

VEGETABLE CROPS HOTLINE

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

Dan Egel, Editor
(812) 886-0198
egel@purdue.edu



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SEEDLING DAMPING OFF - (Dan Egel) - One of the early season problems that vegetable growers may encounter is the damping off of seedlings. Affected seedlings may at first appear yellow and may be stunted. More severely affected seedlings may wilt or fall over. A closer inspection often reveals that the stem (hypocotyl) of the seedlings is wet and discolored (Fig. 1).



Fig. 1: A muskmelon plant that has damped off. Note the discolored, wet appearance of the lower stem (hypocotyl). (Photo by Dan Egel)

Damping off may occur in the greenhouse or in the field. All vegetables are susceptible to damping off, an infectious disease that may be caused by any number of soil borne fungi (e.g., *Pythium* spp., *Rhizoctonia solani*, *Thielaviopsis basicola*). In order for damping off to occur, the fungus must be present in the soil or greenhouse mix and the proper conditions of temperature and moisture must be met.

In general, cool temperatures and soils or greenhouse mixes that have been too wet favor the occurrence of damping off. I often get complaints about damping off after long stretches of cool, cloudy weather such as Indiana experienced earlier this spring.

Most greenhouse mixes are Pasteurized-the mix has been heated sufficiently so that fungi such as those listed above are killed. However, disease-causing fungi can be introduced if the mix comes into contact with a contaminated surface such as a greenhouse floor or a shovel. Last year's transplant trays may also be a source of contamination. Even trays that have been cleaned and then soaked in a quaternary ammonia solution (e.g., Physan 20, Greenshield) or 10% bleach (use gloves and goggles) may retain some contamination with fungi. That is to say, it is very difficult to clean and disinfect used trays sufficiently.

Management of damping off:

- Purchase greenhouse mixes that have been Pasteurized. Avoid contaminating the mix by contact with contaminated surfaces.
- Use new transplant trays or clean and disinfect as stated above. Once contaminated, it is very difficult to get trays disinfested. Follow the label of any products used for disinfesting trays.
- Avoid over watering, especially during periods of cool, cloudy weather.
- Use a greenhouse mix that has excellent drainage properties.
- Crops that have been direct seeded outside will be less likely to have damping off if planted later when the soil is warm, raised beds are used or heavy soils are avoided.

POSTHARVEST CARE OF EARLY SEASON VEGETABLES

- (Liz Maynard) - The first crops of the season are on the way to market or will be soon: asparagus, rhubarb, and greens. It's a good time to review the postharvest environmental conditions that will keep the produce at its best quality.

Asparagus is one of the most perishable of vegetables. Picked as a rapidly growing shoot, it remains very much alive until it is eaten. Quality deteriorates rapidly due to respiration, lignification, and water loss. The keys to maintaining quality are low temperatures and high relative humidity. Low temperatures slow the rate of respiration. Lignification, which causes toughening, occurs rapidly above 59°F but is greatly reduced at low temperatures. Ideally, asparagus is cooled to 32°-35.6°F right after harvest and kept at that temperature until sold. Relative humidity during storage should be 95% to 99%. Absorbent, water-soaked pads can be used to

maintain high humidity in the storage container. Exposure to ethylene increases lignification and so asparagus should be kept away from fruit and vegetables that produce ethylene as well as other possible sources. Spears will grow after they are cut if not kept cold. If they are stored in a horizontal position, the growth will cause tips to bend upwards. Store spears upright to avoid this problem.

Rhubarb should be cooled after harvest and stored under conditions similar to asparagus: 32°F and 95% to 100% relative humidity. Splitting of petioles may be reduced if small portions of the leaf blade are left attached to the petiole.

Greens for cooking or salad, including spinach, kale, mustard, lettuce, arugula, and many others, should also be cooled soon after harvest and kept at 32°F and 98% to 100% relative humidity. They should be kept away from sources of ethylene because it will cause yellowing of green leaves and russet spotting of lettuce. Handling greens with care to prevent bruising is especially important. Bruised tissue produces ethylene and also is more susceptible to infection by bacteria that cause postharvest soft rots.

Recommended storage conditions for more vegetable crops are listed in Table 12, *Postharvest Handling and Storage Life of Fresh Vegetables*, Midwest Vegetable Production Guide for Commercial Growers 2008 <www.btny.purdue.edu/Pubs/ID/ID-56/postharvestHandling.pdf>. For additional information, see the Postharvest section of Purdue's Fruit and Vegetable Connection at <www.hort.purdue.edu/fruitveg/veg/harvest.shtml>.

SEEDCORN MAGGOT DAMAGE ON MELONS - (Rick Foster)

- Seedcorn maggots can be a serious pest of early season melons. The flies prefer to lay their eggs where the soil is cool (below 70° F) and/or where organic matter is high. Damage is more likely to occur on heavier soils than on sand. Young transplants that are infested with seedcorn maggots will wilt and die within a couple of days.



Fig. 1: Cream-colored seedcorn maggots about 1/4 inch long may be observed at the base of seedlings that have wilted and collapsed. (Photo by Dan Egel)

I planted a trial at the SW Purdue Ag Center near Vincennes to compare several insecticides for control of seedcorn maggots on both watermelons and muskmelons on April 25. When I visited the plot on May 1, 52% of the untreated muskmelons and 69% of the untreated watermelons were dead. Inspection of dead plants showed one

or more seedcorn maggots in the stem each plant. The maggots are white, legless and reach a length of about ¼ inch (Fig 1). None of the insecticides labeled for use at planting time on melons (Furadan, Admire, Platinum) provided much control in this study. The data are still preliminary because additional plants are likely to die, but even if no more plants die in the treated rows, the level of control is not very good. Previous studies have shown better levels of control, although we have never seen more than a 50% reduction in dead plants with any of these compounds. It may be that the extremely cool weather this year inhibited the uptake of the insecticide from the soil.

As of May 5, the bare ground soil temperature at Vincennes was about 59° F. Temperatures are supposed to be fairly warm this week, but it will probably be a while before the soil temperatures reach 70° F. At this point, I would recommend that growers use one the three insecticides listed above, mostly for striped cucumber beetle control, but you may also get some benefit with seedcorn maggots. Some growers are also using row covers over their early planted melons for frost protection, but this will inhibit the flies from laying eggs at the base of the plants. Waiting for the soil to warm up is the best option entomologically, but may not be practical for growers to hit the markets they are shooting for. If you are going to plant into cool soils soon, be aware of the potential for seedcorn maggot loss and be prepared to replant.

STRIPED CUCUMBER BEETLES - (Rick Foster) - Entomologists at Purdue and elsewhere have been trying to figure out when striped cucumber beetles will become active in the spring for over 50 years. I can't say that we know a whole lot more now than we knew 50 years ago. Whatever it is that triggers the beetles to become active, they all seem to get the message at once, because we often go from almost no beetles to lots of beetles almost overnight. The best advice I can give melon growers is to scout their fields regularly, at least 3 times per week. That may sound like a lot when you are still trying to finish planting melons and other crops. However, striped cucumber beetles will usually attack the same portion of a field first each year. Also, the initial infestation is almost always on the edge of a field. As a result, the scouting doesn't require a lot of walking in the field or take a lot of time. Once you find that initial infestation, then you can do a more thorough job scouting to see how widespread the infestation is. The most important thing is to spend a little time several times per week looking for beetles.

NEW PP&DL DIRECTOR - (Tom Creswell) - I joined the staff of the Botany and Plant Pathology Dept. on April 23rd as the new director of the Purdue University PP&DL diagnostic lab.

I've received a warm welcome and have enjoyed getting to know people both on campus and off. I'll continue the lab's focus on providing an accurate diagnosis for plant diseases and other problems along with rapid access

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CLEAN SWEEP DATES AND LOCATIONS FOR 2008 - (Announcement) - Clean Sweep is a program that allows private and commercial pesticide applicators to dispose of up to 250 pounds of cancelled, unwanted or unused pesticides for free or very little cost! The pesticides are collected at several sites around Indiana by a licensed hazardous waste disposal company and are then taken to a licensed disposal site where they are incinerated. To participate in the 2008 Clean Sweep Program, simply complete the form below and return it by fax or e-mail to Kevin Neal by July 30, 2008.

PESTICIDE CLEAN SWEEP PLANNING FORM

I have the following pesticides (weed killers, insecticides, rodenticides, fungicides, miticides, etc.) to bring to the Indiana Pesticide Clean Sweep. I understand that there will be no charge for disposal of up to 250 pounds of pesticides per participant. I also understand that if there is not adequate demand for these disposal services, I will be contacted by the Office of Indiana State Chemist to be notified of the program cancellation.

Contact Name _____ Contact Phone # _____

Please indicate at which location you will be participating.

Greenfield Aug 5th _____

Brownstown Aug 7th _____

Rensselaer Aug 12th _____

Rochester Aug 14th _____

List of pesticide products to be disposed:

1. Trade Name _____

Active Ingredient _____

(Check One)

_____ Solid

_____ Gallons

_____ Liquid

_____ Pounds

_____ Aerosal

2. Trade Name _____

Active Ingredient _____

(Check One)

_____ Solid

_____ Gallons

_____ Liquid

_____ Pounds

_____ Aerosal

3. Trade Name _____

Active Ingredient _____

(Check One)

_____ Solid

_____ Gallons

_____ Liquid

_____ Pounds

_____ Aerosal

4. Trade Name _____

Active Ingredient _____

(Check One)

_____ Solid

_____ Gallons

_____ Liquid

_____ Pounds

_____ Aerosal

RETURN BY AUGUST 1, 2008 TO KEVIN NEAL, nealk@purdue.edu OR (765) 494-4331 (fax). Questions may be directed to Kevin at (765) 494-1585.

to results. We'll also work to support county educators and others through training and facilitating an open line of communication to resources and people on campus.

I grew up on a potato farm in northern Alabama. I received my B.S. in Botany and M.S. in Plant Pathology from Auburn University and the Ph.D. in Plant Pathology from NC State. I served as manager of the North Carolina State University Plant Disease and Insect Clinic from 1988 to April 2008.

I'm actively involved with the national professional society for plant pathology: the American Phytopathological Society (APS); having served on the Diagnostics Committee and presented at national and regional meetings. I also participate in the National Plant Diagnostic Network (NPDN). The NPDN was established by the USDA after the 9/11 attacks to assure that any new pathogens or insects deliberately introduced into the US would be detected early and would be reported to the USDA quickly. It now serves to support and link diagnostic labs across the US.

Personal: My wife of 25 years is Jane Creswell, a business and personal coach in the corporate arena. We have two sons. Bryan (23) is a senior at NCSU in computer science. Andrew is 20 and attends the Savannah College of Art and Design in Savannah, GA.

Tom Creswell, email: creswell@purdue.edu, website: www.ppd.purdue.edu/PPDL/.

MELBORN LANG RETIREMENT - The superintendent of the Southwest Purdue Agricultural Center, Meb Lang has retired after 45 years of service. Meb worked for the farm when it was still in Princeton in Gibson County and stayed with the farm when it moved to Knox County in the late 1970's. As long as there has been a Southwest Purdue Ag. Center, Meb Lang has been in charge of it.

Meb's hard work ethic, his knowledge of farming and his good nature will be missed. Never one to stay in the office when there was work to be done, Meb was often seen turning vines, tossing melons or tilling fields.

Many changes have occurred both to the Southwest Purdue Ag. Center and to the melon industry since Meb started working. In the 1970's, many watermelons grown in Indiana were seeded. Transplants, if they were grown at all, were grown in box bands instead of polystyrene trays. In 1990, 3 vegetable specialists were added to the farm. Meb has also overseen many building projects since he started with Purdue.

Meb has been honored with a luncheon put on by his fellow Superintendents and by a plaque from the Southwest Indiana Melon and Vegetable Growers Association honoring his many years of service. We all wish Meb well in his retirement.

Please add the following Specialist to the list provided in Issue #490, page 5.

Name	Expertise	Phone	Email	Location	Web site
Lyndon Kelley	Irrigation	269-467-5511	kelleyl@msu.edu	Centreville, MI	www.msue.msu.edu/portal/default.cfm?pageset_id-28706 (follow link to irrigation)

Lyndon Kelley is employed by Purdue and Michigan State University to provide education about irrigation. A number of resources are available on his website.

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Vegetable Crops Hotline
c/o Dan Egel
Southwest Purdue Agricultural Program
4369 N Purdue Rd
Vincennes, IN 47591