

Pest & Crop

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WELCOME TO THE 2001 SEASON! THIS IS YOUR LAST ISSUE UNLESS YOU NOW SUBSCRIBE OR HAVE ALREADY DONE SO FOR THE 2001 SEASON!

Welcome to the 2001 Season of the *Pest&Crop* Newsletter. This is the 15th year of this interdisciplinary offering. The Departments of Agronomy, Botany and Plant Pathology, Entomology, and the Purdue Pest Management Program hope that you find this newsletter useful. As in the past, subscribers will receive weekly editions from April through mid-September, and monthly issues in February, March, October, and November. We anticipate that approximately 28 *Pest&Crop*'s will be produced in 2001.

The *Pest&Crop* is divided into several sections: Insects, Mites and Nematodes; Weeds; Plant Diseases; Vertebrates; Agronomy Tips; Bits and Pieces; Pest Management Tips; Gleaning the Fields of Agriculture; Sightings From The Field; and Weather Update. Appropriate information on research results, pesticide certification training, pest management and crop production workshops/meetings, field diagnostic training, etc., will also be included.

As in the past, each *Pest&Crop* article will include the name(s) of the individual(s) responsible for the article. As before, these individuals stand ready to assist you if

questions arise. In this issue, we have included a listing of all the specialists in the supporting departments. You will want to keep this in a handy place for future reference as it contains telephone, and fax numbers, e-mail addresses, and speciality areas.

If your mailing address changes or you are not receiving the *Pest&Crop* on a timely basis, be sure to let me know! We wouldn't want you to miss a single issue! We hope that this year's *Pest&Crop* will be of great value to you and your operation.

Remember, the *Pest&Crop* can be downloaded and viewed at the following Web address: <http://www.entm.purdue.edu/entomology/ext/targets/newslett.htm>.

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Purdue Cooperative Extension Service

Insects, Mites, and Nematodes

Criteria for Treating First-Year Corn for Rootworm, 2001 – (John Obermeyer, Rich Edwards, and Larry Bledsoe) –

- Rootworm management guidelines for corn following soybean are given by region of Indiana
- Rootworm beetle numbers in 2000 were highest in northwestern counties, a mixed bag in other northern counties, and low in the southern half of the state
- **NEW** threshold for western corn rootworm beetle numbers in soybean to determine the need to treat the 2002 corn

When one uses a soil insecticide it is important to remember that protection of the primary portion of the root system from economic attack by larvae is the goal. Also, one needs to understand that products do not provide 100% control and occasionally some economic damage may occur depending on the larval population, weather, product performance, planting date, plant development, and time of larval hatch. All of these factors can ultimately impact product performance and must be considered when using a soil insecticide. The important thing for producers to understand is the positive and negative aspects of each product, and determine which one(s) fits best under their farming system. Also, one needs to understand what the warrantee for each product really means. Additionally, it makes sense to have untreated check strips in fields to gauge the performance and economics of using the product.

The following guidelines, formulated from 2000 research and observations, should be taken into consideration when making rootworm management decisions for corn following last year's soybean. If a soil insecticide is needed, see the table below for performance data that may assist you in product selection.

Northern Indiana (approx. north of Interstate 70):

- A soil insecticide is not needed for rootworm larval control where *no, or very few*, rootworm beetles were observed in 2000 soybean (see discussion below on other soil insect pests).
- Where numbers of western corn rootworm beetles on Pherocon® AM traps in soybean fields in 2000 averaged five (5) or more beetles/trap/day during any trapping week, the application of an insecticide in these fields in 2001 is likely needed. NOTE: In research fields where at least 5 WCR beetles/trap/day in soybean were observed, >95% of the corn fields reached economic root damage the following year.
- In areas where rootworm larvae have caused damage in corn and one *did not monitor* for western rootworm beetles in 2000, a soil insecticide may be needed in 2001 (see the enclosed map "Perceived First-Year Corn Rootworm Risk Areas, 2001")

- Where the average number of larvae in soil samples is approximately 2 or more per plant by hand sorting or 8 or more per plant by washing, a soil insecticide may be needed before lay-by in 2001. Apply a soil insecticide according to cultivation application instructions on the product label.

Southern Indiana (approx. south of Interstate 70):

Presently we are not seeing high numbers of western rootworm beetles in fields other than corn below approximately Interstate 70. Therefore, most 2000 soybean fields going to corn in 2001 will not need to be treated with a soil insecticide for rootworm larval control (see discussion below on other soil insect pests). The exception would be where producers sampled with Pherocon® AM traps and beetle numbers reached or exceeded thresholds given above or where high numbers of western beetles were observed during any time from late July through August 2000.

- The potential for a rootworm problem is minimal or nonexistent if very few beetles were observed in soybean the previous year.
- If a field is being planted to corn following a soybean crop that had a high population of volunteer corn (in excess of approximately 4,000 corn plants per acre), and rootworm beetles were present, treatment may be needed.
- If planting after May 1, applying a reduced rate (75% rate) of a rootworm insecticide may be a cost-saving, yet efficacious, option (see discussion below on other soil insect pests).

Perceived First-Year Corn Rootworm Risk Areas, 2001



- Where the average number of larvae in soil samples is approximately 2 or more per plant by hand sorting or 8 or more per plant by washing, a soil insecticide may be needed before lay-by in 2001. Apply a soil insecticide according to cultivation application instructions on the product label.

The above discussion is based on assessment of risk of damage from corn rootworm. An insecticide may be needed if other soil insect pests are present in economic numbers. Whenever soil insecticides are used, we encourage producers to leave untreated strips in order to evaluate product performance and the economics of using insecticides.

Factors to Consider When Choosing a Corn Rootworm Soil Insecticide

	Organophosphates				Pyrethroid	Phenylpyrazol
	chlorothoxyphos (Fortress 5G) 3.0 oz/1,000 row ft	chlorpyrifos (Lorsban 15G & generics) 8.0 oz/1,000 row ft	tebupirimphos and cyfluthrin (Aztec .1G) 6.7 oz/1,000 row ft	terbufos (Counter CR) 6.0 oz/1,000 row ft	tefluthrin (Force 3G) 4 - 5 oz/1,000 row ft	fipronil (Regent 4 SC) 0.24 fl oz/1,000 row ft
Performance in test plots-band application						
Root damage rating ^{1,2}	2.9cd	2.8bcd	2.3ab	2.1a	2.3ab	n/a
Consistency of performance (%) ³	79	90	94	95	100	n/a
Performance in test plots - infurrow application						
Root damage rating ^{1,2}	2.8bcd	2.6abc	2.2a	2.4ab	2.3ab	3.15d
Consistency of performance (%) ³	85	86	92	93	100	83

¹Average root damage rating (Iowa 1-6 scale) in 6-19 tests over five years, where damage in the untreated plots exceeded 3.5, the damage level above which economic losses are likely to occur. The untreated plots averaged 4.79. Only three years data available for Regent 4SC.

²Values followed by the same letter are not significantly different according to Ryan-Einot-Gabriel-Welsch-Q test (P<0.10).

³Percentage of tests where average damage rating was less than 3.5 when the untreated equaled or exceeded 3.5. Tests from 1994-2000. There were no data in 1996 and 1998.

Weeds

New Corn and Soybean Herbicides for Year 2001 - (Case Medlin and Tom Bauman) -

There will be two new active ingredients on the market for the 2001 growing season. In addition, there will be several new formulations and/or co-packs of existing herbicides. It is anticipated that several new glyphosate (the active ingredient in Roundup products) formulations and/or premixes will be marketed as well. With this in mind, be particularly cautious to avoid misapplications or drifting of glyphosate-containing products to non-Roundup Ready crops. Some of the following herbicides were labeled for the 2000 season. Federal approval of others in this list is anticipated before the start of the growing season.

Aventis

Balance Pro – new liquid formulation of Balance

- Formulation: 4 lb ai/gal
- Eliminated need for preslurry
- <2% of treated acres reported crop response

Define – Co-marketed with Bayer

- Flufenacet: dry flowable formulation (grass material in Axiom)
- For use in corn
- Controls grasses and some small seeded broadleaves

BASF

Outlook – active isomer of Frontier

- Controls grasses and small seeded broadleaves
- EPP, PPI, Pre or Post applied (up to 36" corn)

Ultra Blazer – new formulation of Blazer

- Different adjuvant system to minimize leaf burn
- Will replace Blazer in market

Celebrity Plus – Accent + Distinct

- Replacement for Celebrity (Accent + Banvel)

Extreme and Backdraft – Use NIS instead of COC or MSO

Laddok S-12 – to be marketed by Sipcam Agro USA in 2001

Steel – No longer marketed

Manifest – No longer marketed

Galaxy – No longer marketed

TriScept – No longer marketed

Dow AgroSciences

Hornet WDG – new potassium salt formulation

- Flumetsulam + Clopyralid
- Improved handler safety
- Same active ingredient rate per acre as old formulation

Acetochlor products – acquired from Zeneca

- Surpass 20G, Surpass EC, Surpass 100, TopNotch and Fulltime

DuPont

Canopy XL and Express – Fall application for soybeans

Basis – Fall application for corn

- Apply after harvest but before ground freeze
- Controls tough winter annual weeds like dandelion, henbit, and chickweed

Steadfast - Nicosulfuron + Rimsulfuron

- Postemergence residual control of tough grasses and suppression of many broadleaf weeds
- Apply 3 to 5 weeks after planting to 1 to 3 inch weeds to corn <12 inch corn
- Residual activity enhanced by rainfall 5 to 7 days after application

Canopy – No longer manufactured

Pinnacle – No longer manufactured. Soybean uses will be added to Harmony GT 75% WDG label

FMC

Command Xtra – Command + Authority

- Clomazone + Sulfentrazone
- Marketed as a one-pass PRE program

Gauntlet – Authority + FirstRate

- Sulfentrazone + Cloransulam
- For Preemergence application

Aim – labeled for soybeans

- Carfentrazone
- Contact herbicide

Monsanto

Roundup UltraMax – 5 lb ai/gal formulation of glyphosate

Amplify -

- Active ingredient same as FirstRate from Dow AgroSciences

Degree - For use in corn

- Formulation: 3.8 lb ai/gal acetochlor (Harness)
- The acetochlor is encapsulated in a thermo-activated polymer

Degree Extra – For use in corn

- Formulation: 4.04 lb ai/gal – 1.34 lb ai atrazine and 2.70 lb ai acetochlor (Harness)
- The acetochlor is encapsulated in a thermo-activated polymer

Syngenta

Touchdown – New 4 lb ai/gal formulation

- Reduced yellow flash in Roundup Ready Soybeans
- Foams less than other glyphosate formulations

Boundary – s-metolachlor and metribuzin

- Use preemergence in conventional and Roundup Ready Soybeans
- Can be used in conventional, no-till and reduced tillage systems
- Provides residual control that widens the time between planting and postemergence herbicide application

Expert – s-metolachlor, atrazine and glyphosate

- One pass product for use in no-till and reduced tillage corn
- Can be used on herbicide tolerant corn
- Expected registration 2001

Gramoxone Max 3L –

- Formulation: 3 lb ai/gal
- Will replace Gramoxone Extra 2.5L

Callisto – New broadleaf MOA in corn

- Active ingredient – mesotrione
- Weed ratings (0 to 9 scale)
- Preemergence- Applied with Acetochlor
 - 9 – pigweed, lambsquarters, velvetleaf, and tall waterhemp
 - 8 – common ragweed
 - 7 – morningglory
 - 6 – cocklebur and giant ragweed
- Postemergence
 - 9 – pigweed, lambsquarters, velvetleaf, morningglory, cocklebur and tall waterhemp
 - 8 – giant ragweed
- Expected registration: Postemergence–2001 Preemergence with acetochlor - 2002

Dual II - No longer manufactured

Bicep II – No longer manufactured

Bicep Magnum II TR – No longer manufactured

United Ag. Products

Mirage – 4 lb ai/gal formulation of glyphosate

- Labeled for use in Roundup Ready Soybeans and Corn varieties

Valent

Valor – New preemergence broadleaf MOA in soybeans

- Active ingredient – flumioxazin
- Weed ratings (0 to 9 scale)
 - 9 – pigweed, lambsquarters, velvetleaf, black nightshade and tall waterhemp
 - 8 – jimsonweed and common ragweed
 - 7 – morningglory
 - 6 – cocklebur
 - 4 – giant ragweed



Agronomy Tips

Soybean Seed Quality for 2001 Planting – (Ellsworth P. Christmas) -

- Soybean seed quality in Indiana is good
- Calibrate planters and drills based on seed tag information and desired population

Soybean seed quality in the eastern corn-belt, though not perfect, is considerably better than that available for the 2000 growing season. The germination of soybean seed this year, prior to cleaning, is in the range of 85 to 87%. Some seed lots have suffered from mechanical damage, but the extent of the problem is much lower than last year. Because of wet conditions in some areas prior to harvest, pod and stem blight is present in some seed lots. In most cases, these seed lots can be identified but if needed, the seed can be treated with a fungicide to prevent rotting of the seed prior to germination.

Much of the soybean seed produced in Iowa and Nebraska in 2000 is of poor quality as a result of the late summer dry weather conditions in the area. Because of the poor seed quality in the western corn-belt, supplies of the more popular varieties will be very tight since seed from the eastern corn-belt will be needed to fill this shortfall.

Size of the soybean seed for the 2001 growing season will be near normal with a few seed lots with smaller seed than normal. Always check the seed tag for the percent germination and the number of seeds per pound before calibrating drills and planters. Proper calibration of planting equipment to prevent over planting is an area where farmers can save some money. Purdue recommends seeding rates of 200,000, 165,000 and 130,000 seeds per acre for 7.5, 15 and 30 inch rows respectively. This recommendation is based on seed with a germination of at least 90% and that 90% of those seeds will emerge and become established as normal plants.

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Optimizing Nitrogen Fertilizer Decisions – (Bob Nielsen) –

Nitrogen fertilizer will likely remain high-priced and in questionable supply for the upcoming 2001 corn cropping year in Indiana and other parts of the U.S. Midwest. While some farmers may opt for switching a portion of their intended corn acreage to soybean in response to the nitrogen issue, most will likely 'ride it out' as best they can.

As with most cropping decisions, there is no single best answer for how to manage these uncertainties of N price and supply. The suggestions offered in this article

will help farmers fine-tune their N application rate calculations and maximize the crop's N use efficiency.

Nitrogen Rate Recommendations

Nitrogen fertilizer rate recommendations are influenced by your yield goal for the corn crop, the timing of fertilizer applications, and any possible N contributions from previous crops or waste applications to the field. The bottom line is that there are opportunities for reducing total N costs by ensuring that the following factors are taken into consideration when making your N rate determinations.

Yield Goal. Nitrogen fertilizer rate recommendations are typically based strongly on the yield goal determined for the field in question. It is imperative that the yield goal be realistic and not 'pie-in-the-sky.' Given that any year's crop yield will be determined primarily by the weather, it is not unreasonable to use the average three-to five-year yield for a field as the yield goal for 2001. For the typical corn/soy crop rotation, this obviously requires field crop records for the past six to ten years.

Timing of N Applications. Pre-plant applications of N fertilizer are typically less efficient than sidedress N applications, meaning that there are more opportunities for N loss to occur during the time from pre-plant to crop uptake as compared to the time from sidedress to crop uptake. Consequently, sidedress N fertilizer rates can be decreased in recognition of its greater N use efficiency.

Credits For Existing Nitrogen. Previously grown legume crops (soybean) or applications of organic wastes (manures, biosolids) may contribute nitrogen to the following corn crop. Such contributions are typically taken into account when making N fertilizer rate recommendations.

Putting these factors into practice results in the following nitrogen fertilizer rate recommendations suitable for most corn cropping conditions in Indiana. Remember that nitrogen rate recommendations represent the total of all N fertilizer applications, including that included in any starter fertilizer that is applied.

1. For corn following soybean, the rate of pre-plant applied N fertilizer (lbs. of actual nitrogen) is simply equal to the realistic yield goal (number of bushels per acre). For example, a realistic yield goal of 150 bu/ac would require 150 total lbs. of actual nitrogen.

2. For corn following corn, the rate of pre-plant applied N fertilizer (lbs. of actual nitrogen) is equal to the realistic yield goal (number of bushels per acre) multiplied by 1.2. For example, a realistic yield goal of 150 bu/ac would require 180 total lbs. of actual nitrogen (150 multiplied by 1.2).

3. The rate of sidedress applied N fertilizer (lbs. of actual nitrogen) can be reduced by 10% if more than half of the nitrogen fertilizer will be applied in the sidedress application. For a corn/soybean example, a realistic yield goal of 150 bu/ac would require 135 total lbs. of actual nitrogen (150 minus 10%).

Pre-Sidedress Nitrate Test (PSNT). The PSNT is a soil test procedure that is valid for organic soils (20% OM or greater) or where organic wastes have been applied to the field (manures, biosolids). The results of this test can be used to modify sidedress N rate recommendations based on the predicted availability of mineralized nitrogen from the organic components of the soil. In some situations, the PSNT may indicate no need for additional sidedress N applications.

Nitrogen Use Efficiency

Sound Agronomic Practices. Recognize that a healthy, vigorously growing corn crop is much more efficient in utilizing all crop inputs than a crop that is under some form of stress. So, if you are looking to improve the crop's nitrogen use efficiency, then manage all aspects of the crop to the best of your ability to minimize stress to the crop throughout the season.

Know Your Nitrogen Sources. Part of the challenge facing corn growers in 2001 will be that their nitrogen source of choice may simply not be available and so will be forced into using a nitrogen source with which they are not familiar. Recognize that the corn crop could care less which fertilizer source of nitrogen is used. The agronomic differences among N fertilizer sources lie mainly in their relative risk for nitrogen losses due to leaching, denitrification and volatilization.

Nitrate-containing fertilizers (UAN liquids, ammonium nitrate) are susceptible to leaching and denitrification nitrate losses from the day they are applied to the field. Urea-based fertilizers (urea, UAN liquids) convert relatively quickly to nitrate forms of nitrogen and are subsequently susceptible to the same N loss mechanisms. Consequently, these forms of fertilizer N are not well suited to early pre-plant applications, but rather to later pre-plant or sidedress applications.

Urea-based fertilizers are also vulnerable to volatilization losses when surface-applied and not incorporated into the soil, especially so in high-residue tillage systems. Part of the conversion of urea to nitrate involves the formation of ammonia, which is very volatile. When this conversion occurs on the surface, quite a bit of the nitrogen may 'disappear into thin air' and not be available to the developing crop. Such surface-applied N is also used by microbes for the decomposition of plant residue and may not become available to the crop until later in the season. For these two reasons, urea-based fertilizers should be injected below the surface trash or at least applied in concentrated bands over the surface as

opposed to broadcast surface applications in high-residue tillage systems.

Anhydrous ammonia eventually converts to nitrate also, but the process is much lengthier than other forms of N. Consequently, anhydrous ammonia is typically better suited for early pre-plant applications than other forms of N.

For more details about nitrogen fertilizer decision-making for 2001, obtain a copy of the following Purdue publication from your local county Extension educator or from the Web address listed.

Sylvie Brouder, Brad Joern, Tony Vyn, and Bob Nielsen. Feb. 2001. *Nitrogen Decision\$ 2001: The Soil Fertility Perspective*. Purdue University, Agronomy Dept. **AGRY-01-01**. <<http://www.agry.purdue.edu/ext/pubs/agry0101.pdf>>

You can also read what our colleagues in adjacent states are saying about this year's nitrogen issues by browsing the following Web articles:

(Missouri) Nitrogen prices - how do they affect optimum N management? <<http://ipm.missouri.edu/ipcm/archives/v11n2/ipmltr1.htm>>

(Kentucky) High Prices and Nitrogen on Wheat <<http://www.ca.uky.edu/ukrec/Feb01.htm>>

(Illinois) Getting The Most From Your 2001 Nitrogen Dollars <<http://www.crops.uiuc.edu/research/pubs/n-rate-2001.html>>

(Michigan) Estimating the most cost effective nitrogen rate for corn <http://www.msue.msu.edu/ipm/CAT00_field/FC02-02-01.htm#2>

Don't forget, this and other timely information about corn can be viewed at the Chat 'n Chew Café on the World Wide Web at <<http://www.kingcorn.org/cafe>>. For other information about corn, take a look at the Corn Growers' Guidebook on the World Wide Web at <<http://www.kingcorn.org/>>

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Status of Indiana Wheat Crop – (Charles Mansfield and Ellsworth P. Christmas) -

- Condition of wheat crop
- Top-dress wheat with nitrogen as soon as soil conditions permit

In general, the 2000-01 Indiana wheat crop went into dormancy in good condition. The November and December temperatures were lower than normal, which resulted in very few fields with excessive top growth. In mid December, snow fall of 1 inch or more was recorded across the entire state and remained for about one month. This snow cover was sufficient to protect the wheat crop from the sub zero temperatures that occurred during the last two weeks of December. Since the snow

has melted, temperatures have dipped to single digits on only two or three occasions. In the Lafayette area, the wheat crop looks good but temperatures have not yet been warm enough for wheat to break dormancy and begin to grow. In the southern one-third of Indiana, temperatures have warmed to the point where some fields have broken dormancy and are beginning to grow very slowly.

If you are curious whether your wheat has broken dormancy, there are two ways of making this determination when examining wheat plants. First, carefully wash the roots of a wheat plant and look for new root growth from the crown area of the plant. These roots should be snow white and may be very short (1/4 to 1/2 inch) if the plant has just broken dormancy. Secondly, look closely at the top two leaves of the plant. You should be able to see a line across the leaf at the point where the leaf was covered by the leaf sheath. The area below the line is the new growth and can be characterized by a brighter or shiny appearance when compared with the area above the line.

To date, it is our opinion that the Indiana wheat crop has not suffered any injury. However, each time wheat

breaks dormancy and grows for a short period of time before re-entering dormancy, root reserves are lowered and therefore the vigor of the plant declines making it vulnerable to winter decline and perhaps death as a result of *Rhizoctonia*. The intermittent freezing and thawing that has occurred the past week can result in severe heaving of the plants on wet, poorly drained or heavy soils.

As the wheat begins to break dormancy, it is time to top-dress with nitrogen as soon as soil conditions permit. Assuming that 20 pounds of nitrogen were applied at seeding time, the rate of top-dress nitrogen is directly related to yield potential. With a yield potential of 50 bushels per acre, we recommend 40 lbs. of N as a top-dress, at 70 bu/ac we recommend 60 lbs. of N and at 90 bu/ac, 90 lbs. of N. On soils with a cation exchange capacity less than 10, the N rate may need to be increased by 10-15 lbs./ac. When top dressing, we recommend the use of dry materials or the use of streamer bars when using liquid materials. Every effort should be made to keep as much of the nitrogen fertilizer off the wheat leaves as possible. Nitrogen fertilizer applied to a plant with lowered vigor and dead leaf tissue could cause a significant *Rhizoctonia* problem.

Bits & Pieces

Crop Conference Offers timely Tips, Future Forecast – (Steve Leer, *Ag Answers*) - Farmers can get expert crop management advice for the 2001 season and peer over the horizon to what may lie ahead for agriculture, at a Purdue University conference.

"Farming Today for Food Tomorrow" offers daylong seminars on corn and soybean management, site-specific farming and forages. The conference runs on Thursday, March 1, from 9:30 a.m. to 5 p.m. at the Old Lakeville School Project, located six miles south of South Bend, Ind., on U.S. 31.

General sessions on genetically modified foods and forages for horses follow the crop seminars, from 7-9 p.m. Producers should benefit from a wealth of crop seminar information, says Tony Vyn, a Purdue cropping systems agronomist and conference coordinator.

Seminars will cover such topics as CystX, the soybean variety resistant to soybean cyst nematode; corn rootworm management; strip-till options; site-specific equipment and yield monitors; site-specific weed management; hay management; producing and marketing hay; pasture management; and getting water to livestock.

"Also, we'll have a session on marketing concerns with GMO crops," Vyn says. "And Jess Lowenberg-DeBoer, director of Purdue's Site-Specific Management Center, will look at the economics of site-specific farm-

ing. That session will answer the question, 'Should we, in these times of low commodity prices, even consider investing in precision agriculture tools?'"

Another conference highlight is a session on planting second-year soybeans and the risk of diseases and lower yields, presented by Greg Shaner, Purdue Extension plant pathologist.

The focus will shift from the present to the future during a luncheon address by Joseph Pearson, Indiana's assistant commissioner of agriculture. Pearson will discuss what the next 30 years may have in store for Hoosier farmers, and what role biotechnology could play.

Those attending the crop sessions can earn Certified Crop Adviser continuing education units and Commercial Pesticide Applicator continuing certification hours.

Registration for "Farming Today for Food Tomorrow" is \$20 at the door and includes proceedings and lunch. Registration begins at 9 a.m. A 4:15 p.m. session on spray drift management costs an additional \$10 for those applying for the Private Applicator Recertification Program. The evening sessions on GMOs and forages for horses are free.

For more information and a conference brochure, contact Vyn at (765) 496-3757 or Phil Sutton at (219) 235-9604.

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Bug Scout



"Bug Scout, you should wait until warmer weather to start scouting!"

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