

# VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the  
Purdue University Cooperative Extension Service

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**ANNOUNCEMENT:** We want all of Indiana agriculture to celebrate the creation of the new Indiana State Department of Agriculture and join us on our statewide tour unveiling Possibilities Unbound: The Plan for 2025, Indiana Agriculture's Strategic Plan. All of these events are open to the public.

### ISDA Celebration and Kick-off Hog Roast

Morehouse Farm, Brookston, White County May 17 from 12 noon - 2 p.m. Join Lt. Governor Becky Skillman and Indiana Agriculture Director Andy Miller at this celebration of the new Department and kick-off our statewide tour.

### Interactive Video Presentation

Possibilities Unbound: The Plan for 2025, Indiana Agriculture's Strategic Plan. May 17 from 7 p.m.- 8:30 p.m. Call 888-EXT-INFO (398-4636) toll free for the nearest available Purdue Extension viewing site or for information on how to watch the event on the Internet.

### The Tour

The public is welcome at any of these tour locations to hear an informal presentation about Possibilities Unbound: The Plan for 2025, Indiana Agriculture's Strategic Plan. Lt. Governor Skillman will join Indiana Agriculture Director Andy Miller and ISDA staff at several of these events. Visit [www.in.gov/isda](http://www.in.gov/isda) for details and directions to each location.

**Jasper Desk** - Jasper, Dubois County - May 18 at 10:30 a.m.

**Huber's Orchard and Winery** - Starlight, Clark County - May 18 at 4:30 p.m. (local time)

**Fogg Hog Farm** - Rushville, Rush County - May 19 at 10:15 a.m.

**Bunge North America** - Morristown, Shelby County - May 19 at 2:15 p.m.

**Red Gold hosting at Elwood Park** - Elwood, Madison County - May 19 at 6:30 p.m.

**Crystal Valley Dairy Farms** - Middlebury, Elkhart County - May 20 at 11 a.m.

**Maple Leaf Farm hosting at Tom Farms** - Milford, Kosciusko County - May 20 at 2:30 p.m.

**Schrifer Farm** - Montpelier, Blackford County - May 20 at 7:15 p.m.



### SECTION 18 FOR REFLEX IN SNAP BEANS - (Steve Weller)

- The Office of the Indiana State Chemist just received notification from the US EPA that a Section 18 Emergency Exemption for Reflex Herbicide (fomesafen) for postemergent control of various weeds in Snapbeans was approved. This exemption allows the use of Reflex in snapbeans until September 1, 2005.

#### Directions for use on target weeds:

- Pigweed, apply Reflex at the 2-4 leaf stage at 0.5-1 pint of Reflex/acre. A single application below 1 pint/acre may only provide suppression.
- Common ragweed, apply Reflex at the 2-4 leaf stage at 0.5-1 pint/acre. A single application at rates below 0.75 pint/acre may only provide suppression of ragweed.
- Morning glory, apply Reflex at the 2 leaf stage at 1 pint/acre.

All these applications can be made by ground equipment or air. There is a maximum application allowed of 1 pint Reflex per acre per year.

The snap beans should be at the 1 to 3 trifoliolate stage of growth at the time of Reflex application and the last Reflex application can not be closer than 30 days prior to harvest.

**Spray additives:** Add nonionic surfactant containing at least 75% surface active agent at 0.25 to 0.5% (1/2 to 1 pint per 25 gallons) of finished spray, or a nonphytotoxic petroleum based crop oil concentrate containing

15% approved emulsifier at 0.5 to 1% (1-2 pints per 25 gallons) of the finished spray. Use of Crop oil concentrate can improve weed control but may slightly reduce crop tolerance to Reflex.

Thorough spray coverage is essential for best control. Reflex requires a 1-hour rain free period for best results.

**Restrictions:** Do not exceed 1 pint of Reflex per acre per year on snapbeans. Refer to the EPA-registered product label for rotational crop restrictions. In Indiana, Reflex (fomasafen) may not be applied to the same acreage more than once every 2 years. Application must be made prior to snapbean bloom. Do not apply within 30 days of harvest.

This product is toxic to birds and mammals. Do not apply directly to water, or to areas where surface water is present. Do not apply to sites where run-off is likely to occur to aquatic habitats. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash-water or rinsate.

Do not make applications when weather conditions favor drift from treated areas. In areas where soils are permeable and the water table is shallow Reflex (fomesafen) may leach to ground water. Livestock may not be grazed in treated areas.

Applicators must be in possession of a Reflex product label at the time of application and all applicable directions, restrictions and precautions on the EPA-registered product label (EPA Reg. No. 10182-83 - Zeneca Product or EPA Reg. No. 100-993 - Syngenta Product are to be followed). Any adverse effects resulting from the use of Reflex under this emergency exemption must be immediately reported to the Office of Indiana State Chemist.



**APHIDS ON TOMATOES - (Frankie Lam)** - Winged green peach aphids were observed on tomato plants in southern Indiana in early May. Although a relatively low number of winged aphids were found in that particular field and no wingless aphids were observed on the plants, it indicated that aphids are on their way from overwintering host sites and are migrating to our crops. Based on the literature, there are at least 12 species of aphids that attack tomato; however, the common species in Indiana are green peach aphid (Fig. 1) and potato aphid (Fig. 2).



**Fig. 1.** Winged green peach aphid. (Photo by Frankie Lam)



**Fig. 2.** Wingless potato aphids. Note the cornicles, the two tailpipe-like structures, at the end of the abdomen. (Photo by Frankie Lam)

In the Midwest, most aphid species lay eggs and overwinter on woody plants. For example, the overwintering hosts of green peach aphid are peach, plum, and cherry; whereas potato aphids overwinter on cultivated and wild roses. In spring the eggs of aphids hatch into wingless females, which give birth to living young for 2-3 generations then give birth to winged forms and migrate to the summer host. On the summer host they produce many generations of wingless forms (Fig. 2). In fall the winged aphids (Fig. 1) fly to the winter hosts and produce males and females, which mate and deposit overwintering eggs.

Aphids are soft-bodied, pear-shaped insects from 1/16 to 1/8 inch long, depending on species. Almost all aphids have a pair of siphon-like or tailpipe-like structures, known as cornicles, located at the end of the dorsal abdomen (Fig. 2). Both nymphs and adults have piercing-sucking mouthparts, which suck the plant sap from the underside of the leaves, weakening the plants and reducing the quantity and quality of the fruit. Plants with heavy infestation have mottled appearance or necrotic spots on leaves and new growth may become stunted and curled. The "honeydew" secreted from the anus of the aphid may cause the growth of a sooty, black mold on the plants. The honeydew and the growth of the mold may cause cosmetic injury to the fruits.

Studies have indicated that silver or aluminum reflective mulches significantly reduce rate of colonization by winged aphids and delay the buildup of the damaging population by a few weeks on early tomato. However, the mulches lose their effectiveness when more than 60% of the surface is covered by foliage. Infestation of aphids on early tomatoes may delay maturity, but usually does not result in yield loss unless other factors, such as water-stress, are also present that enhance the injury. In addition, aphids can transmit viral pathogens by feeding on the plant once; controlling aphids with insecticides is not effective for the control of viral diseases.

If aphids were found on early tomato, natural enemies including predators and parasitized aphids (Fig. 3) should also be scouted. This is because many natural

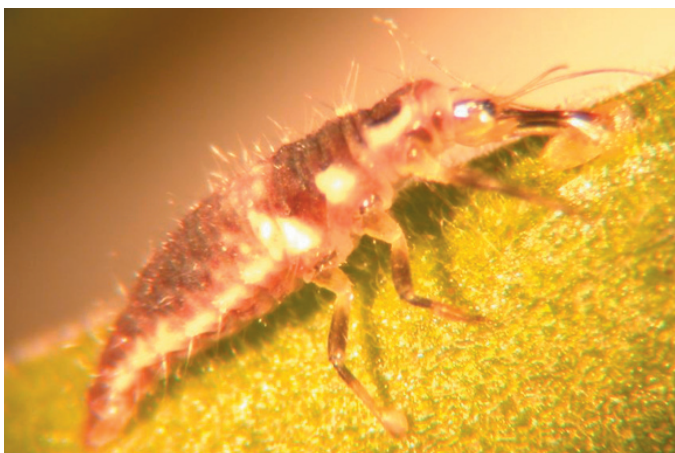


**Fig. 3.** A mummy aphid from which a parasitic wasp has emerged by cutting a lid at the back of the abdomen. (Photo by Frankie Lam)

enemies will help control aphid populations and should be considered prior to treatment. The common natural enemies of aphids are lady beetle larva and adults (Fig. 4), lacewings (Fig. 5), and parasitic wasps. There is no economic threshold of aphids on tomatoes; however, for commercial tomato it is usually recommended to spray,



**Fig. 4.** Lady beetle (adult) feeding on potato aphids, the inset right is the lady beetle larva. (Photo by Frankie Lam)



**Fig. 5.** Larva of lacewing feeding on aphid. (Photo by Frankie Lam)

if an average of more than one aphid is observed on 25% or more of scouted fully expanded tomato leaves. Baythroid, Capture, Danitol, Diazinon, Dimethoate, Endosulfan, Fulfill, Fury, Lannate, M-Pede, Mustang, Provado, Thiodan, and Vydate, are labeled for aphid control on tomatoes. Please read the label carefully before applying any insecticide.



**SWEET CORN HERBICIDE NEWS - (Liz Maynard)** - Callisto herbicide has received a label for use pre and postemergence on sweet corn. This product from Syngenta has been available for field corn since 2001. It is effective mainly on broadleaf weeds. Preemergence rates are 6 to 7.7 fl. oz./acre if used alone or with a grass herbicide, and 5 to 6 fl. oz./acre if mixed with atrazine. If emerged weeds are present at the time of preemergence application, adding an MSO adjuvant and either UAN or AMS will help to control them. The postemergence rate is 3 fl. oz./acre. For sweet corn, NIS adjuvants are recommended for postemergence applications. COC may be used instead of NIS, and will enhance weed control, but will also increase risk of crop injury. Neither UAN nor AMS should be used in postemergence applications because the likelihood of injuring the corn is too great. Atrazine (1/4 to 1/2 lb. a.i./acre) may be mixed with Callisto postemergence to improve weed control. Post applications should be applied while weeds are still small – less than 5" tall. Callisto by itself can be applied up to the 8-leaf stage of corn, but if combined with atrazine, application should be made before corn is 12" tall. Post emergence applications should control a wider spectrum of weeds than preemergence applications.

There is some potential for sweet corn injury, particularly from post applications. Injured corn looks bleached. To date, field trials by a number of researchers have shown that when Callisto is applied as directed on the label, many varieties exhibit no injury or only transitory symptoms that do not result in yield loss. Some varieties are more severely injured, however. Dr. Pataky at the University of Illinois has evaluated hundreds of varieties for tolerance to Callisto over the past few years. His results are reported in the Midwest Vegetable Variety Trial Report for 2004, available on-line at <[www.hort.purdue.edu/fruitveg/reports.shtml](http://www.hort.purdue.edu/fruitveg/reports.shtml)> or in hard copy from the Purdue Media Distribution Center, 1-888-EXT-INFO, <[secure.agriculture.purdue.edu/store/](http://secure.agriculture.purdue.edu/store/)>. Injury to any variety may be severe if Callisto is used on corn treated with Counter or Lorsban, or if organophosphate or carbamate insecticides are applied within 7 days of the herbicide.

A limited number of crops may be planted in a field the following year if Callisto is used. Small grains can be planted after 120 days and most field crops and potatoes can be planted after 10 months, but for vegetables the recommended interval is 18 months.

The active ingredient in Callisto is mesotrione. The chemical is a modified, synthetic version of a phytotoxin that is naturally produced by the California bottlebrush

plant. Mesotrione kills plants by interfering with the enzyme HPPD, which affects carotenoid synthesis. Balance (isoxaflutole) has a similar mode of action. Corn is not killed primarily because it can break down mesotrione relatively quickly. Mesotrione is not acutely toxic to mammals and birds, and does not easily leach.



**FREE RECORD KEEPING PROGRAM** - (*Dan Egel*) - Muskmelon and watermelon growers using the MELCAST disease-forecasting program have a new Microsoft Excel worksheet to keep track of fungicide applications and calculate when the next application is due.

This free download, created by Webmaster Bob Mitchell, can be found at <<http://btny.agriculture.purdue.edu/melcast/>> along with a description of the MELCAST program. Briefly, the MELCAST program allows muskmelon and watermelon growers to optimize their fungicide applications to the weather conditions. In most years, the MELCAST program will save growers 2 to 3 fungicide applications per year. More information about MELCAST can be found at the website above.

Here are a few hints on the MELCAST record book. Upon opening the program, the option "Enable Macros" must be chosen. Windows users may get a message indicating that macros have been disabled. If so, set the security level to medium by using the instructions on the download page. The macros must be working in order for the program to function.

The program will open to the "Help" page. Click on the "Create a New Fields Worksheet" button and follow the instructions to open a new worksheet for each field. Multiple fields can be accommodated, but it is necessary to return to the "help" sheet each time and click on the "Create a New Fields Worksheet" button.

The name given to a particular field will appear on the top of the sheet when printed out. For this reason, it might be a good idea to use the year in the name. For example, "North Field 05".

Avoid entering a zero into the Environmental Favorability Index (EFI) values column. Growers who have been watching the EFI values know that some of the Indiana sites have not accumulated any EFI values yet. In this case, enter a one instead of a zero.

Instructions on the "Help" sheet should get one started. There is also an example worksheet. If there are any other comments or questions, address them to the author at (812) 886-0198 or [egel@purdue.edu](mailto:egel@purdue.edu).



**NATIONAL-VALUED ADDED AG CONFERENCE** - (*Announcement*) - The 7<sup>th</sup> annual National-Value Added Ag. Conference will be held on June 16-17, 2005 at the Adams Mark Hotel in Indianapolis, IN. It is the only National event for practitioners of value added agriculture that draws participants and speakers from around the U.S., focuses exclusively on the needs and interests of practitioners, and offers nationwide networking and relationship building opportunities.

Registration by June 1<sup>st</sup> is \$125 per person and \$150 after June 1<sup>st</sup>. Registration includes 2 Continental Breakfasts, 1 Lunch, 1 Dinner, 3 Breaks, 1 Networking Social Hour, travel to White River Gardens for Dinner and all program materials. To reserve your spot go to online registration at: <[www.agecon.purdue.edu/AICC/valueaddedconf/](http://www.agecon.purdue.edu/AICC/valueaddedconf/)>. Contact Jane E. Anderson for more information at: (765) 496-3099 or by E-Mail: [jane1@purdue.edu](mailto:jane1@purdue.edu). If you need a reasonable accommodation to participate in this program, prior to the event, contact the person at the phone number listed above or (888) EXT-INFO.

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