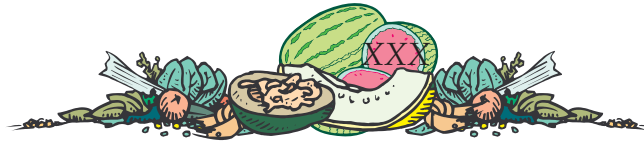


VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the
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FUNDS AVAILABLE TO DEFRAY COSTS OF ORGANIC CERTIFICATION - (DeeDee Sigler) - Lt. Governor Joe Kernan today announced details of the U.S. Department of Agriculture's (USDA) National Organic Certification Cost-Share Program. The federal funds, authorized under the 2002 Farm Bill, will defray the cost of organic certification for producers and handlers of organic agricultural products in the United States.

Under the cost-share program, the USDA allocates funds in proportion to the number of organic producers and handlers within each state. The states, in turn, will reimburse each eligible producer or handler for up to 75% of organic certification costs, not to exceed \$500.

There are approximately fifty to sixty organic producers and handlers in Indiana who may be eligible for this program," Lt. Governor Kernan said. "Organic food is one of the fastest growing segments in the U.S. food industry, and this program will help Hoosiers benefit from that growth."

According to Kernan, in order to be reimbursed for certification costs, an organic production or handling operation must meet the following requirements:

- Be located in Indiana
- Meet the USDA national organic standards for organic production or handling
- Have been certified by a USDA-accredited certifying agent between October 1, 2002, and September 30, 2003

To sell, label or represent their agricultural products as organic, all producers or handlers selling more than \$5,000 of organic agricultural products annually must be certified. USDA accredited certifying agents and, where

applicable, approved State Organic Program agents will be responsible for enforcement of the national organic regulations. Compliance procedures for certified organic operations, accredited certifying agents, and State Organic Programs are specified in sections 205.660 through 205.668 of the national standards <www.ams.usda.gov/nop>.



According to the USDA Economic Research Service, certified organic cropland in the U.S. increased by 53% between 1997 and 2001 - from 850,173 acres to 1.3 million acres. California was the leading state in certified organic cropland acreage in 2001 with approximately 150,000 acres. Indiana reported 4,175 certified organic cropland acres in 2001.

Certified organic pasture and rangeland increased 109% during the same five-year period, and increased 28% alone from 2000 to 2001, reflecting a rapid expansion in organic livestock and poultry. The three leading states with more than 100,000 acres of certified organic pasture or rangeland in 2001 were:

1. Colorado (514,000 acres)
2. Texas (221,000 acres)
3. Montana (137,000 acres)

Forty other states also had certified pasture and rangeland in 2001, with most under 20,000 acres. Indiana is not listed among these states.

The application for the Indiana organic certification cost share program is available by calling Pam Robinson, budget and grants director, at (317) 232-8773. Documents that must be provided with the application for reimbursement are:

1. A copy of your certificate, or other proof of organic certification or continuance that shows the effective date
2. A copy of your invoice and/or receipt itemizing your certification costs
3. Proof of payment (copy of cancelled check or money order)

Additional information on the National Organic Program as well as a list of certifying agents is available on the Web at <www.ams.usda.gov/nop>.

MANAGING SQUASH BUG IN SQUASH AND PUMPKINS - (*Frankie Lam*) - Pumpkin fields were sampled in the past three weeks in southwest Indiana. None of the fields sampled had an average of one egg mass of squash bug per plant. This result indicates that this summer might have relatively low numbers of squash bugs.

Squash bug is a serious pest of cucurbits particularly during late season in the Midwest. Nymphs and adults that feed on the fruit can cause the pumpkin to collapse and become unmarketable. The adult squash bugs are very active and move easily from plant to plant or field to field. Because adults and large nymphs of squash bug are difficult to control by insecticides, the main tactic for management is early detection and control of the young nymphs (Figure 1).



Figure 1. Squash bug nymphs on pumpkin fruit (Picture by W. Cranshaw)

The bug prefers squash and pumpkin over watermelon, cantaloupe, and cucumber. Both nymphs and adults feed by sucking plant sap that causes the leaves to turn black and crisp. Heavy feeding may cause the plant to wilt and eventually die.

The brownish black, flat-backed squash bug adults are 5/8 inch in length. After mating, egg masses are usually laid on the underside of leaves in the angle formed by the veins. The egg mass contains 10-20 eggs, and each egg is about 1/16 inch long (Figure 2). The



Figure 2. Female squash bug laying eggs (Picture by G. Brust)

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metallic bronze eggs hatch within 1-2 weeks, depending on the temperature. The newly hatched nymphs are wingless, whitish green with reddish-brown legs and antennae. The older nymphs are wingless, grayish-white with black legs and antennae. The nymphs go through 5 stages and transform to adults which takes 35-40 days. Only 1 generation develops each year.

The squash bug is one of the most difficult insects to control satisfactorily. Scouting from early season to the flowering of plants is important for management. The most effective tactic to manage squash bugs in small fields and gardens is to collect the bugs by hand and crush the egg masses as soon as they appear on plants. For large fields, insecticide application should target on the control of young nymphs. Check at least 5 plants in 10 locations for squash bug eggs. During the early flowering stage, the economic threshold for squash bug is 1 egg mass per plant. Ambush, Asana, Capture, Pounce, and Sevin, are recommended for the control of squash bugs; Sevin will provide marginal levels of control. Be certain to read and follow the label carefully before using any pesticides.



WATERLOGGED SOILS AND PLANT GROWTH - (*Liz Maynard*) - At the Pinney-Purdue Ag Center there was 'only' about 2.5 inches of rain over the July 4 weekend. A quick look at the map in Figure 1 shows much greater rainfall in central Indiana where official reports show over 9" of rain at some stations from July 4 to July 7. Crops at Pinney on the well-drained sandy loam aren't showing serious injury from waterlogging, but areas with heavier rainfall may observe some of the symptoms described below.

To state the obvious, vegetable crops become stressed in waterlogged soils. Above ground wilting, yellowing, death of leaves, and epinasty, or downward curling of leaves and stems are all responses to what is happening to roots. If we had a window into the soil we would see roots stop growing and root tips die due to lack of oxygen. Wilting occurs because roots in waterlogged soil do not conduct water as well and lack of new root growth limits water uptake, while the aboveground portion of the plant may continue to grow for a time even after root growth has stopped. The root system just cannot supply water fast enough to prevent wilting. Nutrient uptake by the injured root system is also limited, which can partially explain leaf yellowing and death. Epinasty occurs because ethylene concentrations in the root increase, and this natural plant hormone causes downward curling of leaves and stems. The ethylene also stimulates production of air spaces in the root, and development of adventitious roots on the stem.

Damage from waterlogging is worse in warm soils than in cool soils. The demand for oxygen by roots and soil microbes is greater at higher temperatures, so lack

of muskmelon vines increase, humidity will increase inside the canopy and powdery mildew may occur.

We recommend that growers with early melons apply systemic fungicides 10-14 days before harvest. Another spray is advisable in 14-21 days for fields with the potential for a 4-6 week harvest period. Powdery mildew is not a serious disease of watermelon.

Systemic fungicides labeled for use against powdery mildew on muskmelon include Flint, Nova 40 W, Procure 50 WS and Topsin 40. Cabrio and Quadris are also labeled for powdery mildew and will have activity against anthracnose, Alternaria leaf blight and gummy stem blight.

The fungi that cause powdery mildew may become resistant to the systemic fungicides listed here unless precautions are taken. It is important to always alternate between fungicides with different modes of action. Cabrio, Flint and Quadris have the same mode of action and must never be applied in back to back sequence. Similarly, Nova and Procure have the same mode of action. Topsin has yet a different mode of action. Be certain to read the label carefully. More information is available in the 2003 Midwest Vegetable Production Guide for Commercial Growers (ID-56).



TOMATO DISEASE PRIMER - (*Dan Egel*) - Following is a brief description of the tomato diseases that are most common to Indiana. I have listed the diseases in approximate order of the most common to the least common. Since the management of these diseases varies, it makes sense to be certain which disease is present before treating. For specific pesticide recommendations check the 2003 Midwest Vegetable Production Guide for Commercial Growers (ID-56).

Early blight - The leaf spots caused by this disease are roughly circular and up to 1/2 inch in diameter (Figure 1). The spots contain dark concentric rings in a target-like pattern. The spots first occur on the older



Figure 1. Early blight on tomato (Picture by D. Egel)

leaves and progress upwards. Fruit spots (less common) may occur at the stem end. Such spots are usually brown-black and up to 1 inch in diameter.

Early blight can be managed by rotating away from tomatoes or potatoes for 3 to 4 years. Fall tillage can help get rid of crop residue which might harbor the disease. Most growers find that protective fungicides are critical to managing early blight.

Septoria leaf spot - Spots on leaves are circular with chocolate brown margins and gray centers. As the spots enlarge (up to 1/8 inch in diameter), small dark spots may be observed within each lesion. These are the reproductive structures of the causal fungus. As in early blight, the spots start on the older leaves first.

Manage Septoria leaf spot in the same fashion as early blight.

Bacterial spot - Leaf spots are usually 1/16 inch, black and angular. Spots are more often found on young than old plant tissue (Figure 2). Spots are usually



Figure 2. Bacterial spot on tomato (Picture by D. Egel)

surrounded by yellow plant tissue. Spots on fruit are black, raised and up to 1/3 inch in diameter. The disease prefers warm wet weather.

Bacterial spot may be seed borne; greenhouse grown transplants should be carefully monitored. Tomatoes should be rotated 2 to 3 years away from peppers or tomatoes. Treatment with copper hydroxide may reduce spread in the field. However, copper products will have little affect on tomato disease such as early blight and septoria leaf spot.

Bacterial Canker - Older leaves are often affected first. Leaves may turn downwards and eventually curl (Figure 3). The most characteristic symptom on leaves is the brown necrotic area along the margin of the leaves. Inside the brown area, the leaves are frequently yellow, giving the leaves a scorched appearance. However, other environmental factors can give the leaves a similar scorched appearance. Spots on fruit are usually less than 1/4 inch in diameter and have a characteristic "birdseye" appearance, that is they are light colored with a dark center.

