

# VEGETABLE CROPS HOTLINE

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

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### THE FINAL FUNGICIDE APPLICATION ON PUMPKINS

- (Dan Egel) - There are many aspects to disease management in pumpkins. The big factors are crop rotation, fall tillage and variety selection. However, most growers find it necessary to apply fungicides over the course of a season to keep the foliage healthy. Good yields and high fruit quality are linked to healthy foliage.

How important is it to protect foliage now that we are into September? There are many factors to consider.

Once a disease-causing organism (pathogen) comes into contact with susceptible foliage under the proper conditions, there is a period of time, an incubation period, before significant disease symptoms are observed. This period is often 7 to 14 days on pumpkins this time of year. So it does not make sense to apply fungicides to foliage 7 to 14 days before harvest. Plus, foliage is necessary only to support fruit growth. If a crop is made or close to it, fungicide application is not economical.

Ask yourself if it necessary to keep the foliage healthy for 2 to 3 more weeks to make a crop. Remember that good pumpkin yields are often obtained from fields where the foliage has died down. Sometimes having less foliage facilitates harvest.

Those growers who have U-pick operations over a period of days or weeks should be especially aware of the re-entry intervals of the pesticides they apply.

What about fungicide applications to protect fruit from those diseases that directly affect fruit? Let's list the common diseases that fall under this category in Indiana: bacterial fruit spot, Plectosporium blight (Microdochium blight), Phytophthora blight and black rot. All season protection is the best way to manage all of these

diseases. If the incidence of these diseases has been light up to this point, it is unlikely that there will be a late season surge in any of these diseases. If any of these disease has been a major problem all year long, one or two more applications of a fungicide is probably not going to help much.

Downy and powdery mildew do not affect fruit directly. Powdery mildew may affect the "handles" or stems of pumpkin fruit, but only in severe cases. To prevent powdery mildew from affecting handles, concentrate on early and mid-season management practices.

Below are some questions pumpkins producers might want to ask themselves to determine when to apply the final fungicide.

- 1) When will the final pumpkins be harvested? The longer the grower expects the vines to support pumpkin growth, the more likely some kind of fungicide application will be needed. In most cases, it does not make sense to apply fungicides to fields that consist of fruit with very little foliage.
- 2) What is the smallest pumpkin fruit that can reasonably be expected to mature in time to be sold? How many pumpkin fruit of this size are present in a given field? Part of the answer to this question is a time from pollination to maturity question (See page 11 in the *Midwest Vegetable Production Guide for Commercial Growers 2004*) <[www.entm.purdue.edu/entomology/ext/targets/ID/index.htm](http://www.entm.purdue.edu/entomology/ext/targets/ID/index.htm)>. Another factor in this question is the amount of healthy foliage that remains to support fruit maturity. Remember, the best fungicide is designed to protect healthy foliage and will not bring back already diseased foliage. And limited re-growth can be expected to occur this time of year.
- 3) If one believes a fungicide application is warranted, how much will such an application cost? Will this cost likely be offset by the amount of fruit likely to be harvested (see #2)?

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**PLANT DISEASE MANAGEMENT** - (Dan Egel) - Although most vegetable production is winding down for the season, now is the time to plan for next year. Note that an article that summarizes information by vegetable crop and disease appears each year in the *Midwest Vegetable Production Guide for Commercial Growers*. The table for 2004 appears on pages 36 and 37.

**Fall tillage** - After harvest is over, the crop should be tilled to reduce the amount of plant material remaining above ground. Any plant pathogens that exist on the foliage will be less likely to spread to any remaining adjacent crops if the field has been properly tilled. When plant material is plowed under, the leaves, stems and fruit begin the decay process sooner resulting in a lower survival of associated plant pathogens. Spring tillage does not allow for much time for old stems, leaves and fruit to rot and disintegrate. This applies to such pathogens such as *Didymella bryoniae*, which causes gummy stem blight of watermelon or *Alternaria solani*, which causes early blight of tomato. Plant pathogens may exist in piles of culled fruit over the winter, and affect production next year. Bury or plow under such culled fruit before it becomes a problem.

**Rotation** - This time of year, growers may begin to think about where crops will be grown next year. Many disease problems can be avoided if proper crop rotation is practiced. Since some plant pathogens survive in the soil, planting the same crop year after year may build up populations of plant pathogens and lead to disease problems. For most plant pathogens, the longer the time in the soil without a suitable host plant, the fewer fungal spores or bacteria, which will survive. In general, a 3 to 4 year rotation is recommended. Since plant pathogens often infect related plants, be sure to rotate to plants in different plant families. If watermelon is planted one year, avoid planting cantaloupe, pumpkins, cucumbers, gourds or zucchinis for 3 to 4 years. If tomatoes are planted, avoid peppers, eggplant, or potato. If possible, plant a cereal plant (e.g., corn, wheat) after planting a broadleaf vegetable. The herbicides associated with cereal production are usually specific for broadleaves. This practice keeps volunteer plants, which may harbor disease from previous years, to a minimum.

**Resistant varieties** - When you buy seed for next year, consider whether or not the variety is resistant to important diseases. For example, some cantaloupe varieties are resistant to powdery mildew. Growers might want to sow late plantings to resistant varieties since that is when powdery mildew is usually worse. There are no completely resistant varieties to diseases such as *Alternaria* leaf blight of cantaloupe.

Keep these ideas in mind while finishing up this year's production and planning next year's. A few preventive practices may save a lot of trouble (and pesticides) in future seasons.

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**WE NEED YOUR HELP** - (*Your Vegetable Team*) - Many of you know that Purdue University specialists and faculty support their research by writing grants. Without these grants it would be impossible to do the research that we do. This is the time of year that we begin working on these critical grant proposals. Granting agencies often require letters of support from vegetable producers when deciding how to distribute limited grant funds.

Below you will find a brief summary of some of the grants that we intend to submit this year so that you can see what we have proposed. Please feel free to contact any of the authors and share with them your ideas and comments. We would also like to hear suggestions for other research that you think should be happening.

**1) MELCAST: A MUSKMELON IPM PROGRAM FOR THE 21<sup>ST</sup> CENTURY** - (*Dan Egel and Rick Latin*) - This proposal, made to North Central IPM competitive grants program, would update the MELCAST weather-based disease-forecasting program to include information on some of the newer fungicides. It would include research to be conducted at the Southwest Purdue Agricultural Center in Vincennes. Interested persons should direct letters or comments to Dan Egel at Southwest Purdue Agricultural Program, 4369 North Purdue Road Vincennes, IN 47591 or call (812) 886-0198.

**2) THE MANAGEMENT OF MATURE WATERMELON VINE DECLINE THROUGH SUSTAINABLE MANAGEMENT PRACTICES** - (*Dan Egel, Chris Gunter and Frankie Lam*) - The granting agency for this proposal is the North Central region of SARE (Sustainable Agriculture Research and Education). The proposal would seek to gather information on mature watermelon vine decline, a disease which can devastate watermelons. Interested persons should direct letters or comments to Dan Egel at Southwest Purdue Agricultural Program, 4369 North Purdue Road Vincennes, IN 47591 or call (812) 886-0198.

**3) SUSTAINABLE MANAGEMENT OF ROOT KNOT NEMATODES IN CUCURBITS IN THE UPPER MIDWEST** - (*Andreas Westphal, Steve Goodwin and Dan Egel*) - This grant proposal will be submitted to the North Central IPM competitive grants program. Managing the southern root knot nematode is essential to maintaining sustainability of watermelon and muskmelon production. Currently, soil fumigants containing chloropicrin, methyl bromide, and 1,3-D are used solely or in various mixtures to reduce root knot nematode damage. Alternatively, the non-fumigant oxamyl may reduce nematode infection. No information is available concerning when a nematicide application is appropriate in the cucurbit crops. The aim of this grower-initiated project is to develop an advisory system for *Meloidogyne* spp. for cucurbits. In spring, soil temperatures increase just before melon planting and determining nematode population densities by direct extraction of free-mobile stages might be of limited value, because extraction efficiency is typically low under such conditions. Considering the short window for nematode management decision-making, a refined bioassay with host crops susceptible to *Meloidogyne* spp. will be compared with molecular tools, and extraction of root knot nematode juveniles from soil. Interested persons should inquire or comment to Andreas Westphal at the Department of Botany and Plant Pathology, Purdue University, 915 W. State Street, West Lafayette, IN 47907-2054.

**4) AN IMPROVED INTEGRATED PEST MANAGEMENT PROGRAM FOR MUSKMELON IN INDIANA** - (*Frankie Lam, Dan Egel, Chris Gunter, Elizabeth Maynard, and Jennifer Dennis*) - A proposal to the Regional Integrated Pest Management Competitive Grants Program - North Central Region will be submitted for a study. In this study, the compatibility of recommended IPM strategies for the management of soil, insects, diseases, and weeds on muskmelon will be compared with the conventional practices at Purdue research centers and on farms from 2006 through 2008. The population of insects, level of weed pressure, and incidence of diseases will be estimated through the growing season, and yield will be recorded at harvest. The cost of management, pest pressure, the number of pesticide applications, disease incidence, yield, and value of the crop will be compared between the recommended IPM programs and the conventional practices will be compared. Any muskmelon growers that feel interested in this study please send letter of support to Frankie Lam at Southwest Purdue Agricultural Program, 4369 North Purdue Road Vincennes, IN 47591 or call (812) 886-0198.

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**HARVEST AND POSTHARVEST CARE FOR PUMPKIN FRUIT QUALITY** - (*Liz Maynard*) - Pumpkin vines in most areas of the state are, or soon will be, dying down. A common question is whether it is better to leave pumpkins in the field, or harvest and store them elsewhere until sale. The pumpkins will likely have the best quality if they are harvested and moved to a place with less disease, fewer insect pests, better air circulation, and some protection from frost. The scale of the operation, marketing method, and expected length of storage often dictates what is reasonable to do. Farms of smaller acreage with sales direct to consumers might hold pumpkins on wagons or pallets. This allows air circulation beneath the pumpkins for ventilation. If frost threatens the pumpkins can be covered for some protection. Sometimes pumpkins are lined up directly on the ground instead of on pallets, etc. While this does not allow for air circulation beneath the pumpkins, it still has some advantages over leaving them in the field. In many cases, storage away from the field is either not practical or possible. For storage in the field, pumpkins can be cut, any soil brushed off, and then set upright in rows.

Taking care during harvest is also important for maintaining pumpkin quality. Cut pumpkin stems so they will be long enough for an attractive product. Take care not to break off the stem. Don't harvest pumpkins with soft spots, decayed areas, or deep unhealed wounds. Take care not to damage the skin by nicking or scraping - those small wounds can open up entry for decay organisms. It is better not to stack pumpkins in tall piles unless necessary for shipping. If they are stacked, take care that stems are arranged so they do not damage skin on other pumpkins. Sometimes pumpkins are cured in the field after cutting and before further han-

dling, to allow wounds to heal and the rind to harden. If pumpkins are stored where the temperature can be controlled, remember that pumpkins are subject to chilling injury below 50°F. The longer the time period and the lower the temperature, the greater the injury. Chilled pumpkins will be more susceptible to postharvest decay. Ideal storage conditions for pumpkins are 55 to 59°F and relative humidity of 50% to 70%. Healthy pumpkin fruit harvested with care and stored properly should last several months.

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**OHIO RIVER VALLEY FARM MARKETING CONFERENCE - (Announcement)** - February 21-22, 2006, Clifty Falls State Park, Madison, Indiana. Leading agricultural professionals and stakeholders from Indiana, Kentucky, and Ohio have organized the 4<sup>th</sup> Annual Ohio River Valley Farm Marketing Conference. The conference will offer a valuable and affordable day and a half of presentations, workshops, and discussions focused on agricultural marketing.

**The conference will address:**

- assessing and evaluating new market opportunities for the experienced grower
- getting started in farm marketing enterprise for the beginner
- marketing for value-added agriculture on a regional and community basis
- new opportunities and tour of Indiana New Enterprise Venture Center for value-added food processing

The conference will include general session speakers, breakout sessions, panels with producers, trade show exhibits, tour of the New Enterprise Venture Center and a taste of Kentucky, Indiana, and Ohio products.

**Who should attend?**

- Kentucky, Ohio, and Indiana growers
- Agricultural entrepreneurs
- Agricultural educators
- Community leaders
- Local government officials
- Other agricultural stakeholders

Mark you calendar. More information on registration to come!

[The Ohio River Valley Farm Marketing Conference serves all people regardless of race, color, age, sex, religion, disability, or national origin.]

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**BIGGER PROFITS THROUGH TARGETED SALES - (Announcement)** - A one-day practical, hands-on workshop to help entrepreneurs develop and implement a successful sales strategy! Plus, "Making and Marketing Your Message . . . . The Dos and DON'Ts of Working With Local Media." Featuring Dr. Dave Downey.

Choose the date and location convenient for you: Wednesday, November 30, 2005, French Lick Springs Resort & Spa, French Lick, IN or Thursday, December 15, 2005, Morgan Entrepreneurship Center, Purdue University, West Lafayette, IN.

**Who should attend?**

- Entrepreneurs who have a good idea and are ready to take it to the marketplace.

**Key Topics of the Workshop:**

- Creating and Implementing Your Personalized Sales Strategy - Who to Call On, and What to Say When You Get There!
- Dealing With Resistance - "No!" . . . Now What?
- Closing the Sale - Moving From Being "Close to a Sale" to "Closing Sales!"
- And much more !

Watch for program information and registration information coming soon . . .

For more information please contact: Joy May, Purdue New Ventures Team Program Manager, [mayjl@purdue.edu](mailto:mayjl@purdue.edu), (765) 494-4231.

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**ORGANIC FARM TOUR - LANGELAND FARMS - (Announcement)** - Tour a working Organic Grain, Organic Pasture and Intensive Grazing Livestock Farm, Langeland Farms, Gary Reding, 3806 South County Road 550 East, Greensburg, IN 47240, (812) 663-9546, [greading@direcway.com](mailto:greading@direcway.com). Monday September 26, 2005, 4:30-7:00 p.m. (local time). Sandwiches and beverages provided.

**Highlights of the Tour:**

- Twilight tour of organic popcorn, hay, and pasture production
- Answer questions pertaining to organic farm production
- The Market for Organic Grains - Corinne Alexander, Purdue University Ag economist

**DIRECTIONS:**

**From Indy:** Take I-74 east to Greensburg Exit 132. Follow US 421 South through Greensburg. Go 6 miles

south of Greensburg to the second crossroads, CR 400 S. turn left, go east 1.25 miles to CR 550 E. turn south to the first driveway on the left. White Ranch house, office with scales, white barn and tool shed.

**From Cincinnati:** Take I-74 West to Newpoint Exit 143, turn left and go to St. Rd. 46, turn right and go west 1.5 miles to CR 700 E. Turn left and go south 2.25 miles to CR 400 S. Turn right and go west 1.5 miles to CR 550 E. Turn left go to first drive on the left. White Ranch house, office with scales, white barn and tool shed.

**From Louisville:** Take I-65 North to US 50 East to St. Rd. 3 North Vernon. Go North on SR 3 to St. Rd. 46 East. Follow SR 46 into Greensburg and take US 421 South out of Greensburg. Go 6 miles south of Greensburg to the second crossroads, CR 400 S. turn left; go east 1.25 miles to CR 550 E. Turn south to the first driveway on the left. White Ranch house, office with scales, white barn and tool shed.

For more information please contact Jerry Nelson, Purdue New Ventures Team Co-Chair at (812) 886-9582, [jnelson@purdue.edu](mailto:jnelson@purdue.edu); or Dan Wilson, Decatur County, ANR Extension Educator at (812) 663-8388, [wilsondg@purdue.edu](mailto:wilsondg@purdue.edu). (If you require auxiliary aids and services due to a disability, please contact Dan Wilson prior to the event.)

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**DATES OF WINTER VEGETABLE MEETINGS**

Illiana Vegetable Growers' School,  
Schererville. January 5, 2006.  
Indiana Horticultural Congress,  
Indianapolis. January 23 – 25, 2006.

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