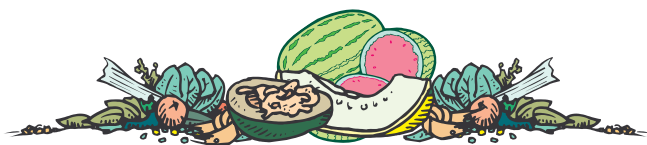


# VEGETABLE CROPS HOTLINE

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

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**NEW ADDRESS - (Liz Maynard) -**  
My office has moved to Purdue  
North Central in Westville. You can  
contact me at:

Liz Maynard  
Northern Indiana Commercial  
Horticulture Program  
Purdue University North Central  
1401 U.S. Highway 421  
Westville, IN 46391  
phone: 219-785-5673, or 800-872-  
1231 ext. 5673 (in Indiana)



**POST-EMERGENCE WEED CONTROL  
IN BROADLEAF VEGETABLE CROPS-**  
(Liz Maynard) - Some calls have  
come in about postemergence weed  
control in vegetables. Cultivation,  
handweeding, broadcast sprays of  
selective herbicides, and shielded  
sprays of non-selective herbicides all  
have a role.

For control of grasses, the  
herbicides Poast, Fusilade, Select,  
and Assure II are available. Poast is  
labeled on many vegetable crops.  
The other three are each labeled on  
several crops - check the 1999  
Midwest Vegetable Production  
Guide for Commercial Growers (ID-  
56) for a list. These herbicides may  
be applied over the top of labeled  
crops. They will kill grass but have  
no effect on broadleaves or  
nutsedge. These materials work best  
when combined with a surfactant -  
read the label for recommended  
materials. Actively growing grass is  
killed most effectively. Preharvest  
intervals vary from 14 to 30 days.

For control of broadleaves,  
Sencor/Lexone can be used on  
potatoes and tomatoes, and will  
provide some residual weed control.  
They can easily injure crops if  
misapplied: read and follow label  
precautions. Basagran is labeled for  
snap beans, lima beans, and peas.  
The preharvest intervals for these  
materials range from 7 to 60 days.

For control of grasses and  
broadleaves, the non-selective  
herbicides Gramoxone Extra or  
Scythe can be applied as a directed  
or shielded spray in labeled crops.

These herbicides will injure  
any crop leaves or stems they  
contact. Gramoxone is  
labeled on peppers, tomatoes,  
and eggplant. Scythe is  
labeled on a wide range of  
vegetable crops. These  
materials were discussed in  
more detail in Veg Crops  
Hotline #357.

Cultivation is an  
indispensable component of weed  
control for many vegetable crops. A  
discussion of the many types of  
cultivation equipment is beyond the  
scope of this article. Whatever the  
implement, cultivate just deep  
enough to uproot the weeds. Deep  
cultivation brings buried weed  
seeds to the surface to germinate,  
dilutes any pre-emergent herbicide  
applied earlier in the season, and  
increases evaporation of soil  
moisture. Deep cultivation may also  
damage crop roots. If you have a  
patch of perennial weeds, such as  
canada thistle or yellow nutsedge,  
whose underground structures can  
grow new plants, avoid spreading  
the weed across the field on  
cultivator tines.

Handweeding is important for  
tackling weeds which escape control  
by cultivation and/or herbicides.  
Summer annual weeds will flower  
and produce seeds soon. Removing  
those weeds before seeds mature  
will reduce weed pressure in future  
years. Weed seeds mature quickly,  
so if weeds have already flowered it  
is best to remove the weeds from the  
field after pulling them.



**ASPARAGUS - (Jerry Brust) -** This  
spring I put in a new planting of  
asparagus crowns. Overall, the new  
growth is good for 3 of the different  
varieties being tested, which in-  
cludes Purple Passion. Only one,  
Martha Washington, is not doing  
quite as well as the others. Crowns  
were planted almost 2 months ago  
and in the last 10 days, we have  
found common asparagus beetle,  
larvae and eggs on the ferns.

There are two types of  
asparagus beetles. One is a major  
pest - the common asparagus beetle,  
which is blue-black with a reddish  
neck area and cream-colored spots.  
Larvae are gray with black heads.  
The other type of beetle, which is  
usually not a pest, is the spotted  
asparagus beetle. It is orange with  
black spots and its larvae are off-

white with light brown heads. Eggs  
of the beetles are black, oval and  
attached by one end to the plant.  
Unfortunately, the non-pest (spotted  
asparagus beetle) is not as common  
as is the common asparagus beetle  
(hence its name). Since this is a new  
planting, I am going to try to reduce  
the population of beetles and larvae  
so that they do not become too well  
established. Beetles will overwinter  
in debris in or near the asparagus  
field. In the spring when spears  
begin to appear, adults will feed on  
these new shoots and lay their eggs in  
the tips of the spears. The eggs and  
larvae usually are found in scattered  
concentrations and therefore, the  
whole field needs to be checked for  
their presence. Beetles are most  
active after 11:00 AM and therefore,  
should be checked for in the  
afternoons. There are natural  
enemies that can reduce the  
common asparagus beetle  
population. The more common ones  
are lady bugs and lacewings (both  
adults and larvae). The other one  
you may not see directly is a  
parasitic wasp. This wasp is very  
small (< 1/16 inch long) and green.  
It concentrates its attack on the  
beetles' eggs. It does this in two  
ways, it chews a hole in the eggs and  
drinks the liquid or it lays its eggs  
on the beetles' eggs. When the wasp  
eggs hatch, they eat the beetle larvae  
from the inside and kill it. All of the  
natural enemies will be more  
abundant with nectar sources that  
are planted between rows. I am  
using two different types of clover -  
red and sweet - in between my  
asparagus rows to attract and keep  
the biological controls. In the fern  
stage (now) treatments are necessary  
if there is 10% defoliation or if 50%  
of plants have any larvae. During  
harvest, 5-10% of plants needs to be  
infested by adults or 2% of spears  
must have eggs in them before  
sprays should go out. Check the  
Midwest Vegetable Production  
Guide for Commercial Growers (ID-  
56) for a list of chemicals that are  
effective. Besides conventional  
insecticides I am also testing some  
'organic' ones such as rotenone,  
pyrethrin, neem, beaeveria bassiana  
(a fungus) and Btsd (Bacillies  
thuariensis san diego) - this is  
used against Colorado potato beetle  
- another beetle pest. Except for  
Btsd and possibly neem, the rest will  
interfere with the natural enemies  
too. If there are enough natural  
enemies, especially the parasitic  
wasps, controls may not be  
necessary, so look for these  
biocontrols before using anything.  
Eggs that have been eaten will  
appear collapsed, while larvae that  
have been attacked will be dead.



**BACTERIAL WILT & PUMPKIN** – (*Jerry Brust*) - *Continued from VCH Issue 363* - When I originally did my bacterial wilt studies 4-5 years ago, I used the bacteria from wilted/dead cantaloupe plants. It is difficult to keep the bacterial wilt pathogen in pure culture. We would grind stems up that had the bacteria and add distilled water, mix and strain. We then injected this mixture into our experimental plants – cantaloupe, squash, pumpkin, watermelon and cucumber. This method produced 100% dead cantaloupe and cucumber, 20-30% dead squash, 2-5% dead pumpkin and < 1% dead watermelon. I had assumed all bacterial wilt was the same. However, when we injected squash bacterial wilt (the squash plants that had wilted and died from the cantaloupe injection) into squash, instead of 20-30% dead plants there were 40-60% dead squash plants. We then injected pumpkin with the bacterial wilt from the wilted/dead squash plants, which resulted in 15-20% of the pumpkin plants wilting and dying. When we injected pumpkin again with bacterial wilt from wilted pumpkin plants, then 50-60% of the pumpkins died. These experiments were repeated several times using hundreds of plants. However, we started with only one source of bacterial wilt – from cantaloupe. Does this experiment mean there may be different strains, types, races (?) of *E. tracheiphilia* that are selected for in each type of cucurbit? I do not know. This is one of the questions Dan and I hope to try and answer over the next year or so. If there are different types of bacterial wilt that do better (in this case better means more deadly for the plant) in some cucurbits than others then what type of bacterial wilt the cucumber beetle in your field last fed upon may determine how much or if your plants are infected.

If there are different types of bacterial wilt, what might have caused this shift? It is impossible to say, but we are growing many more acres of pumpkin in the Midwest compared to 15 years ago. This can lead to things that are minor problems becoming much larger problems. As an example, squash vineborer was always thought of as a backyard garden pest that did not effect commercial sized pumpkin fields. But as many of you know, they have become a tremendous problem in the last 5 years. In some areas they are the number one insect pest. What should a grower do for now? First, do not start spraying! We do not yet know if that is cost effective, let alone if it will even stop the problem.

So, **do not** over spray for beetles, continue to use defoliation (>40% defoliation needs a spray) as your guide until we come up with more definite answers.

Pumpkin growers could help us greatly by calling either Dan or me (812-886-0198) and letting us know if you have this pumpkin decline. Be sure to check first to see if it is a recognizable disease or squash vineborer or mechanical injury. If none of these seem to explain the yellowing, necrotic leaves on plants, that are not growing well then we would like to have some of those plants to examine. If you have any questions, give me a call at (812) 886-0198.



**SUDDEN WILT OF WATERMELONS** - (*Dan Egel*) - In southwest Indiana sudden wilt of watermelon is severe problem for many growers. Please read the following description of the disease; if you think you may have this disease, please contact Dan Egel.

Sudden wilt affects only watermelon plants (so far). The only above ground symptoms of this disease are vines that wilt and decline. The roots often have a reddish-brown discoloration. Sometimes roots are so rotten they disintegrate in one's hands. In the morning hours the vines may appear to have recovered, however, during the heat of the day wilting is obvious. The disease appears to be most common when the vines are under stress from heavy fruit load.

Sudden wilt may be confused with fusarium wilt of watermelon. While sudden wilt seems to 'move' down a row of watermelon plants, fusarium wilt affects scattered plants. Plants with fusarium wilt have healthy looking roots; sudden wilt causes the rotten looking roots described above. The inside of the stem at the crown area looks white and healthy in sudden wilt plants; plants with fusarium wilt have a brown discoloration in the stem area.

Unfortunately, this relatively new disease is not well understood. Sudden wilt seems to be most common under black plastic mulch. It occurs with or without irrigation. Several different species of fungi have been isolated from the roots of affected vines. However, it is not known which, if any, of the fungi are responsible for this disease. It may be that while soil fungi rot the roots, environmental factors such as heat and fruit load add enough stress to cause the vines to decline. Excess water as rain or irrigation, especially early in the season, may contribute to the occurrence of sudden wilt. However, at this point, no clear treatment or management strategies for sudden wilt exist. There are no chemical treatments that appear to be effective. Similarly, no varieties appear to offer resistance.



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