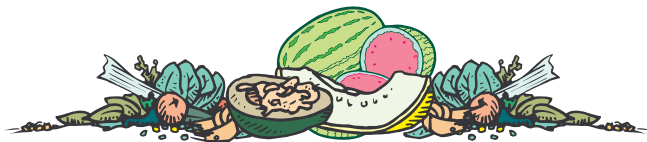


VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the
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No. 366
August 5, 1999



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

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CHLOROTHALONIL RE-ENTRY INTERVAL - (Rick Latin) - After 5 years of effort in dealing with the re-entry issue for chlorothalonil, changes that we in the vegetable industry can live with are in sight. The registrants of chlorothalonil recently were notified of an EPA Re-registration Eligibility Decision (RED) that changes the field worker re-entry interval from 48 to 12 hours. The 12 hour interval will be included on new labels of all chlorothalonil products. Also, the new labels will list certain safety provisions that pertain to potential eye irritations. Our growing season for those crops that were affected by the 48 hour re-entry interval (mostly cantaloupes) is nearly complete. Therefore, it is not likely that the change will be useful this year. However, it will be in effect for the 2000 growing season.

PLANT STRESS AND FRUIT DEVELOPMENT - (Liz Maynard) - Effects of stress on plants often show up in quantity, size, or quality of the fruit. This article will discuss some of those effects.

Stress could include any factor which reduces the plants ability to produce sugars through the process of photosynthesis. This year high temperatures and lack of water caused stress in some crops. Heavy disease, defoliation or leaf damage by insects, competition from weeds, and injury from pesticides can also stress plants.

Earlier this year a Hotline article discussed some effects of high temperatures on flowering and fruit set. This influences the quantity of fruit. Stress which causes flower buds to fall off or prevents proper flower development will reduce the number of fruit set at that time. Undoubtedly some of you have seen this in peppers, snap beans, and some tomato varieties this year.

The size of a fruit is influenced by the number of other fruit on the plant developing at the same time. The more fruit developing at once, the smaller each fruit will be. The fewer fruit developing, the larger each one will be. Developing fruit needs sugars and other compounds,

and the limited amount a plant can produce must be divided among all the fruit on the plant.

Fruit that is set early will delay development of later fruit. Cucurbits and peppers often show this response. It can occur whether or not the plant is stressed, but is likely to be more extreme under

stress. In some cases, the earlier fruit will prevent flowering or fruit set nearby on the same branch. The limited amount of sugars a plant can produce are not enough to support development of another fruit.

METHYL BROMIDE UPDATE - (Rick Latin) - EPA's final rule revising the phase-out regulations that govern production and importation of methyl bromide became effective on July 1, 1999. The amendment reflects changes in U.S. obligations under the Montreal Protocol, an international agreement recently adjusted by the signatory countries. To conform with the Montreal Protocol's schedule for industrialized nations, the EPA issued the following schedule for production and consumption of methyl bromide:

- 1) 25 percent reduction in baseline levels for 1999
- 2) 50 percent reduction in baseline levels for January 1, 2001
- 3) 70 percent reduction in baseline levels for January 1, 2003
- 4) 100 percent reduction in baseline levels for January 1, 2005, with emergency and critical use exemptions permitted under the Montreal Protocol.

SUNSCALD ON TOMATOES AND PEPPERS - (Liz Maynard) - This is likely to be a good year to see sunscald on tomato and pepper fruits. Parts of fruit that are exposed to the sun overheat. The area becomes light-colored and sunken. In peppers, the fruit wall dries to a thin papery texture and turns tan or brown. Decay organisms may invade the area and cause fruit rot.

Ripening disorders associated with high temperatures are also likely to be seen in tomatoes. One we commonly see is areas of the

fruit (often the shoulders) which turn yellow-orange instead of red, and do not soften. Varieties with green shoulders appear to be more susceptible to this problem.

Prevention of these problems relies on choosing a variety with good leaf cover of fruit, pruning and staking in a manner which maintains that cover, and maintaining a healthy plant so that foliage stays alive throughout the season.

FQPA BECOMES A REALITY - (Rick Foster) - On August 2, 1999 the EPA announced the first results of its reassessment of pesticides as required by the Food Quality Protection Act of 1996. Of interest to fruit and vegetables growers, the EPA has announced the cancellation of the following uses of methyl parathion (Pencap M): apples, broccoli, brussels sprouts, carrots, cauliflower, celery, cherries, collards, grapes, kale, kohlrabi, lettuce, mustard greens, nectarines, peaches, pears, plums, rutabagas, spinach, succulent, beans, succulent peas, tomatoes, and turnips. These changes take effect at the beginning of 2000. In addition, the Restricted Entry Intervals have been increased from 2-3 days to 4-5 days. In 2001, all applications of methyl parathion must be made from an enclosed cab or cockpit.

For the insecticide azinphosmethyl (Guthion), the EPA has reduced the tolerance for pome fruit from 2.0 parts per million (ppm) to 1.5 ppm now and 1.0 ppm in 2001. This means that the amount of residue allowable on the harvested fruit can only be half as much in 2001 as it can be now. The companies that sell azinphosmethyl must demonstrate that they can achieve these reductions by some combination of reductions in application rates or number of applications and increased pre-harvest intervals. Restricted Entry Intervals will also be increased for azinphosmethyl. Again, these changes are effective for the 2000 growing season.

These are the first announced changes in the registration of the organophosphate insecticides. There are many more to come. It appears at first glance that we can live with the changes that were announced yesterday without too much disruption. What the future holds is anyone's guess.



PUMPKIN POWDERY MILDEW – (*Rick Latin*) – Although I have received no confirmed reports of powdery mildew in our pumpkin crops, I am sounding the alarm to consider treatment with a systemic fungicide for mildew control. Mildew infections probably already occurred, even though you may not be able to see the colonies on leaves. Initial mildew outbreaks occur down low in the canopy of the crop, and usually in areas of the field that are more shaded. By the time that you see mildew on upper leaf surfaces, it may be too late to achieve satisfactory levels of control. The most important time to suppress the disease with fungicides is during the month of August, when the threat of defoliation and subsequent sunburn and fruit rot is greatest. It is likely that mildew development in mid-September will be limited by environmental conditions that are not optimum for pathogen growth and spread.

For more information about powdery mildew and other pumpkin diseases, we've developed a new bulletin entitled Identification and Management of Pumpkin Diseases (BP-17). The bulletin addresses several diseases and includes many color photos. The bulletin is available from the Media Distribution Center, 301 South Second St., Lafayette, IN 47901-1232 (765 – 494 – 6794). The cost is \$5.00 and includes shipping and handling.



EUROPEAN CORN BORERS - (*Rick Foster*) - With the extremely warm temperatures this summer, I would predict that we have a very good chance of having a significant third generation of European corn borers. We always consider corn borers to be a pest of sweet corn, snap beans, and peppers, but when we have a third generation we often see corn borers as pests of additional crops. Some of the crops we have seen heavily affected in the past include apples, turnips, tomatoes, and pumpkins. The reason that we see unusual problems with the third generation is that field corn, which is the primary host for corn borers, will have dried down to the point of being unattractive to the female moths when they are laying eggs. They will then lay their eggs on just about anything that is green. If you are growing late season (September) sweet corn, peppers or snap beans, you should be on the lookout for severe corn borer infestations. If you are growing one of these other crops, you should watch for possible infestations as well.



SWEET CORN INSECTS - (*Rick Foster*) - Sweet corn growers should have corn earworm and European corn borer traps in place now. We are approaching the time when populations of both insects can become quite severe. Also, growers should be watching for fall armyworm damage. This is the time of year when sweet corn growers really earn their stripes in managing insects. Remember that it is the combination of having the insects present and having the crop in a vulnerable

stage that determines the necessity for an insecticide application. For European corn borers and fall armyworms, the key period of vulnerability is from just before tasseling until the silks turn brown. For corn earworms, the vulnerable period is from when silking begins until the silks turn brown. Rarely are brown silks very attractive to corn earworm moths laying eggs.



THE LAST FUNGICIDE SPRAY - (*Dan Egel*) - When should one stop spraying fungicides? The answer to this question depends on how long one plans to harvest. Generally, vegetables within two weeks or so of harvest left should not be sprayed. Late season fungicide applications should be directed at protecting the fruit. Foliage is important only for "making fruit". If growers have done a good job of protecting the foliage during early and mid-season, the last few weeks of harvest are less critical. Part of the answer depends on what disease is most common in the field. Diseases, which do not affect the fruit directly, do not pose much of a late season threat. Diseases, which directly affect fruit, such as anthracnose of watermelons, can cause late season losses. Loads of fruit can be rejected due to such diseases. Therefore, growers with anthracnose, for example, may want to pay close attention to late season fungicide applications. Find out just what disease you are fighting, if any. Although it is desirable to protect the large investment of money one has in vegetables, be realistic. Look at the latest fruit set. Do such fruit have a reasonable chance of maturing? If the answer is no, it may not be worth investing in another pesticide spray.



VIRUS SYMPTOMS ON MELONS - (*Dan Egel*) - I have observed a few muskmelon and watermelon vines with virus symptoms recently. Symptoms include puckered and distorted leaves. Virus and growth regulator herbicide symptoms are difficult to distinguish.

Aphids transmit most of the virus diseases that affect muskmelon and watermelon in this area. However, insecticides are not effective against virus transmission.

- It only takes a few aphids to transmit the virus. Insecticide treatments may kill the majority of aphids but leave enough to transmit the disease.
- Aphids only take a few seconds to transmit the virus. An aphid may feed briefly, decide not to feed on that plant or even be killed and the virus may still be transmitted.
- Unnecessary insecticides may kill beneficial insects. Once beneficial insects are missing from a field, pest insects can rampage unchecked making regular insecticide applications necessary.

Although applying insecticides for aphids is not effective, it may be necessary to apply insecticides for aphid damage.

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