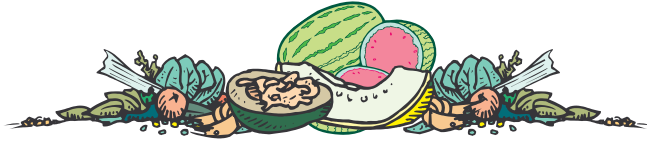


# VEGETABLE CROPS HOTLINE

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

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### WELCOME TO 1999 - (Dan Egel) -

This is the first issue of the 1999 *Vegetable Crops Hotline*. Please send any comments, questions or suggestions you have to me.

At the Southwest Purdue Ag Center, we are still looking for a horticulturist. We hope to have someone in the position before the summer is out. Questions that come up during the growing season may be addressed to the individuals listed at the end of this newsletter.

Here's to a most productive 1999 growing season!



**QUADRIS FOR CUCURBITS** - (Dan Egel) - Quadris is the name of a new fungicide from Zeneca Ag Products. Last year Quadris was labeled for use on tomato diseases. Recently, Quadris was cleared for use on cucurbits (e.g., cucumbers, muskmelons, pumpkins, watermelons etc.) nationwide starting this growing season. This article will review the use of this fungicide on cucurbits.

Quadris belongs to a new class of systemic fungicides called strobilurins. At least three other ag chemical companies have similar fungicides "in the works". Like most systemic fungicides, it is possible that disease-causing fungi may become resistant to Quadris with repeated use. Therefore, the label will require a resistance management strategy. The following are some of the resistance management statements that will be on the new label.

- Quadris may not be applied repeatedly without rotating to a fungicide with a different mode of action. That is, Quadris applications have to be rotated with a fungicide such as a

protectant (e.g., Bravo, Echo, Terranil, Penncozeb, Dithane etc.).

- As with all fungicides, use only at the labeled rates. Use of Quadris at less than labeled rates will not be effective and may lead to fungi resistant to Quadris. Using over the labeled rates is wasteful. **Note that the cucurbit label**

**has different rates than the tomato label.**

- Quadris will be limited to 4 applications a year.

Similar statements will appear on the labels of strobilurin fungicides from other ag chemical companies once they become labeled. Be certain to read the Quadris label carefully. Misuse of this new fungicide may lead to resistance problems with Quadris and many new fungicides to come.



### PESTICIDE TRAINING FOR FARMWORKERS

 - (Liz Maynard) -

The EPA's Worker Protection Standards (WPS) require that all farm workers receive training in basic pesticide safety once every five years. This year Transition Resources Corporation (TRC) is again offering free, on-site, 1-hour, bilingual training sessions for farmworkers. The program is made possible through a partnership between TRC, Purdue Pesticide Programs, the Office of the Indiana State Chemist, and the Indiana AmeriCorps program. If you are interested in scheduling a training by TRC for your farm or area, or have further questions about the program, contact AmeriCorps member Maria Moore at 317-547-1924, or Fred Whitford, Purdue Pesticide Programs at 765-494-1284.

Growers who have a pesticide applicator's license may choose to train workers themselves. Training books, videos, and flipcharts in English and Spanish are available (contact my office at 219-989-2013 to borrow a flip chart or video).

### MELON AND VEGETABLE UPDATE

- (Dan Egel) - Vegetable growers can now keep current simply by using the phone. Starting March 29, growers can call the Melon and Vegetable Update toll free at 800-939-4219. Callers will hear Dan Egel with a brief recorded message about current vegetable problems. The message will be updated weekly through August. Control measures will be included when possible. Growers who wish to ask questions or make comments will be able to do so after the recorded message. The recorded messages will reflect conditions and problems in Southwest Indiana. However, growers in other regions may want to check in to see what problems to expect.

In 1996 and part of 1997, a similar service was offered but had to be cancelled due to technical problems. Growers who used the old service should note that the number has changed.

This service is sponsored by Dan Egel and the Southwest Purdue Ag Center.



### PRODUCER GRANTS AVAILABLE FOR MARKETING AND SUSTAINABLE AGRICULTURE

 - (Liz Maynard) -

Farmers can apply for grants of up to \$5000 to test or demonstrate sustainable farming practices, or to develop creative marketing projects. Grants are provided by the North Central Region Sustainable Agriculture research and Education (SARE) program of the USDA.

A wide diversity of demonstration and on-farm research projects have been funded through this program, including crop production, farmer networks, alternative crops, urban and rural waste management, weed control, soil conservation, and bio-pest control.

Applications for the program are available now from the NCRSARE office (402-472-7081) and are due April 30, 1999. Purdue staff and consultants are available to assist in grant preparation. Don't hesitate to call if you have questions (219-989-2013).



**HERBICIDE BRANDS WITH TWO ACTIVE INGREDIENTS - (Liz Maynard)** - Many herbicides available for sweet corn are a mixture of atrazine with another material. The table below lists the herbicides, and for comparison purposes, how much of each single-ingredient product the mixed product is equivalent to. For instance, Bicep applied at 1.5 qt. / A contains the same amount of atrazine as 1.0 qt. / A of Atrazine (4 lb./gallon) plus the same amount of metolachlor as 0.62 qt. / A of Dual. The rates listed are for comparison purposes only. Read the herbicide label for rates which apply to your situation. All of the products are labeled for use on sweet corn.

Herbicides with Two Active Ingredients, and Equivalent Rates of Single-Ingredient Products (based on pounds active ingredient applied per acre).

Herbicide	Rate for Comparisons with Single-ingredient Materials	Single-ingredient Herbicides						
		Atrazine 4 lb./gal. or 90 DF	Dual or Dual II	Dual II Magnum	Lasso 4 lb./gal	Bladex 4L or 90DF	Frontier 6.0	Basagran 4L
<i>Rate of Herbicide for Same Amount of Active Ingredient as the Pre-mixed Product</i>								
Bicep or Bicep II	1.5 qt. / A	1.0 qt. / A	0.62 qt. / A					
Bicep Lite or Bicep II Lite	1.5 qt. / A	0.63 qt. / A	0.62 qt. / A					
Bicep II Magnum	1.3 qt. / A	1.0 qt. / A		0.41 qt. / A				
Bicep Lite II Magnum	0.9 qt. / A	0.60 qt. / A		0.39 qt. / A				
Bullet 4ME or Lariat 4L	2.5 qt. / A	0.94 qt. / A			1.56 qt. / A			
Extrazine II 90DF	1.3 lb. / A	0.33 lb. / A				0.98 lb. / A		
Extrazine II 4L	1.2 qt. / A	0.30 qt. / A				0.90 qt. / A		
Guardsman 5S	1.25 qt. / A	0.83 qt. / A					0.49 qt. / A	
Laddok	1.25 qt. / A	0.52 qt. / A						0.52 qt. / A
Laddok S-12	0.835 qt. / A	0.52 qt. / A						0.52 qt. / A



**GREENHOUSE SANITATION - (Dan Egel)** - Several growers have already called to ask questions about greenhouse sanitation. Below are my recommendations:

- Trays, pots, etc. should be cleaned well before use. Trays should be cleaned with water and then disinfected with a 10 minute soak in a 10 % bleach solution (0.5 % Sodium Hypochlorite) or 10 minutes in a quaternary ammonium solution such as Green-Shield or Physan 20. Always use gloves when using these products as severe skin irritation can occur. Be sure to read the labels carefully before using. My research shows that Green-Shield or Physan 20 is as effective as 10% bleach in disinfecting transplant trays. My research also shows that it is beneficial to leave trays in for the entire 10 minutes.
- Always use sterile soil mix. Use only clean tools. Do not dump your clean sterile mix onto a dirty surface.
- Greenhouses are easier to keep clean if the greenhouse floor is gravel or plastic that can be cleaned or replaced between transplant generations. Keep transplants off of dirt floors where disease causing microbes may survive.
- Water early enough in the day to allow plant surfaces to dry out before nightfall. Water only when needed. On cloudy days when the soil surface is wet-let the hose rest!
- Scout greenhouses regularly for problems. Transplant trays with diseases should be thrown-out. Neighboring trays may look healthy but are very likely diseased and should be trashed.
- Keep specific lots of seeds in one area of a greenhouse so that if seed-borne problems arise, the lot involved can be identified. Keep good records of which lots were planted when.

Growers spend a lot on seed these days. It only makes sense to give those seeds the best start possible.

**STEWART'S WILT OF CORN** - (*Dan Egel and Rick Foaster*) - Stewart's wilt is an infectious disease of sweet corn caused by a bacterial pathogen that is transmitted by the corn flea beetle. The severity of the disease each year is correlated with winter temperatures, i.e., the milder the winter, the more flea beetles survive, and the more severe the disease.

How bad will Stewart's wilt be this year? Severity of the disease can be determined by adding the average monthly temperatures (in degrees Fahrenheit) for the 3 winter months (December, January, and February). If the sum of these is less than 90, then the disease is not expected to be serious. If the sum is between 90 and 100, then epidemics of moderate severity are expected. Sums of greater than 100 indicate that the disease is expected to be severe and destructive.

The Table below gives the average temperatures and disease potential for several locations around the state. Severe and moderate threats of Stewart's wilt exist in an area around and south of I-70. In these areas, resistant varieties should be grown if possible.

**Corn Flea Beetles and Stewart's Bacterial Wilt**

Location	Mean Temperatures				Disease Potential
	Dec.	Jan.	Feb.	Total	
Wheatfield	33.5	21.0	32.5	87.0	Low
Columbia City	34.4	21.0	31.9	87.3	Low
Kendallville	35.4	20.6	31.5	87.5	Low
LaPorte	35.0	20.2	34.0	89.2	Low
Plymouth	34.9	22.2	32.8	89.9	Low
Logansport	35.1	21.9	34.3	91.3	Moderate
Tipton	35.1	23.8	33.1	92.0	Moderate
Bluffton	35.6	23.9	32.6	92.1	Moderate
Farmland	35.7	25.3	31.6	92.6	Moderate
W. Lafayette	35.4	24.1	34.6	94.1	Moderate
Greenfield	35.9	26.6	34.6	97.1	Moderate
Franklin	36.6	27.3	35.7	99.6	Moderate
Greensburg	37.2	29.4	36.2	102.8	Severe
Terre Haute	37.3	27.9	37.8	103.0	Severe
Bloomington	37.1	31.0	37.1	105.2	Severe
Scottsburg	39.2	31.5	34.7	105.4	Severe
Dubois	38.9	33.1	36.0	108.0	Severe
Vincennes	39.5	32.0	36.5	108.0	Severe

A list of selected sweet corn varieties with good resistance to Stewart's wilt is included below. The list includes the type of sweet corn (su, se, sb, sh2), the color, the relative maturity and the seed source for each variety along with the resistance ranking (1=excellent, 5=poor). It was compiled by Dr. Gerald Pataky, a plant pathologist at the University of Illinois.

Type	Color	Maturity	Source	Variety	Resistance
su	Y	5	Rog	Bonus	1.6
su	Y	4	Cr	Eliminator	2.6
su	Y	5	Rog	GH 2783	1.8
su	Y	4	GG	Gr. Giant Code 27	2.2
su	Y	4	GG	Gr. Giant Code 28	2.2
su	Y	2	GG	Gr. Giant Code 46	2.3
su	Y	4	GG	Gr. Giant Code 55	2.4
su	Y	5	GG	Gr. Giant Code 56	2.6
su	Y	4	HM	HMX 5371	2.6
su	Y	3	Asg	XSC 1017	2.9
se	Y	3	Cr	Bodacious	2.8
se	Y	4	HM	MNX 6380	2.3
se	Y	5	Cr	Incredible	2.7
se	Y	4	Sto	Merlin	2.2
se	Y	5	Cr	Miracle	1.9
se	Y	4	Cr	Terminator	2.8
se	Y	2	Asg	XPH 3123	2.1
se	B	3	Cr	Ambrosia	2.7
se	B	3	Sdw	Table Treat	2.1
se	B	3	Sto	Tecumsah II	2.9
se	W		Sdw	95H263	2.8
se	W	4	Cr	Argent	2.4
se	W	3	HM	HMX 5349 WES R	2.0
se	W	3	Cr	Pristine	2.3
se	W	3	Rob	Seneca RXW 7102	2.8
sb	Y	5	HM	Sugar Ace SB	2.5
sb	B	3	HM	Sweet Rhythm	2.8
sh2	Y	4	AC	ACX 95 CN 232	1.6
sh2	Y	3	AC	ACX 95 CN 432	2.1
sh2	Y	4	Cr	Crisp n Sweet 710	2.4
sh2	Y	5	FM	FMX 416	2.2

Type	Color	Maturity	Source	Variety	Resistance
sh2	Y	4	AC	Summer Sweet 7420	2.7
sh2	Y	4	AC	Summer Sweet 7630	2.0
sh2	Y	4	AC	Summer Sweet 7710	2.7
sh2	Y	5	Cr	Trigger	1.8
sh2	Y	4	HM	Ultimate	2.8
sh2	B	3	Rog	Bi Time	2.9
sh2	B		Sto	Colossal Bi-Color	2.9
sh2	B	3	AC	Summer Sweet 7902	1.9
sh2	W	3	HM	Ice Queen	2.6
sh2	W	3	HM	Silver Dollar	2.6
sh2	W	4	AC	Summer Sweet 7631	2.1
sh2	W	3	Rog	WSS 9720	2.4

AC = Abbot & Cobb; Asg = Asgrow; Cr = Crookham; GG = Green Giant; FM = Ferry Morse, HM = Harris Moran; IFS = Illinois Foundation Seeds; Rog = Rogers; Rob = Robson; Sdw = Seedway; Sto = Stokes; Sun = Sunseeds



**SUBMITTING SAMPLES TO THE PLANT AND PEST DIAGNOSTIC LABORATORY (P&PDL)** - (*Peggy Sellers*)

The Plant and Pest Diagnostic Laboratory (P&PDL) at Purdue University is available to diagnose and offer control recommendations for plant and pest problems including diseases, insects, and weeds. Our diagnoses and recommendations are based on the samples and information submitted. The more representative the sample and the more information provided, the better and more accurate the diagnosis. To help the diagnosticians at the P&PDL, a sample submission form is filled out by the submitter and included with the sample.

Sample submission forms are available on our webpage <<http://www.pddl.purdue.edu/>>, your local county CES office, or from the P&PDL office (765-494-7071). These forms are to be included with samples for identification and/or problem diagnosis. Detailed instructions for submitting most types of samples are included on the back of the forms. Additional information, such as a photograph, is always appreciated. Include with the sample, a check (payable to Purdue University) for \$11 per sample (\$22 if outside of Indiana). Send the sample, submission form, and payment by first-class mail or overnight early in the week to:

Plant and Pest Diagnostic Laboratory  
Purdue University  
1155 LSPS  
West Lafayette, IN 47907-1155

To submit a plant for identification, include a six-ten inch sample of the terminal (tip) portion of the stem with side buds, leaves, and flowers. Place the plant flat between a layer or two of newspaper or other absorbent material. Try to avoid excessive folding of the leaves, and place flowers so that you are looking at the center of the flower. Pack the bundle in plastic, preferable with cardboard, to keep the sample flat. Please do not add water.

To submit plants for problem diagnosis, submit a sample that is representative of the problem and shows the varying degrees of symptoms. For example, for small herbaceous plants send the entire plant or better yet, send several plants exhibiting the full range of symptoms. When removing plants from the soil, dig rather than pull, so roots remain intact. The entire plant, including roots and adjacent soil, should be kept together. Bundle the plants and tie a separate plastic bag

around the roots and soil to keep the foliage separate from soil. The entire plant can then be wrapped in newspaper before placing in a sturdy container for shipment. Again, please do not add water.

It would be difficult to send the entire plant if the ailing plant is a large tree or shrub. In this case, send several branches (even large ones) showing the symptoms and a detailed description of the problem and other useful information about the site, the age of the tree or shrub, and the date of planting. Photographs are also sometimes helpful.

To submit tiny, soft-bodied insects such as aphids, mites, thrips, caterpillars, grubs, immerse in rubbing (isopropyl) alcohol in a small leakproof bottle or vial. Submitting these types of insects without alcohol will cause them to readily decompose, and therefore unidentifiable. Hard-bodied insects such as flies, grasshoppers, cockroaches, wasps, butterflies, and beetles can be submitted dry in a crush-proof container. Please do not tape insects to paper or place them loose in envelopes.



**DIRECTORY OF WHOLESALE VEGETABLE PRODUCERS - DEADLINE APPROACHING** - (*Liz Maynard*) - If you are a member of the Indiana Vegetable Growers Association and would like to be included in the 1999 Directory of Wholesale Vegetable Producers, don't forget to send or fax your form in by March 30. Forms were sent to all 1998 and 1999 IVGA members earlier this year. If you did not receive one, contact me at 219-989-2013.



**PURDUE SPECIALISTS TO CONTACT FOR MORE INFORMATION:**

Jerry Brust, IPM Specialist, (812) 886-0198  
Dan Egel, Extension Pathologist (812) 886-0198  
Rick Foster, Extension Entomologist, (765) 494-9572  
Rick Latin, Extension Pathologist, (765) 494-4639  
Liz Maynard, Veg Crops Specialist, (219) 989-2013  
Jim Simon, New and Speciality Crops, (765) 494-1328  
Steve Weller, Weed Specialist, (765) 494-1333



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