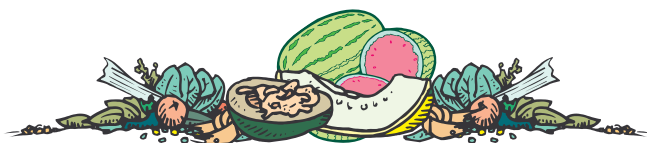


VEGETABLE CROPS HOTLINE

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

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2001 NON-INSURED CROP DISASTER ASSISTANCE PROGRAM - (Doug Hovermale, Farm Services Agency - USDA) - Producers of NAP crops (crops where crop insurance is not available) should be aware of significant changes to the NAP program for 2001. In order to have coverage, they will have to do the following after the program is officially announced:

- Make application for coverage and pay appropriate service fees.
- Report all NAP acreage by July 15.
- Provide a notice of loss to county office (within 15 days of the disaster event or date loss became apparent).
- Make application for payment if losses are determined eligible.
- Remember to request an appraisal if crop is not going to be harvested or there will be no acceptable records of the harvested crop.

Although all the details of the new NAP program for 2001 have not been announced producers of Non-Insurable crops should stay in contact with their local FSA office as to when applications will be made available for 2001 coverage.

Counties currently have very few details on this program but as soon as more become available they will be publicized.



WORKER PROTECTION

STANDARDS: ARE YOU IN COMPLIANCE? - (Liz Maynard) - The EPA's Worker Protection Standards (WPS) require that agricultural employers train farm workers about pesticides, post information about pesticide safety and specific pesticide applications; observe restricted entry intervals (REI's) on pesticide labels; make soap, water, and a change of clothes readily available in case of exposure to pesticides; and provide emergency transportation to a medical facility if injury or poisoning from pesticide exposure is suspected. The Office of the State Chemist has been conducting inspections of

vegetable and greenhouse operations for the last several years, and when necessary, levying fines for violations. This year, observers from the EPA will accompany State Inspectors on some visits.

According to Joe Becovitz from the State Chemist's Office, about half of the operations inspected to date have not met at least one major requirement related to WPS. The most common violations have been not training workers and not posting information about pesticide applications where workers have access to it.

As mentioned above, one of the WPS requirements is that all farm workers receive training in basic pesticide safety once every five years. This year Transition Resources Corporation (TRC) is again offering free, 1-hour, bilingual training sessions for farm workers. Training may be scheduled at a location of your choice for a time that is convenient for you: early morning, daytime, or evening. The program is made possible through a partnership between TRC, Purdue Pesticide Programs, and the Office of the Indiana State Chemist. TRC is also offering CPR and First-Aid training for farm workers, for a small fee. If you are interested in scheduling a training by TRC for your farm or area, or have further questions about the program, contact Julie Canady at 317-547-1924.

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 219-785-5673 to borrow a flip chart or video).

More information on the WPS, including How to Comply manuals and a checklist of employer responsibilities, are available from Joe Becovitz at the Office of the Indiana State Chemist at 765-494-1589, or Fred Whitford at Purdue Pesticide Programs at 765-494-1284. The time to get questions answered and bring your operation into compliance is now, BEFORE an official inspection.



STEWART'S WILT - (Dan Egel and Rick Foster) - Corn plants affected by Stewart's Wilt usually wilt, become stunted, or develop long leaf lesions with wavy irregular margins. Stewart's Wilt is 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? Since the winter in Indiana was relatively cold, flea beetle pressure, and therefore the relative severity of Stewart's Wilt, is low to moderate (see table below).

Interested growers can figure the Stewart's Wilt potential for their own farms. 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.



Corn Flea Beetle/Stewart's Wilt Potential

Location	Mean Temperatures				Disease Threat
	Dec.	Jan.	Feb.	Sum	
Wanatah	16.3	23.4	27.7	67.4	Low
Plymouth	16.2	24.6	29.0	69.8	Low
Columbia City	16.7	25.2	31.6	73.5	Low
Bluffton	18.0	25.8	30.5	74.3	Low
West Lafayette	17.6	24.8	30.7	73.1	Low
Tipton	17.9	25.7	30.8	74.4	Low
Farmland	18.4	26.6	31.2	76.2	Low
Greenfield	19.8	27.7	33.4	80.9	Low
Greencastle	18.2	25.9	32.8	76.9	Low
Terre Haute	20.5	27.8	32.8	81.1	Low
Bloomington	21.3	28.5	34.6	84.4	Low
Milan	20.5	27.2	33.9	81.6	Low
Freelandville	22.0	28.2	35.4	85.6	Low
Dubois	25.2	29.6	38.2	93.0	Moderate
Evansville	23.6	31.6	40.5	95.7	Moderate

A list of selected sweet corn varieties with good resistance is included below. This list is compiled from studies carried out by Gerald Pataky at the University of Illinois since 1984. 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=resistant, 9=susceptible). Only varieties rated 3 or better were included in this list. The complete list can be seen in the Midwest Vegetable Variety Trial Report for 2000.

Type	Color	Maturity	Source	Variety	Resistance
se	Y	4	Asg	Climax	2
se	Y	4	Cr	Incredible	3
se	Y	4	Cr	Incredible R	3
se	Y	5	Asg	Melody	3
se	Y	5	Mes	Merlin	2
se	Y	4	Cr	Miracle	1
se	Y	2	Sen	Seneca Arrow II	3
se	Y	2	AC	Summer Flavor 73 Y	3
se	Y	3	AC	Summer Flavor 79 Y	1
se	Y	4	HM	Sundial	2
se	Y	5	HM	Tapacio	3
se	Y	4	Mes	Tuxedo	2
se	B	3	Cr	Ambrosia	1
se	B	4	Mes	Buckeye	2
se	B	4	Mes	Friendship	3
se	B	5	Mes	Lancelot	2
se	B	3	Mes	Luscious TSW	3
se	B	3	Cr	Mystique	3
se	B	4	Sen	Seneca Nation	1
se	B	4	Sen	Seneca PS 7404	3
se	B	3	Rog	Seneca Wardance	2
se	B	3	HM	Sweet Rythm	3
e	B	3	Sdw	Table Treat	2
se	B	4	Mes	Yankee Gem	3
se	W	4	Cr	Argent	2
se	W	4	Mes	Imaculata	3
se	W	2	Sen	Seneca Snowshoe	2
se	W	3	HM	Silverado	3
se	W	4	AC	Summer Flavor 81 W	3
sh2	Y	1	Sdw	Astro	3
sh2	Y	4	Cr	Crisp n Sweet 710	3
sh2	Y	5	IFS	Florida Staysweet	3
sh2	Y	4	Asg	Maverick	2
sh2	Y	4	Asg	Mecca	1
sh2	Y	4	Cr	Missouri	2
sh2	Y	3	Rog	Prime Plus	3
sh2	Y	3	Rog	Primetime	3
sh2	Y	4	AC	Pro Sweet 415 R	3
sh2	Y	3	Asg	Punchline	3
sh2	Y	3	Sdw	Saturn	3
sh2	Y	5	Rog	Sucro	2
sh2	Y	6	Rog	Sugar 73	3
sh2	Y	3	AC	S. Sweet 7210	3
sh2	Y	4	AC	S. Sweet 7620	2
sh2	Y	4	AC	S. Sweet 7630	2
sh2	Y	4	AC	S. Sweet 7710	2
sh2	Y	4	AC	S. Sweet 8100 R	3
sh2	Y	4	HM	Ultimate	2
sh2	Y	1	IFS	Xtra Tender 171A	3
sh2	Y	3	IFS	Xtra Tender 177A	3
sh2	Y	3	IFS	Xtra Tender 179A	1
sh2	Y	4	IFS	Xtra Tender 182A	2
sh2	Y	4	HM	Zenith	2
sh2	B	4	HM	Candy Store	3

Type	Color	Maturity	Source	Variety	Resistance
sh2	B	4	JS	Eagle	1
sh2	B	2	IFS	Eagle	3
sh2	B	4	IFS	Nordic	3
sh2	B	3	AC	S. Sweet 7902	1
sh2	B	4	AC	S. Sweet 8102	3
sh2	B	1	IFS	Xtra Tender 271A	2
sh2	B	3	IFS	Xtra Tender 277A	3
sh2	B	3	IFS	Xtra Tender 278A	3
sh2	B	4	IFS	Xtra Tender 282A	3
sh2	W	5	Sak	Millennium	1
sh2	W	4	AC	S. Sweet 7631	3
sh2	W	3	AC	S. Sweet 781 Ultra	3
sh2	W	3	IFS	Xtra Tender 378A	2
sh2	W	4	IFS	Xtra Tender 382A	3

Type- se=sugary enhancer; sh2=shrunken 2.

Color-Y=yellow; B=bicolor; W=white.

AC=Abbot & Cobb; Asg=Asgrow; Cr=Crookham; HM=Harris Moran; IFS=Illinois Foundation Seeds; JS=Johnny's Selected; Mes=Mesa Maize; Rog=Rogers Novartis, Sak=Sakata; Sdw=Seedway; Sen=Seneca Hybrids (Seminis).



SEED AND ROOT MAGGOTS - (Rick Foster) - Three species of seed and root maggots attack vegetables in Indiana. The seedcorn maggot feeds on seeds and seedlings of sweet corn, cucurbits, lima and snap beans, peas, and other crops. Cabbage maggots can cause serious damage to transplants of cabbage, broccoli, cauliflower, and Brussels sprouts and make the fleshy roots of radishes, turnips, and rutabagas unmarketable. Onion maggots are pests of seedling onions, developing bulbs and onions intended for storage.

Seedcorn maggot flies emerge in April and May and lay eggs preferentially in areas with decaying organic matter. Fields that are heavily manured or planted to a cover crop are more likely to have seedcorn maggot injury. Maggots burrow into the seed and feed within, often destroying the germ. The seeds fail to germinate and plants do not emerge from the soil, leaving gaps in the stand. When infested seeds germinate, the seedlings are weak and may die. Maggots also will feed within the stems of transplants.

Any condition that delays germination may increase damage from this pest. Damage can be reduced by planting into a well-prepared seedbed, sufficiently late to get rapid germination. The slower the rate of growth, the greater the likelihood of seedcorn maggot injury. Seed treatments of lindane, diazinon, or chlorpyrifos are an inexpensive method of reducing seedcorn maggot damage. For any type of early season transplant, soil temperatures should reach at least 72°F or more for 4-5 days in a row to avoid maggot injury. Anything that raises soil temperature (black or clear plastic mulch) will increase soil warming and decrease the possibility of seedcorn maggot injury.

Soil insecticides applied to control other pests may also give moderate levels of seedcorn maggot control. Once damage is observed, the only management strategy available is the decision to replant or not. If you decide to replant, be sure to use treated seed. When resetting transplants be sure to wait 5 days from the first evidence of wilted plants before you reset.

Cabbage maggot injury is also favored by cool, wet conditions. The flies, slightly smaller than a housefly, emerge in late April or early May and lay white eggs at the base of newly set plants. Larvae from this first generation tunnel in the roots of small plants, causing the plants to appear sickly, off color or stunted, and may cause them to die. Early cabbage and turnips are particularly vulnerable to damage. Control of first generation maggots can be achieved using soil insecticides such as Lorsban, diazinon, and Dyfonate at planting or transplanting. For short season crops such as radishes and turnips, long-residual insecticides cannot be used. Cabbage maggots usually do not affect later planted crucifers.

Onion maggot flies emerge throughout May and lay eggs at the base of onion plants. The maggots attack the underground portions of the onion plants and cause plants to wilt and die. Seeded onions are more susceptible than transplanted onions. Do not overseed to compensate for losses to onion maggots. The flies do not space their eggs evenly, so you may end up with smaller bulbs because the plant spacing is too close. The second-generation flies emerge during July and the third generation emerges during late August and early September. Each generation will damage onions.

Removing cull onions after harvest and planting as far as possible from fields planted to onion the previous year can reduce damage. Soil drenches of Lorsban or Dyfonate at planting will effectively control first generation maggots and provide some control of the second generation. As the onions begin to mature, they become physically resistant to attack from onion maggots, unless they have been injured in some way. Be careful during field operations not to damage the growing plants in any way. A nick in an onion bulb allows the maggots to enter and begin feeding. Also, the flies are attracted to damaged onions to lay eggs. Reducing the amount of physical damage to the onions at harvest as much as possible will also reduce the amount of injury from the third generation. Do not apply foliar sprays to kill flies before they lay eggs.



WHAT KIND OF MELON? - (Chris Gunter) - Recently, Southwest Indiana Melon and Vegetable Growers meeting in Vincennes had a chance to vote for the most important fruit characteristics for muskmelon and watermelon. The results of the survey are given below.

Muskmelon: Of 22 growers, 82%, grow 1 or 2 varieties of muskmelon and 73% of them grow 20 acres or less of each variety. In the survey growers were asked to rank each characteristic that is currently evaluated in muskmelons from 1 (not important) to 10 (very important). A majority of people, 77%, ranked yield and disease resistance as very important characteristics. Fewer people, 45-59%, ranked duration of the season, uniformity of fruit, flavor, netting, individual fruit weight, suture size, earliness and shape as very important. Finally, 18-32%, ranked rind thickness, seed source, percent soluble solids and seed cavity size as important characteristics in evaluating muskmelon quality.

Watermelon: 70% of the 27 growers, plant 1-2 varieties of seeded melons (range was 1 to 8 varieties). 52% of the seedless watermelon growers grow 2 or fewer varieties (range was 1-15 varieties). The largest acreage reported in both seeded and seedless watermelon was 200 acres, but 50-57% are below 30 acres per variety. Just like muskmelon growers, most 81-89% of watermelon growers ranked disease resistance, yield and individual fruit weight as very important characteristics in crop quality. Additionally, 63-78%, ranked flavor, uniformity of fruit, flesh color, earliness and fruit shape as important characters. While only 30-56%, ranked rind thickness, seed source, percent soluble solids and rind pattern as very important.

Choosing the variety with excellent horticultural and consumer preference traits is critical. However, just because you have the right genetics on your side, doesn't guarantee a wonderful crop and high profits. Genetics provide the blueprint for the melon plant and fruit. You, the grower, provide the lumber and other materials. A good building will never result from a bad blue print. Many a bad building has resulted when poor materials were combined with a good blue print.

For example, poor management of nutrients or water will lead to a reduction in yield even with a variety capable of very high yields. Flavor and soluble solids will be lost if the fruit is not picked at the appropriate time.



Clip and keep for future reference.

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Office of the Indiana State Chemist, 765-494-1492, URL:
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PHEROMONES AND PHEROMONE TRAPS - (Rick Foster) -

One way insects communicate with individuals of the same species is with pheromones. Pheromones are volatile chemicals released by an insect that usually can be detected only by individuals of the same species. There are a number of different types of pheromones, but the most common type is the sex pheromone. Usually the females will emit a tiny amount of a chemical that attracts the male to her and increases the likelihood of mating. Because the chemical is volatile, air currents carry it. The male detects the pheromone in the air with receptors on his antennae. He then flies upwind to find the source of the pheromone, a prospective mate. The chemical compositions of pheromones for a number of pest species have been identified and synthetic copies can be produced in the laboratory. Synthetic pheromones can be used in conjunction with traps to catch male insects.

There are a number of vegetable insect pests that can be monitored with pheromone traps. I would recommend that any serious sweet corn grower purchase traps and lures for corn earworms, European corn borers, and possible even fall armyworms. Pepper and snap bean growers could benefit from knowing when corn borers are flying as well.

Listed below are some, but certainly not all, of the suppliers of pheromones and traps.

Consep Membranes, Inc.; 213 S. W. Columbia; Bend OR 97702-1013; 800-367-8727; www.consep.com

Gempler's; P. O. Box 270; 100 Countryside Dr.; Belleville, WI 53508; 800-382-8473; www.gemplers.com

Great Lakes IPM; 10220 Church Rd., NE; Vestaburg, MI 48891; 517-268-5693; www.greatlakesipm.com

Insects Limited Inc.; 16950 Westfield Park Rd.; Westfield IN 46074-9374; 317-846-3399; www.insectslimited.com

Scentry Biologicals Inc.; 610 Central Ave.; Billings MT 59102; 800-735-5323; www.scentry.com

Trece Incorporated, P. O. Box 6278. 1031 Industrial St.; Salinas, CA 93901; 408-758-0205; www.trece.com

To get the most from your pheromone traps, they must be used properly:

- Place the traps and the pheromones out before you would normally expect the insect pest to be active. That way you can monitor the adult activ-

ity, which will warn you that damage from the larvae may be coming soon.

- Be careful how you store pheromones. Ideally, they should be frozen until ready for use. At the very least, they should be refrigerated. If you keep them on the dashboard of your truck, they won't work well when you place them in the trap.
- When handling pheromone lures, do not touch them with your hands. Use a pair of forceps or wear latex gloves. This is especially important when you are using pheromones for more than one pest. Contamination of a lure with another pheromone will likely reduce the effectiveness.
- Lures usually should be changed every 3-4 weeks, although this will vary for individual lures.
- Check traps regularly, at least weekly. Daily would be better.



SURVEYS-WHO NEEDS THEM? - (Steve Wilson, Indiana Ag

Statistics Service) - For many years, the Indiana Agricultural Statistics Service has published end of season estimates for field, fruit and vegetable crops. And for many years, several thousand of you have been faithful reporters. For this, we thank you! For the rest of you, you may be wondering, why should I return a survey?

Here are a few reasons:

- Historic crop yields provide the basis of production comparisons when disasters occur and application for assistance is required. The Farm Service Agency of the USDA often links assistance to yields obtained by state surveys.
- Surveys provide teachers, extension educators, 4-H leaders, media, and students educational material about the importance of agriculture to the State and their county.
- Suppliers of agricultural products use the data in planning the inventory for their products such as seed, fertilizer, chemicals, and transportation of harvested products.
- Surveys determine the ranking of yields and production by county so people in each county can know their respective importance within the State.

When your survey comes this year be sure to fill it out and return it promptly.

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.agcom.purdue.edu/AgCom/Pubs/menu.htm> 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.

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