Vegetable Crops Hotline

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

Chris Gunter, Editor (812) 886-0198 gunterc@purdue.edu



No. 474 March 15, 2007

http://www.entm.purdue.edu/entomology/ext/targets/newslett.htm

IN THIS ISSUE

- CHECK YOUR VEGETABLE CROPS HOTLINE
 MAILING LABEL
- Managing Pests in Commercial Pumpkins and Melons
- New Vegetable Disease Bulletins
- QUINTEC REGISTERED FOR POWDERY MILDEW
- Internships with Purdue Extension: Summer of 2007
- An Introduction to Starting a Specialty Food Business in Indiana
- Greenhouse Air Quality

CHECK YOUR VEGETABLE CROPS HOTLINE MAILING LABEL - If your address label ends with ".....expires 12/31/06", this will be the last issue that you will receive in the mail.

As you know there are 3 ways in which to receive the *Vegetable Crops Hotline* via the mail.

- 1) Be a Corporate member of the Indiana Vegetable Growers' Association - cost is \$75 and includes the Vegetable Crops Hotline, VCH Bulletins and a Midwest Vegetable Production Guide for Commercial Growers (ID-56).
- 2) Be a Regular member of the Indiana Vegetable Growers' Association - cost is \$35 and includes the Vegetable Crops Hotline, VCH Bulletins and a Midwest Vegetable Production Guide for Commercial Growers (ID-56).
- 3) Be a *Vegetable Crops Hotline* subscriber cost is \$15 and includes the *VCH Bulletins*.

To become an Indiana Vegetable Growers' Association corporate or regular member, complete a Membership Renewal/Application for 2007 (VCH Issue No. 472, November 09, 2006) and mail it along with your check **made out to IVGA** to Indiana Vegetable Growers' Association, c/o L. Maynard, Purdue North Central, 1401 U.S. Highway 421, Westville, IN 46391. The membership application for the IVGA can be found at <www.entm.purdue.edu/Entomology/ext/targets/vegcrop/VCH2006/VCH472.pdf>.

To receive a subscription to the *Vegetable Crops Hotline*, please mail a check for \$15 made out to Purdue

<u>University</u> along with the name and address where the

newsletter is to be sent (please include phone, fax and/or email address) to Southwest Purdue Ag Program, ATTN: VCH, 4369 N. Purdue Road, Vincennes, IN 47591. The subscription form for the VCH can be found at <www.entm.purdue.edu/Entomology/Vegisite/commercial/hotline2007.html>.



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.



New Vegetable Disease Bulletins - (*Dan Egel*) - Just in time for planting season, 3 new vegetable disease management bulletins are available. The three bulletins are:

Compiled	/by	Gint Gint and a	Eget, Bet	tension A	er hat the critical er		lather	e Park		de for Indiana 2007 Exercised Comments The comments below son bisonded to lasticary product selectus. Bisosy and the targeted held that the additional differences on one, write one, uniference, unifery presentance, or formation of the comments of the lastic bits for law.	
sody 3	20 10 10 10	5 0	- Sheard		- m anticome	· hateld but liesh	- dominities		powdey	The comments below are intended to facilitate product selection. Always end the familiate laded frost for additional information on rates, resistance, safety presentions, etc.	
sody 3	20 10 10 10	5 0	1	- Indian	î	backed to the black	- dontymiller		powdey	fungicide label first for additional information on ones, resistance, safety precursions, et	
100/8° 2	10 M	5 0	î	ī	î	5	1				
100/8° 2	10 M	5.0	X	I	L	5			1	Contact fungicals effective against a well-range of fungi	
1 3	17	0	X		-			L	L	Primarily effective against funterful diseases	
3	10		_		I		X	1		Some labels include greenhouse uses	
					ı.			L.	1	Alternate or task min with fungation that have a different MEA code	
									1	Lask more with other fungs also for additional diseases	
- 1									1		
	4	1	X		1		1	1	1	Always alternate these products with fungitides that have a different MIX code. It is	
	12		I		1		I	1	1	good blev to tank mixthese products with a contact flangicide or to use a permit such as	
- 1	12						1		X	Oweks (pri*.	
Π,	12	٠	x	Г	1		x	x	x	Strains of the fangustitat came gummy stem hight have been found in the southeast. United States that have resistance to some group 11 fangisides. Some of these lungiside performed poorly against downy mildew in 2005 and 2016 in Indiana.	
- 1	10	3							1	Supplemental label. Note 12-month plant back restrictions for corporat on label	
,	12	3	x		1	5	X.			Taxes' must be task moved with a contact finigence and alternated with a language with a different MOE code.	
- 1	12						1			Must be tank mosed and alternated with a longically that has a different WOL code	
		5	x				x			Some mandatorice numbers are sensitive to Carell*	
							1			Lask mix according to label	
- 1	12	1					1			See label for additional greenhouse uses	
- 1	12						I			Alternate with a fungación that has a different MAA code	
- 1	12	h					1			Task no regated for lever cates	
yte*	4						X			Some formulations include management information on gammy stem hillyle and Phytophthesis hillyle	
	for appetitude of the control of the	EQ E	102 3 102 6 48 5 102 3 102 6 102 102 6 102	12 3 X 12 0 1	10 3 3 X 10 10 10 10 10 10 10 10 10 10 10 10 10	SQ 3 S	Q 3 X X S Q 3 X X S Q 0 0 0 Q 1 2 0 Q 2 0 Q 3 0 Q 2 0 Q 4 0 Q 5 0 Q 6 0 Q 7 0 Q 8 0 Q 8 0 Q 8 0 Q 9		Q 3 X X 5 X	Q 3 X X 5 X	

 BP-134-W, Muskmelon and Watermelon Fungicide Guide for Indiana 2007 and Muskmelon and Watermelon Management Time Line

	Pumpkin Fungicide Guide for Indiana 2007 Geophit by Dies Eye Conseine New Indianays: Samerer Probe Aspiratoric Control 2012 Septiment Control 2012 Septiment Control 2013										
Fungicide Information						е'				Comments	
MONOde	Stade Rame(L)	W/ten/	RF (byc)	between per	Matter	dway saldow	Pysykderablyk	Retropotaniligit	possibility rations	The comments below are intended to be little product selection. Howays near the fungishe hale that for additional information on care, resistance, safety precaution, ex. Remember: the hale is the lane.	
					1	1			L	Contact fampiosis effective against a wide congred fampi	
				I	L	L			ı	Primarily effective against buckerful diverses.	
						X				Some labels include greenhoose uses	
					l.					Abersate or task nor with fungicides that have a different WOT code	
							_		I	Tank mix with other fungicides for additional diseases	
3	Nove*	.34							1		
M.	Related Gald Book*	48			1	X				The systems: compound melencoun may not be effective against all strates of the downy milder funger.	
			1		1	1				Always alternate these products with fungicides that have a different WOR code. It is a	
					1	I		1		good blow to tank mit these product; with a centact fungicitie or to one a premix such as	
11	Rise*	12				X		1	I	Quadro light".	
7	Prome*	12	٠		x	x			1	Stocks of the lunger that cause Nickl rat have been found in the southwat Unite that have restaure to some group 11 fungicides. Some of these fungicides perfor poorly against diversy milders in 2005 and 2006 in Indiana.	
27 18	lass*	12	3			X	5			Taxon' must be task mosel with a contact fungical and alternated with a fungical with a different WER code.	
15	Amba*	12				I	X			Most be task nated and alternated with a language that has a different MEA code	
27	Carsiv ^a	12	3			1				Leik microrrading to label	
26	PretorRet*	12	2			X				See labelike additional generalizate stats	
		12				I	I			Alternate with a fungicity that has a different MOR-code	
13	Rete*	12	ъ			1	I			Last appregned for fower rates	
13	Anti-fuc" Burgas" Doublets"					I	X			Some formulations to dode management tolormation on black not	
	M M 1 3 3 4 M H H H H H H H H H H H H H H H H H H	September September				1					

 BP-135-W, Pumpkin Fungicide Guide for Indiana 2007 and Pumpkin Management Time Line

		Campiled	tythe	edge(ion Plant 12) 886-				Pandor A	007 EXPERI		
Fungicide Information					Coans	non Fol	lardise	aser'					Comments
immen fane	Stade Name (c)	E (feet)	No. Outo	athons	heteldonler	latetá spolpek	balope ex	eafy High:	today	bulmit .	pudeymide	The comments below are not middled to Lothitate product selection. Allows must the function be able first for additional information on care, with save, safety proceeding, etc. Bemembers the label in the law.	
disoluted	×	Braw*, Edw*, Equal*	12	0	I				1	1	X		Contact fungicide effective against a wide range of fungs. Not for greenhouse gos.
ори		nav	24	0	τ	1	I		L	L	x		Applications for had retail carrier only effective to premionse
mancos mandi		Hand" Maner" Diffuse" Manuals" Research"	24	5	I				1	1	X		Some labels tockede greenhouse uses
mancob mancob	H 22	God	46	5	Т			x	1	1	x		May be used with upper products to manage bucketal gottinge it.
attention i-methyl	p	Actique!"	12	14			1						Donot apply to stressed plants
feamine	11	Booot*	12	14					1	1			Donot satgle with other group 11 fungicales.
acveystrobin	11	Anexa", builts"	4	0	I			I	I	1		X	These fungicides are stroker and may case fungal existance of used improperly. Read labels carefully formed tance management instructions other important information. Bette Quadro Type* is available as a pre-moti of aposymolohi and chievardialess?
pyradestróle	11	Céter	12	0	1				1	1		x	
teffespitolita	11	fluc*	12	3	5				1	5		5	
besuild	7	Eulov*	12	0					1				Increase gray volume as plants grow
cymount tanoxidae	27	Taxer*	12	3	I	5	5	5	1	I	X		Taxon' must be task mated with a consection grade and alternated with a famous territor but a different MOT code
pytowthanil		500*	12	1		$\overline{}$		$\overline{}$	I			-	Libel includes greenboyue instructions

• BP-136-W, Tomato Fungicide Guide for Indiana 2007 and Tomato Management Time Line

These bulletins are each two pages. The first page describes fungicides labeled for the particular crop, including information about mode of action, reentry and preharvest intervals and comments. The second page includes information about disease management actions and when they need to be taken. The bulletins are available on-line at the following URL: <www.btny.purdue.edu/extension/vegpath.html>. Scroll down to the link for vegetable pathology extension publications.

If you cannot access these publications on-line please call Dan Egel at (812) 886-0198. And as always, any and all comments are appreciated.



QUINTEC REGISTERED FOR POWDERY MILDEW - A new fungicide has been labeled for melons powdery mildew control. Most types of melons including muskmelon and watermelon are included on this label. Head and leaf lettuce are included on the lettuce label. Quintec,

common name quinoxfen, is labeled on both crops at 4 to 6 fl oz per label. The restricted entry interval (REI) is 12 hours for both crops; the Pre-Harvest Interval (PHI) is 1 day for lettuce and 3 days for melons. Quintec has a FRAC code, or mode of action code of 13, which is different from any of the fungicides currently labeled on either crop. There is a plant back restriction of 12 months from the last application for any crop not on the Quintec label. Finally, be sure that the Quintec label has information about lettuce or melons or have a supplemental label on hand.



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.

OI

 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 and 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 Janet Bechman, Extension Plan of Work & Accountability Coordinator jcb@purdue.edu

Dan Stewart, Assistant Director dstewart@purdue.edu Sandy Exmeyer, Secretary exmeyers@purdue.edu 765-494-8489 - 104 Ag Administration Building, 615 W. State Street, West Lafayette, IN 47907.



An Introduction to Starting a Specialty Food Business in Indiana - Wednesday, April 25th, 2007 - Indiana Farm Bureau, Inc., 225 S. East St., Indianapolis, IN. Sponsored by: Purdue University's Dept. of Agricultural Economics, Dept. of Food Science, Southeastern Indiana Small Business Development Center, and Indiana State Department of Health.

Developing and selling specialty ingredients and foods is one alternative for homemakers and farmers to add value to Indiana commodities. This workshop was developed to serve as a comprehensive overview of the issues associated with starting a specialty food business in Indiana.

The Overall purpose of this workshop is to provide knowledge, contacts, and resources about starting a new food business in Indiana through formal lectures and question and answer sessions with speakers and entrepreneurs, as well as written materials with information and resources.

This workshop was developed for people interested in developing a specialty food or food ingredient business. Participants may be small farmers interested in vertically integrating, homemakers, and current/former entrepreneurs who need a comprehensive overview of the topics to be covered when starting a new food business in Indiana.

For interested individuals, participation in this workshop will allow an easier start-up at Ohio River Valley Food Venture, the shared-use commercial kitchen facility at the Small Business Development Center in Madison, Indiana.

The registration fee for the workshop *An Introduction to Starting a Specialty Food Business in Indiana* is \$75 per registrant. This includes a three-ring binder of information, lunch, and refreshments in the morning and afternoon. Registration deadline no later than April 18, 2007.

About registration, contact: De Bush, Dept. of Food Science, Purdue University, West Lafayette, IN, (765) 496-3832, email: djbush@purdue.edu.

About program content, contact: Maria Marshall, Dept. of Agricultural Economics, Purdue University, West Lafayette, IN, (765) 494-4268, email: mimarsha@purdue.edu.



Greenhouse Air Quality - (Chris Gunter) - As the season starts and we begin to use greenhouses that have been empty for the winter; be on the lookout for injury due to poor air quality. One problem causing gas of concern to most greenhouse growers is ethylene. This gas can be generated by faulty heat exchangers, dirty fuel openings, and incomplete combustion of fuel. We have also seen problems caused by using nonvented unit heaters in the greenhouse. These problems can be increased in especially tight greenhouse structures, those that have little exchange with the outside air.

Ethylene is a plant hormone produced by plants during their growth and development. However, ethylene produced through faulty heating equipment can be very detrimental to greenhouse crops, because it is produced in high concentrations. It can affect all the above ground parts of the plant including leaves, flowers and fruit. Low levels of ethylene can cause leaves to droop downward, epinasty, even though they are not wilted. Stem thickening, increased branching, flower bud abortion, flower malformation and general stunting can also occur as a result of exposure to ethylene. Crops vary in their sensitivity to ethylene, however tomatoes are especially sensitive. A wide range of crop plants can be affected by ethylene in the greenhouse.

Symptoms of ethylene damage can be very subtle, especially if there are no plants grown in clean air available for comparison. Further complicating diagnosis are factors like exposure time, concentration of ethylene, stage of plant development, temperature and sensitivity of plant species to damage by the gas.

Proper heating system installation and maintenance are the best ways to prevent problems. A maintenance plan should include cleaning the unit heater and fuel orifice twice a year. Propane flames should have a small yellow tip when properly adjusted and natural gas flames should be a soft blue with a well-defined inner cone. To ensure proper combustion heater units should have a clean air intake, which provides fresh air to the

combustion chamber. Adjustment and maintenance of heating units are best done by professionals before the greenhouse is started for the growing season. When having the heater serviced, always ask the repairperson to check for leaks, cracks and any obstructions that may be in the stack (Figure 1). Also all heaters used in the greenhouse should be vented to the outside with a stack, which allows for exhaust gas not to be drawn back in to the greenhouse through the ventilation system.

Here are a few other things you should check before the season begins.

Fans and Components: Check bearings on electric motors, Check and adjust belt tension, Check physical condition of belts, Tighten or replace missing bolts and nuts, Check and adjust belt pulley alignment, Clean fan blades/housing, check and service fan-jet distribution system and convection tube.

Heat Exchangers, Burners, Gas Controls and Thermostat: Check for cracks and corrosion, Clean heat exchanger if necessary, Inspect and clean burners, Inspect and clean inside of burner tubes, Inspect all gas lines and tubing for tight fits, Check electrical connections to gas valve, Check thermocouple for cleanliness and tighten connections, Check thermostat for cleanliness, Check wiring to and from thermostat, Check thermostat setting.

Vent systems/Chimney: Check for obstructions, Check connections for tightness and security, Check vent support system for security, Check joints for signs of leakage, Check vent pipe drip leg and clean-out cap, Check weather cap.

Gas Supply: Check that gas mains are turned on, Check propane level, Check heater combustion air inlets for obstructions, Turn on gas, light pilots and observe burner flame, Activate or cycle heater unit to insure proper operation.





Figure 1. A) This bird's nest was removed from a greenhouse vent stack. B) The bird's nest was large and as you can tell, still actually in use. (*Photos by Chris Gunter*)

For more information on greenhouse air quality check out the Purdue University Floriculture Extension website at http://flowers.hort.purdue.edu/web/GHguides.htm.

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.