .

## Hay Field Day ~ June 30 Mark Randell Farms, Welborn, FL

9:00 am - 3 pm; Registration Fee \$5.00

Registration: Call (386) 362-2771, Suwannee County Extension Office

CEU's and CCA's will be available.



## Late Corn Planting



Commodity markets have fluctuated widely this spring while fertilizer prices have remained high. Growers are still changing the crop mix for this year and some are planting corn after small grain. There are very few corn hybrids that can be planted in June without major damage from disease. Growing a Bt corn is critical for planting late. Even most Bt hybrids will succumb to disease pressures of southern corn rust and corn leaf blight. There were good tropical hybrids that are no longer available for late planting. However, some hybrids have better disease resistance than others. Consult variety test information to make sure you are planting the most disease resistant hybrids for late planting. If corn is to be planted after corn into green stubble or into green stubble or even weeds, a soil insecticide should be used. It takes about 4 weeks, between crops or after being weed free, for the insect population to be reduced enough that they will not damage the newly planted crop.

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## Fertilizer Blends vs. Homogenized Fertilizers

Farmers use soil tests to determine the amount of fertilizer that is needed to produce various crops. Soil tests are a guide to efficiently produce a crop without inadequate or excessive use of fertilizer. When fertilizer was cheap, growers would often use the same rate of material on an entire field. This practice may not be the most effective method for crop production since there will be areas in the field that will vary widely in nutrient content from other areas of the field. In many cases blends of 3 or more fertilizer are mixed together in mixers and spread as dry material across the field. One problem with blends is that they segregate after mixing in the spreader truck, or different materials are thrown different distances as it is being spread.

Homogenized fertilizer is unique in that each granule has the same analysis. If it is spread from a spreader truck that is spreading a uniform rate, nutrients should be uniform across the field. However, the main limitation to homogeneous fertilizer material is that specific grades of fertilizer are not produced to meet fertility needs for each field. In cases where fertilizer is banded and rates are reduced by third or half from broadcast rates, homogenized fertilizer may be more appropriate since materials mixed at the plant may be transferred 2 to 3 more times before they are put out at planting. Separation in materials is likely to occur the more they are transferred from one cart to another.

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## Starter Fertilizer Placement - Corn and Cotton

Corn and sometimes cotton have starter fertilizer placed near the seed. There are some companies that sell materials to be placed with the seed. However, extreme caution at planting should be used when placing any material in the furrow with the seed. Fertilizers such as urea and diammonium phosphate are not recommended to be placed with the seed since free ammonia is very toxic to seedlings. The most common placement is either 2”X2” to the side and below the seed or surface banding. In general, for each 10 lbs/A of N in the starter, placement should be one inch further away from the seed in a surface band. If 30 lbs/A of N are used in the starter fertilizer, it should be 3” away from the seed. Data at Quincy (Rhoads) shows that triple super phosphate (TSP) is much more available than diammonium phosphate (DAP) initially and has been noted by corn growers this year where corn is 6-8” taller from banded applications of TSP in row as compared to DAP in the same field. This outcome may be due to the effect of the ammonia acidifying the soil with DAP making P less available to plants.

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## Pasture Caterpillars and Chemical Control



With the change in weather conditions, caterpillars may start showing up in pastures. If scouting during the day when there’s still some morning dew, both loopers and army worms tend to fall off the plants to the ground and rubber boots (where they are easier to spot). Each looper pupates (stage the insect undergoes in becoming a moth) by folding blades of grass to form a cocoon, whereas armyworms pupate in the soil. You can see the tips of the leaves turned over where the looper caterpillars pupate. The following is a refresher on the most common insecticide treatments for pasture and hayfield caterpillars:

<i>Product*</i>	<i>Rate</i>	<i>Restrictions (waiting time prior to utilization)</i>	<i>Maximum number of applications</i>
<b>Malathion 57% EC</b>	2 pints per acre	None	No restrictions
<b>Sevin XLR</b>	1 to 1.5 quarts/acre	14 days for hay or grazing	Two (2) or less per year
<b>Lannate LV</b>	¾ to 3 pints per acre	7 days for grazing 3 days for haying	No more than 4 applications per year
<b>Dimilin 2L</b>	2 fl oz per acre/cutting	No restrictions for grazing 1 day for hay	No more than 6 fl oz per year. Cannot apply more than 2 fl oz per acre/cutting
<b>Tracer</b>	1-3 fl oz/acre	3 days for hay or until it has dried if grazing	

\*Thanks to the UF/Pesticide Information Office for their assistance on product update.

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# Farm Family Exposure to Glyphosate

The Farm Family Exposure Study, conducted in 2000, determined exposure of 48 farm-families to the commonly applied herbicide, glyphosate. The purpose of the study was to quantify real-world pesticide exposures immediately before, during, and after a pesticide application and to identify significant factors that influence exposure. The study was funded through a research contract with the University of Minnesota and sponsored by Bayer, Dow, DuPont, FMC, Monsanto, Syngenta, and the American Chemistry Council.

Farm families were recruited by randomly drawing licensed pesticide applicators from state listings in South Carolina and Minnesota. Criteria for participation in the study included the following:

- ⇒ The farmer, spouse, and at least one child - 4 to 18 years of age - had to live on the farm.
- ⇒ The farmer had to farm at least 10 acres within 1 mile of the family residence.
- ⇒ The farmer must plan to apply one of or a combination of the following: glyphosate, 2,4-D, or chlorpyrifos. (Only glyphosate results are described in this article).
- ⇒ Family members had to be willing to collect all urine voids for five consecutive days - the day before the pesticide application, the day of the application, and for three days after the application.
- ⇒ The farmer and spouse had to be willing to fill out pre- and post-study questionnaires that detailed family activities for the week before the study and the week of the study.
- ⇒ The farmer and spouse had to agree to have their on-study pesticide application observed by trained field staff.

Participating families were given a cash incentive of \$300 and reimbursed for the pesticide used during the on-study application to a maximum of \$1,000. Laboratory analyses were used to determine urinary glyphosate concentrations.

Of the 48 farmers, 10 reported never wearing gloves when working with pesticides, 14 had applied glyphosate within a week before their scheduled on-study application, and the same number had made another application within three days of their on-study application. Most of the farmers reported having tractors with enclosed cabs.

On the day of the on-study glyphosate application, a trained observer was present at each farm, documenting practices and conditions that can influence exposure potential. Of the 48 farmers, 14 were not wearing gloves during the application. According to the product label for the glyphosate used in this study, gloves were not required to be worn. However, use of rubber gloves when handling pesticides reduces dermal contact and absorption. All the farmers used tractors and boom sprayers, and most applied the Roundup Ultra® formulation over glyphosate-tolerant crops early in the growing season. Skin contact with glyphosate was observed for 15 of the farmers and approximately 15 percent of farmers were observed to have had spills during mixing or application. Thirteen repaired their equipment at some time during the application.

Urine concentrations of glyphosate for farmers ranged from less than 1 ppb to 233 ppb. Some farmers did not have detectable glyphosate in their urine samples despite applications in excess of 100 acres. Overall, 29 farmers participating in the study had detectable values on the application day, declining to 13 farmers by the third day following the glyphosate application. The average concentration for farmers was 3.2 ppb on the application day, and the concentration declined thereafter. Findings differed between South Carolina and Minnesota. On the application day, 87 percent of the South Carolina farmers had detectable values, compared with 36 percent of the Minnesota farmers. Mean values were 7.9 ppb in South Carolina and 1.4 ppb in Minnesota.

Of the farmers' spouses, two had detectable concentrations on the day of application. No spouse participated in the glyphosate application. Nine of 78 children who provided samples had a detectable value on the day of application. Of these nine children, all but one were reported by their parents to have been present for or assisted with mixing or application activities.

Among the farmers who participated in the study, urinary concentrations were lower for those who were observed to wear rubber gloves when mixing and loading glyphosate. The concentration for those wearing rubber gloves was 1.5 ppb, versus 9.7 ppb for other farmers. Use of rubber gloves was much more common in Minnesota than in South Carolina. The number of acres treated was not related with urinary glyphosate concentration, but there was a trend between concentration and the number of times farmers mixed and loaded the concentrated herbicide. Other factors positively associated with urinary concentration were using an open cab tractor, observed skin contact with the glyphosate concentrate, and repairing equipment during the application.

### *Use of rubber gloves was a major influence on glyphosate exposure as found in urine.*

Use of rubber gloves was a major influence on glyphosate urinary concentrations. For farmers who did not wear rubber gloves, the number of acres treated, the number of mixing operations, observed spills, and repairing equipment were associated with large differences in urinary concentrations.

According to the EPA, the lowest no-effect level from glyphosate toxicology studies is considered to be 175 ppm. The reference dose, an estimate of the daily oral exposure to the human population, including children, that is not likely to cause harmful effects during a lifetime, is 2 ppm per day. The urinary glyphosate concentrations presented in the study were exponentially lower than these values in all instances.

In all of these pesticide-handling activities, rubber glove use minimized urinary concentrations of glyphosate. Most pesticide product labels specify some type of protective gloves during handling activities. The study provides emphasis for the importance of protective glove use. Although glyphosate is considered to be relatively non-toxic and is not known to cause long-term human health effects, other more toxic pesticides are used by growers and handled in a similar manner. Many pesticide labels directions provide flexibility in the type of glove to be worn. The important message is that label directions should, at all times, be observed and followed.

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## *Bayer CropScience Insecticide Updates*

This past April, Bayer CropScience LP made the decision to exit the Di-Syston and Monitor insecticide business in the United States. The active ingredients in Di-Syston and Monitor are disulfoton and methamidophos, respectively. Effective immediately:

**Monitor:** Bayer CropScience's final production of Monitor will occur in 2009. Distributors will be provided with an allocation based on previous purchase history.

**Di-Syston 8 and Di-Syston 15G:** Bayer CropScience's final production of these products will occur in 2009. At this time, material will not be allocated and is available for purchase while supplies last.

According to EPA's 1991 Existing Stock Policy, once purchased from Bayer CropScience, there is no time limitation by which distributors are required to sell Di-Syston or Monitor to retailers or growers. Once purchased from distributors or retailers, the EPA policy also allows growers to use these products with no time limitation.

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# Dogfennel Control

Dogfennel is the most common weed in Florida pastures. Unlike most states, dogfennel acts as a perennial in Florida and sprouts off existing rootstock each spring. The perennial growth habit causes this weed to grow very rapidly and be more difficult to control. Therefore, herbicide application timing and herbicide selection are very important to achieve optimum dogfennel control.

Dogfennel height	Herbicide recommendation and cost
0 to 24 inches	Weedmaster (2 pt) - \$8/A
24 to 36 inches	Weedmaster (3 pt) - \$12/A Cleanwave (1 pt) + 2,4-D (2 pt) - \$11/A Pasturegard (2 pt) - \$12/A
36 to 48 inches	Cleanwave (20 oz) + 2,4-D (2 pt) - \$14/A Pasturegard (3 pt) - \$18/A
>48 inches	Pasturegard (3 pt) - \$18/A Cleanwave (20 oz) + Forefront (2 pt) - \$24/A

Control of dogfennel ranges very easy to extremely difficult relative to its size at time of application. The smaller the plants, the more easily and cheaply they can be controlled (*see table on left.*) But, delaying applications and spraying larger plants will require a greater investment. In light of this, it is

advisable to develop a management strategy before the summer rain and heat cause rapid dogfennel growth.

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## Calendar

- June 5-9**                                    [American Society for Reproductive Immunology](#), Orlando
- June 7-9**                                    [FSHS and SCSSF Meeting](#), Jacksonville
- June 7-10**                                   [Meeting: In Vitro Biology](#), Charleston, SC
- June 10**                                    **Pesticide Training CEU Day**, \* Mid-Florida REC  
Apopka, Register by June 5; \$20; (407) 665-5554 [rvt@ufl.edu](mailto:rvt@ufl.edu)  
*For your CEU and Worker Protection Standards Training Needs*
- June 18**                                    **UF/UGA 2009 Corn-silage Field Day**, Tifton, GA
- June 30**                                    **Hay Field Day**, \* Welborn (386) 362-2771
- July 13-15**                                   **Short Course: Applications & Analyses of Mycorrhizal Associations**  
Information or registration \* call (352) 392-1951 email: [aaag@ufl.edu](mailto:aaag@ufl.edu)
- July 20-24**                                   **National Conference on Ecosystem Restoration (NCER)**  
Los Angeles, CA
- July 22-23**                                   [Workshop: Breeding for Resistance to Whitefly-transmitted Viruses](#), \* Orlando
- August 1-2**                                   [Florida Small Farms & Alternative Enterprises Conference](#) \*  
Kissimmee (Registration discount if received by June 1.)
- September 22-24**                           [Southwest Herbicide Applicator Conference](#), Panama City Beach