

# VEGETABLE CROPS HOTLINE

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

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**GROWER SUPPORTED MATURE WATERMELON VINE DECLINE RESEARCH** - (Dan Egel) - Watermelon growers and Purdue University researchers have partnered to solve a critical problem facing the industry. The problem: watermelon vine decline (MWVD, aka sudden wilt). MWVD causes a vine collapse and wilt at or just before harvest. Severe losses have been recorded for this disease especially in the years from 1998 to 2000 (see article this issue). Growers are still concerned. Without knowledge of what causes this devastating disease, no one knows when or where this disease may show up again.

Growers have taken two specific actions to try to find out how to combat MWVD. The first action was to help Purdue University researchers obtain a USDA-SARE grant. Not only did watermelon growers write letters of support to the granting agency, they promised funds to help support the grant. This promise made the

difference. In September 2006, USDA-SARE granted Purdue University \$98,500 over three years to study cultural methods to manage MWVD. These experiments are already underway at the Southwest Purdue Ag Center. The groups that promised funds were the Illiana Watermelon Association and the National Watermelon Promotion Board.

The second action that was taken by growers was to raise funds to help build a greenhouse at the Southwest Purdue Ag Center dedicated to experiments to understand MWVD. In March 2006, growers with the Illiana Watermelon Association, raised funds through an auction for this greenhouse which is now under construction (Fig. 1).



**Fig. 1:** New research greenhouse under construction at the Southwest Purdue Ag Center. (Photo by Dan Egel)

If you have a problem you think Purdue University maybe able to help with, start making phone calls to see what can be done. But don't stop with a few phone calls. The more resources you are willing to devote to the project, the more it will be possible to accomplish.

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**SOIL pH VERSUS BUFFER pH** - (Chris Gunter) - At a recent growers meeting in North Central Indiana, I was asked a question about a soil test which reported both pH and Buffer pH. Recall that pH is a measure of acidity. The pH scale ranges from 1 to 14, with a value of 7 being neutral, those values above 7 are termed alkaline and those values below 7 are termed acidic. Most plants grow in pH's ranging from 5.5 to 7.5, with most crop plants preferring to grow in the 6.0 to 7.0 range.

When you are looking at your soil test, the pH value you are most interested in is the Soil pH. This is a measure of the active pH or the pH that the roots of your plants are actually seeing. It is usually measured by mixing a volume of water with the soil and measuring the resulting pH. This is the pH value that you should be most interested in when making your planning decisions.

The buffer pH that is listed on the soil test report is used to determine the lime recommendation for your soil. It is basically a measure of the soil's ability to change pH when exposed to a buffer solution designed to change the soil's pH. It is sometimes called reserve acidity. If there is little change in pH after exposure to the buffer, it means the soil is resistant to changes in pH and a larger amount of lime will be needed to achieve the desired pH.

Buffer pH depends on the cation exchange capacity of the soil and the amount of hydrogen and aluminum ions contained in or generated by the soil and its components. In general a soil with a higher CEC will normally require more lime to reach a target pH than a soil with a lower CEC.

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**MATURE WATERMELON VINE DECLINE** - (*Dan Egel*) - A number of diseases have been identified that cause the wilt, collapse and general decline of watermelon plants. These diseases occur in watermelon growing areas around the world and are generically referred to as vine declines. Both Indiana and Florida have had watermelon vine declines of unknown cause over the last several years. While significant questions still remain about the diseases in both locations, enough has been learned that a grower update is appropriate. It is hoped that the descriptions of the symptoms, an explanation of the causes and a discussion of possible management options will be relevant to watermelon growers everywhere.

**A New Discovery** - All available evidence is that the vine declines that have been observed in Indiana and Florida over the last several years have different causes, symptoms and management options (Table 1). However, a discovery made in Indiana last fall complicates the situation a bit.

In September 2006, Purdue University researchers were asked to visit a field of late season watermelons with possible vine decline symptoms. The symptoms in the field were relatively mild. No fruit symptoms of the type observed in Florida were observed. Yields had been good in this field; however, the grower complained that the vine vigor fell off more quickly than he would have liked.

Knowing that Squash vein yellowing virus (SqVYV), a newly described virus, had been identified as the cause of the vine decline in Florida, Purdue University specialists sent samples off to the laboratory of Scott Adkins, USDA-ARS, to see whether these vines might have the same virus. Adkins confirmed the presence of this virus in the fall of 2006.

Although SqVYV has now been confirmed in Indiana, the authors believe that the situations in Indiana and Florida are very different for the reasons outlined below.

1. As mentioned in the accompanying table, the causes of vine decline in Indiana and Florida appear to be quite different. The vine decline that has been observed sporadically in Indiana since the 1980's is probably a soilborne organism such as a fungus. Therefore, it is unlikely that SqVYV has been the cause of the vine decline observed in Indiana.
2. The fruit symptoms common in Florida with SqVYV have never been observed in Indiana.
3. Whiteflies, which are known to transmit SqVYV, are relatively uncommon in Indiana. This would seem to make it unlikely that SqVYV would reach the severity that it has in Florida.
4. Winter temperatures in Indiana make survival unlikely for either the whiteflies that transmit SqVYV or any watermelon vine that might harbor SqVYV. Therefore, the presence of SqVYV in Indiana in the 2007 growing season would likely depend on the reintroduction of the virus, for example, with wind borne whiteflies.
5. At this point there is no reason for Indiana growers to change their horticultural practices due the detection of SqVYV in Indiana in 2006. Indiana growers should address any questions, comments or concerns to Dan Egel, (812) 886-0198.

**Could you have watermelon vine decline in your field?** Watermelon growers should learn to identify the cause of any vine decline or related malady that plagues their crop. After a quick inspection, some diseases such as Fusarium wilt, Monosporascus wilt, or root knot nematode may be confused with either SqVYV or MWVD. These diseases should be ruled out before assuming that a field has either SqVYV or MWVD. Diagnostic laboratories and extension specialists can help with this work. In addition, there are several extension publications to help you sort out the various disease problems that watermelon may have. Regardless of your state or region, it is important to have the cause investigated.

**The Future** - Many questions remain to be answered about SqVYV and MWVD. Researchers in Florida and Indiana have been cooperating with each other and with the National Watermelon Association and the National Watermelon Promotion Board (NWPB) as well as regional commodity groups to find answers and procure funds for more research into the vine decline problems discussed here. With the help of the NWPB and the Illinois Watermelon Association (IWA), Purdue University has been able to obtain a USDA-SARE grant to study cultural methods that may reduce the risk of MWVD in the future. In addition, the IWA raised funds for a greenhouse now under construction at Purdue University to be used for MWVD research. We hope that our joint research efforts will lead to improved management recommendations in the near future.

**Table 1. Comparison of Vine Declines in Florida and Indiana.**

Location	Florida	Indiana
Disease name	Watermelon Vine Decline (WVD)	Mature Watermelon Vine Decline (MWVD)
History	First observed 2002, losses of 60-100% were common up through the fall of 2005.	First observed in the 1980's. In 2000, the disease was especially severe, affecting more than 50% of the are planted to watermelon and resulting in yield losses of 20%.
Cause	Squash vein yellowing virus (SqVYV), recently described whitefly-transmitted virus.	The cause or causes of MWVD are not known at this time. Purdue specialists believe the most likely cause is a soil organism(s), perhaps a soil fungus.
Symptoms	Vines wilt and collapse, roots may rot and fruit often exhibit a rind discoloration and necrosis. Symptoms usually occur at or just before harvest.	Vines wilt and collapse, roots become rotten. Symptoms usually occur at or just before harvest.
Management	<ul style="list-style-type: none"> <li>• Control of whiteflies through avoidance and insecticides.</li> <li>• Control other diseases and keep vines otherwise healthy.</li> </ul>	<ul style="list-style-type: none"> <li>• Fumigation has given inconsistent results in commercial fields.</li> <li>• Avoid short rotations with watermelon.</li> <li>• Avoid heavy irrigations, especially when the fruit are expanding. Avoid poorly drained soils.</li> <li>• Control other diseases and keep vines otherwise healthy.</li> </ul>

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*Announcements  
and  
Upcoming Events*

**GROWING A MARKETING NICHE FOR YOUR FARM**

**PRODUCT - (Kimberly Moore)** - Purdue Extension-Johnson County and New Ventures will be offering a three-part educational program on Saturday, February 10; Tuesday, February 13; and Saturday, February 17, at the Greenwood Community Center in Greenwood. The Saturday sessions will begin at 10 am and end at 12 noon and 2 pm, respectively. The Tuesday session will be from 6:30 pm to 8:30 pm. Purdue Extension Specialists will be our guest speakers as we look at establishing prices for food products, including produce and meat goods and effectively communicating with your customers to determine their needs. The final session will be interactive with chefs and other food product buyers and will include lunch. There is a \$10/ person charge for each session or \$25/ person for all three sessions. Pre-registration is requested for the refreshments and meal. Anyone interested in marketing their farm products (especially produce and meat) and the public are invited to attend this program. Please call (317) 736-3724 with any questions or reasonable accommodations or dietary requirements.

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**Tri-State Organic IP Video Program: Cover Crops and Soil Fertility Management.** Feb. 13, 2007, 6:00 - 8:30 p.m. Eastern/5:00 - 7:30 p.m. Central. Offered at 16 sites around Indiana and in neighboring states.

Topics to be covered: Using rye with no-till drilled soybeans in organic production, Dr. John Cardina, Ohio State University; Potential fertility improvements from cover crops, Dr. Eileen Kladvko, Purdue University; An-



nual ryegrass use in cropping systems, Mike Plummer, University of Illinois; Overview of cover crop options in organic production, Alan Sundermeier, Ohio State University.

Registration is \$10 per person/farm and includes workshop materials and refreshments. For more information or to register, contact Liz Maynard at (219) 785-5673 or 800-872-1231 ext 5673.

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**5<sup>TH</sup> OHIO VALLEY MARKETING CONFERENCE - (Announcement)** - Agricultural leaders from Kentucky, Ohio and Indiana have partnered to organize the 5<sup>th</sup> Ohio Valley Marketing Conference, a valuable and affordable educational conference for growers and agricultural stakeholders. The conference is scheduled for February 19-20 at the Holiday Inn-Hurstbourne in Louisville, Kentucky geared towards growers that are looking for strategies for marketing their products. The conference registration fee is only \$30 for the 2-day event, which includes all conference activities, 2 meals and the reception. Registration for one day only is \$20.

The conference will offer a valuable and affordable day and a half of presentations, workshops, and discussions, focused on agricultural marketing. The conference will include general session speakers, breakout sessions, panel discussions and trade show exhibits.

On Monday evening, the conference will start out with a reception and a Taste of Regional Cuisine, a sampling of local products. A panel discussion of chefs will include Gil Logan of Churchill Downs and Bob Perry of the University of Kentucky discussing the elements of a successful buying arrangement.

Feature presentations on Tuesday will include: *Marketing Meat, Agritainment, Alternative Ways to Successful Marketing, Marketing to Ethnic Groups, Marketing to Institutions, Liability Issues/Insurance, Value Added Marketing, Organic Marketing and Finding a Niche Market.*

For more information, please contact J. K. Henshaw at (502) 495-5106; email [jkhenshaw@kyfb.com](mailto:jkhenshaw@kyfb.com) or Rick Alexander at (859) 233-7845; email [RAlexander@commoditygrowers.com](mailto:RAlexander@commoditygrowers.com).

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**INTERNSHIPS WITH PURDUE EXTENSION: SUMMER OF 2007 - (Announcement)** - Purdue Extension is planning to employ interns during the summer of 2007. Particular emphasis will be placed on employing interns who meet the following criteria:

Preferred Educational Background:

- Between their Junior and Senior years of college during summer of 2007 and eligible for acceptance into graduate school in an area of study related to the Engagement mission of Purdue University.

OR

- College graduates with BS degrees in an appropriate degree area and already accepted into a graduate program related to the Engagement mission of Purdue University.

Preferred Qualifications:

- Enjoys working with people and building teams and partnerships;
- Community focused; demonstrated successful experience in community service learning projects;
- Willing to consider employment in Purdue Extension or pursue other careers within Purdue University following completion of graduate degree;
- Experience working with diverse audiences;
- Bilingual—English and Spanish—speaking, reading, and writing—is an asset.

Benefits to the Participating Intern:

Interns who are accepted into the program will have an opportunity to learn and to gain hands-on experiences during the 8 to 10 week internship including:

- Professional team atmosphere associated with educational program development and delivery.
- Familiarity with county Extension office procedures, responsibilities, and staff.
- Develop skills in time management, prioritizing, and acceptance of responsibilities.
- Work with a diverse (age, gender, economic class, ethnic) audience at the community level.
- Participate in a high performing system where staff and community volunteers work closely together to achieve common goals.
- Participate in a network that will provide a variety of experiences, mentoring, feedback, and clear communications throughout the internship.

Internship:

Interns will be assigned to a county Extension office in Indiana. The County Extension Director in the county will be the direct supervisor. An intern orientation session will be held May 7-9, 2007 in West Lafayette. The orientation session will include orientation to Purdue Extension, understanding of the working environment, basic responsibilities and legal requirements, creation of computer account, and assessment of personality traits. Interns will complete a final project as part of their intern experience. The intern experience will end with a presentation/display of the intern's experience at the Indiana State Fair on August 9, 2007.

Details:

Pay will be on a bi-weekly basis. Interns will be non-exempt and as a result, employment of more than 40 hours per week will require overtime payment.

Interns will need to provide their own housing, an operable vehicle and must have a valid driver's license.

Screening of applicants will begin March 1, 2007.

**For More Information:**

Margaret Titus, Assistant Director [mtitus@purdue.edu](mailto:mtitus@purdue.edu)  
Janet Bechman, Extension Plan of Work & Accountability Coordinator [jcb@purdue.edu](mailto:jcb@purdue.edu)  
Dan Stewart, Assistant Director [dstewart@purdue.edu](mailto:dstewart@purdue.edu)  
Sandy Exmeyer, Secretary [exmeyer@purdue.edu](mailto:exmeyer@purdue.edu)  
765-494-8489 - 104 Ag Administration Building - 615 W. State Street - West Lafayette, IN 47907

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**SOUTHWEST INDIANA MELON AND VEGETABLE GROWERS ANNUAL MEETING**, Friday, March 09, 2007 at the Quality Inn, 600 Old Wheatland Road, Vincennes, IN 47591. Registration from 8:30 - 9:00 am, cost is \$5 per person, which will entitle one to refreshments and lunch, as well as membership in the Southwest Indiana Melon and Vegetable Growers Association. The technical meeting will cover topics concerning vegetable production and will also qualify toward re-certification for your private applicators license. If you plan to use this meeting toward re-certification, there will be an additional \$10 fee. For more information, contact: Chris Gunter (812) 886-0198.

**Topics include:**

- **The Status of Furadan** with Rick Kesler and Bob Hooten from FMC Agricultural Products
- **I-FARM: A new farm market in Indianapolis** with Diana Grounds Chamness
- **The 2006 Illiana Watermelon Queen**  
Alexis Vice
- **Food Safety for Vegetable Producers**
- **A Pesticide and Research Update** by Dan Egel, Rick Foster, Chris Gunter from Purdue University
- **Well Contamination: A case study** by Stacye Johnson Purdue's Knox County Extension Educator
- **An Update on Important Tax Information** by Keith Carter from Kemper CPA
- **Don't forget to check out the trade show!**
- **Private Applicator Recertification Program credit is available.**

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**ILLIANA WATERMELON ASSOCIATION ANNUAL MEETING**, Friday and Saturday, March 9<sup>th</sup> & 10<sup>th</sup>, 2006, at the Quality Inn, 600 Old Wheatland Road, Vincennes, IN 47591. For more information, contact: Carrie Smith at (812) 882-4415.

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**Homegrown Indiana: A Local Foods Expo.** Join others in these first time events aimed towards strengthening local foods networks. Food producers, growers, marketers, specialty retailers, chefs, food entrepreneurs and interested community members are all invited. The programs include workshops, presentations, and networking opportunities. Speakers include Lisa Johnson, Valley Food and Farm local foods project in Vermont and New Hampshire; Dr. Jennifer Dennis, Purdue University; Mari Coyne, Chicago's Food Forager; and others. Registration is \$15 per person in advance; exhibit and sponsorship opportunities are also available.

Northwest Indiana: March 13, 2007 9:00 a.m. - 4:30 p.m. Central Time. Porter Co. Expo Center, Valparaiso. For more information, see <[www.ces.purdue.edu/porter/](http://www.ces.purdue.edu/porter/)> or contact Kris Parker, (219) 465-3555 ext. 27 or <[parkerkj@purdue.edu](mailto:parkerkj@purdue.edu)>.

North Central Indiana: March 14, 2007 9:00 - 4:30 Eastern Time. Elkhart Co., 4-H Fairgrounds. For more information contact Jeff Burbrink at (574) 533-0554 or [jburbrink@purdue.edu](mailto:jburbrink@purdue.edu).

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**Tri-State Organic IP Video Program: Organic Weed Management.** March 15, 2007, 6:00 - 8:30 p.m. Eastern/5:00 - 7:30 p.m. Central. Offered at 16 sites around Indiana and in neighboring states. Topics to be covered: Soil characteristics that influence weed management, Dr. Steve Weller, Purdue University; Cropping Practices that influence weed management, Dr. John Cardina, Ohio State University; Tools, practices, and materials for weed management in field crops and vegetables, Dr. John Masiunas, University of Illinois; Organic farmers' weed management systems on vegetable and agronomic farms, Dale Rhoads, Brown Co., IN; John Simmons, LaPeer Co., MI, Dave Campbell, NE Illinois, Rex Spray, Mt. Vernon, OH.

Registration is \$10 per person/farm and includes workshop materials and refreshments. Online registration will be available through the Purdue Conference Division by logging onto <<https://www.conf.purdue.edu>>. For more information or assistance with registration, contact Liz Maynard at (219) 785-5673 or 800-872-1231 ext 5673.

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**Managing Pests in Commercial Pumpkins and Melons.** March 20, 2007, 1:00 - 4:00 p.m. Eastern Time. Fulton Co. 4-H Fairgrounds, Rochester. PARP credits available. For more information contact Mark Kepler at (574) 223-3397.

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**PESTICIDE WASTE PROGRAM** – (Fred Whitford) – Office of Indiana State Chemist will hold pesticide waste pickups in August around the state. Please have your clients call OISC at (800) 893-6637 and have them talk to Kevin Neal. He will get their names, what they have, and in what quantities to help him in his planning. **NO ONE HAS EVER GOTTEN IN TROUBLE BY BRINGING IN THEIR UNWANTED PESTICIDES.** It's a great opportunity to have the state not only pick up the materials but pay for the cost. Please check the following list for the date and location close to you.

- August 7<sup>th</sup> - Daviess County Fairgrounds
- August 9<sup>th</sup> – Tippecanoe County Fairgrounds
- August 14<sup>th</sup> – Whitley County Fairgrounds
- August 16<sup>th</sup> – Decatur County Fairgrounds

If you have questions, please contact Fred Whitford, Coordinator, Purdue Pesticide Programs, 915 W. State Street, West Lafayette, IN 47907-2054; Phone: (765) 494-1284; Fax: (765) 496-1556; Email: [fwhitford@purdue.edu](mailto:fwhitford@purdue.edu); Web: [www.btny.purdue.edu/PPP/](http://www.btny.purdue.edu/PPP/).

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**HELP FOR IRRIGATORS AND PRODUCERS WHO MANAGE DRAINAGE WATER** - (Announcement) - USDA's Natural Resources Conservation Service (NRCS) is offering a new opportunity to Indiana producers who use irrigation systems, or are willing to manage their drainage water. Beginning this year, the agency has a special allocation in the name of Ground and Surface Water Conservation, and through the Environmental Quality Incentives Program (EQIP), and can offer financial assistance for improving irrigation system efficiency and establishing a Drainage Water Management system.

"We think this will be attractive to Indiana farmers who use irrigation for high level production, specialty crops, organic crops, vineyards, orchards and other

situations," says Xavier Montoya, (Acting) State Conservationist for NRCS. "This is a way for us to help irrigators make their systems more efficient. In the long run, this can reduce the amount of water pumped from the aquifer, plus reduce energy use and operating costs."

NRCS has also posted an Energy Estimator for Irrigation systems on line at <http://ipat.sc.egov.usda.gov/>. It is a quick and easy way for producers to evaluate their irrigation system, and see where alternatives can save energy and money.

"This initiative can also help producers who want to manage drainage water. Drainage Water Management reduces the potential for sediments, nutrients and other chemicals from leaving the farm and entering waterways," says Montoya. Drainage Water Management is a relatively new approach to managing tile system water with a water control structure to control the water table in a field. With the capability of managing the water table, water can be retained on the field when drainage is not needed (for example in the winter). Studies show that total amounts of nitrogen leaving a field utilizing Drainage Water Management are lower than when the tile system continues to drain. There is also the possibility that during dry periods, producers can retain sub-surface water so that more moisture is available to the crop during the growing season, thus reducing the need for additional irrigation, as well as controlling outflow of nutrients and sediments.

Producers can apply now under EQIP Ground and Surface Water Conservation. To find out more, contact NRCS at the nearest USDA Service Center, Xavier Montoya, (Acting) State Conservationist, (317) 290-3200, ext. 351, or Michael D. McGovern, Public Affairs Specialist (317) 290-3200, ext. 324.

It is the policy of the Purdue University Cooperative Extension Service, David C. Petritz, Director, that all persons shall have equal opportunity and access to the programs and facilities without regard to race, color, sex, religion, national origin, age, marital status, parental status, sexual orientation, or disability. Purdue University is an Affirmative Action employer. 1-888-EXT-INFO <<http://www.ces.purdue.edu/marketing>> Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.

Vegetable Crops Hotline  
c/o Chris Gunter  
Southwest Purdue Agricultural Program  
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Vincennes, IN 47591