

In This Issue

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1. Stewarts Wilt Predictions for Sweet Corn
2. Fungicide Update
3. Insecticide Update
4. Notes from the winter Meetings 1. Vegetable Transplant Production
5. New National Weather Service Graphical Interface and Forecasting Tools

Stewarts Wilt Predictions for Sweet Corn

C. Welty & R. M. Riedel

Now that winter is ending, we can make a rough prediction about Stewart's bacterial wilt on sweet corn using the flea beetle index. The disease is transmitted by the corn flea beetle, which does not survive well during cold winters. The disease is usually worst after a mild winter, and negligible after a cold winter. The index is simply the sum of the monthly average temperature for the three months of December, January, and February, in degrees Fahrenheit. Although there is no allowance in the index for effect of snow cover, the predictions for Ohio are generally accurate.

This year's flea beetle index values are about 7 points higher than last year's values, but much lower than the previous year. Temperature data from 9 sites in Ohio shows that in 2004 there are no sites where Stewart's wilt should be severe (index value above 100). The disease should be moderate to severe (index 95 to 100) in southern Ohio; the index value is 97 for Piketon and 95 for Jackson. The disease should be light to moderate (index 90 to 94) in southwest Ohio; the index value is 91 for Oxford. The disease should be negligible (index <90) in most of Ohio; the index values are 86 for South Charleston, 85 for Delaware, 82 for Wooster, 80 for Kingsville, 79 for Hoytville, and 78 for Fremont. Index values for these sites in the previous 10 years is shown on the internet at: <http://www.ag.ohio-state.edu/~ipm/traps/fbeetle.htm>

The primary strategy that should be used to manage Stewart's Wilt is host plant resistance. The secondary strategy is insecticide to suppress the corn flea beetle using insecticide. A complete list of resistance ratings from Illinois can be found on the internet at <http://www.sweetcorn.uiuc.edu/report-index.html> (Hard copies of the report available from Bob Precheur). In a year like 2004 when the disease is predicted to be negligible in central and northern Ohio, resistant varieties alone should be sufficient for management of the disease. In southern Ohio, resistant varieties are strongly recommended, and any susceptible varieties should be treated

with insecticide; resistant varieties could be supplemented by chemical control on farms with a history of problems with this disease.

Commercial seed treatment by Poncho, Cruiser, or Gaucho is the easiest way to apply insecticide because they come already on the seed, or Latitude can be used as a hopper box seed treatment. The second best insecticide option is Furadan 4F at planting. Other systemic soil insecticide options are Counter or Thimet at planting. The final option is to wait until seedlings emerge when they can be sprayed with Sevin, Pounce, or other non-systemic insecticide, but the foliar sprays are not usually as effective as the systemic seed or soil treatments.

### Fungicide Update

Richard M. Riedel and Robert J. Precheur

Vegetable growers will notice this season that fungicide labels and vegetable production recommendations will contain Frac Codes and Site of Action groups. Numbers and letters indicate those fungicide classes, which will lead to the development of resistant strains of fungi if used on a continuous basis. These fungicide classes should be alternated with another fungicide class during a spray program.

If field resistance is known to one member of the Group, it is most likely but not exclusively valid that cross resistance to other Group members will be present. FRAC Code. Numbers and letters are used to distinguish the fungicide groups. The numbers were assigned primarily according to the time of product introduction to the market. The letters refer to P = host plant defense inducers, M = multi-site inhibitors, and U = recent molecules with unknown mode of action.

Some examples used to identify group names are: 1-benzimidazole; 2-dicarboximide; 3-triazole; 4-phenylamide; 7-carboximide; 9-pyridinamine; 11-QoI MET complex 3 inhibitor; 14-aromatic hydrocarbon;

Target Site of Action. If available the biochemical mode of action is given (e.g. Group 11). In many cases the precise target site is not known.

Fungicide Updates for 2004, Mode of action Sites

Site of Action Group 11

Amistar 80G, new formulation of Azoxystrobin (Quadris); Syngenta

Tomatoes, pumpkins and a wide range of vegetables including (bean beets carrots celery,

cucurbits, eggplant, leafy greens, onion, peas, pepper, potato and tomato.

Resistance management as with other strobilurons

Cabrio 20 EG (pyraclostrobin); BASF

Labeled for control of Late Blight, Early Blight, Septoria Leaf Spot, PM and

Anthracnose on tomato. Other vegetables include: beets carrots, cucurbits, eggplant, garlic, horseradish, leek, onion, pepper, radish and turnip.

Cabrio labeled for control of White Speck (Microdochium Blight = Plectosporium Blight)

REI=12 hr; PHI=0 day

Resistance management required

Tanos 50DF (25% Famoxadone, 25% Cymoxanil); DuPont

Labeled on tomato for Late Blight, Early Blight, Septoria Leaf Spot, Anthracnose; Suppresses Bacterial Spot & Speck, Buckeye Rot, Anthracnose, Downy Mildew on Pumpkin

Other labeled vegetables include: cucurbits, pepper and potato.

REI=12 hr, PHI=3 days/resistance management required

Do not use in U-Pick operations

Site of Action Group 7

Endura (Boscalid, a carboximide fungicide); BASF

Labeled for bean, carrot, eggplant, lettuce, onion, pepper, and potato. Labeled on tomato for Early Blight, Septoria Leaf Spot, White Mold (Timber Rot), Botrytis, Powdery Mildew

Nothing on Pumpkin yet

REI=12 hr, PHI=0 days

Resistance Management required

Site of Action Group 7+11

Pristine (Cabrio + Endura); BASF

Labeled for dry bulb, cucurbits and root vegetables

NOT labeled for tomatoes.

REI=12 hr, PHI =0-30 days (check crop label)

## Insecticide Update

Celeste Welty, Extension Entomologist & Associate Professor, OSU, Columbus

Bean seed treatment: Cruiser 5FS is now registered for use on beans. It is a commercial seed treatment containing thiamethoxam, made by Syngenta. It controls seed corn maggot, wireworms, bean leaf beetle, aphids, and leafhoppers.

Hopper-box seed treatment for sweet corn: 'Latitude' is a new product that contains imidacloprid, the same active ingredient as in the commercial seed treatment called Gaucho. Latitude is made by Gustafson. Latitude provides control of corn flea beetle through the first true leaf stage, as well as protection against seedcorn maggot and other seed-feeding pests. Latitude also contains metalaxyl for disease protection.

There is a similar new product called Concur, made by Agrilience, but Concur is for use only on seed corn.

New miticide, Acramite: In October 2003, several veg crops were added to the label for Acramite 50WS. This is a miticide that has been registered for use on apples for the past 2 years. It kills spider mites in the adult and immature stages but does not kill mite eggs. Acramite contains the active ingredient bifenazate, and is made by Crompton/Uniroyal. Registered crops now include cucurbits, tomatoes, peppers, and eggplant. The pre-harvest interval for these veg crops is 3 days and the re-entry interval is 12 hours. Acramite is not a restricted-use product.

Notes from the winter meetings ♦ 1. Vegetable Transplant Production  
R. Precheur

Throughout the Midwest in the winter of 2003-2004, there were many very interesting vegetable meetings with great topics and interesting speakers. It's almost impossible to attend all these sessions let alone have the same degree of enthusiasm or learning ability by the end of the day. Thanks to handouts, summaries and proceedings, we can reflect back on some key points made during these presentations and improve upon our growing practices in the upcoming season. The reward is a better product and increased profit. This week we will begin with some highlights on Vegetable Transplant Production.

Dean Krauskopf, from MSU Extension Southeast gave some vegetable transplant production tips for the new and experienced producers. We also use some information gleaned from other states who have bulletins on Vegetable Transplant Production.

The quality of the transplant you put into the field can make or break your profit on that crop. There are three critical areas that cause common problems: water quality; controlling plant shoot and root growth by manipulating irrigation, temperature, and light during the four stages of transplant development, and preventing problems caused by air pollution and herbicides, in producing high quality transplants.

Water quality issues such as bicarbonate levels, salinity, total soluble salts and greater than optimal ion concentrations could well be the greatest determinate of transplant quality because more water is used in growing transplants than any other input. You should test before each crop but at a minimum once every two years. Get a complete analysis including micronutrients, sulfur, sodium, and chloride. A complete analysis will run around \$30. Total soluble salts = fertilizer soluble salts + water soluble salts. When total soluble salts are too high, a physiological drought occurs and water moves out of the root into the higher concentration of salts in the media solution. The result is slow germination, reduced growth and salt burn. To correct a serious problem may require new water source or a media with a low cation exchange capacity.

Alkalinity (Bicarbonate). Media pH controls nutrient availability. The pH of the media equals bicarbonate + lime + fertilizer. Two examples of the effect water alkalinity on media pH. Let's start with water with a pH of 5.5 and alkalinity of 60 ppm. At the start, the plug soil pH will be 5.5. After one week, the plug soil pH will be 5.8. In the second situation, we have water with a pH of 5.5 and alkalinity of 280 ppm. Again we start with a plug soil pH of 5.5. After one week the plug soil pH has risen to pH 7.8. High pH affects nutrient availability. Acids are used to reduce alkalinity, however, neutralizing bicarbonate does not reduce total soluble salts. Bicarbonate cannot be directly determined by water pH. Sodium. Why are sodium levels important. It contributes to total soluble salts and interferes with uptake of cations. Can be toxic to some plants. Boron. Boron levels should be less than 0.5 ppm.

The four stages of Plug Production

1. Sowing to radicle emergence.
2. Radicle emergence to cotyledon expansion.
3. Cotyledon expansion to growth of all true leaves.
4. Growth of all true leaves to shipping or holding for transplanting.

#### Watering Practices:

You can regulate plant growth to a large extent by careful watering. Water the plants only when moisture is needed, and then wet the soil thoroughly. Over-watering, a common error in plant growing, results in soft, succulent plants and restricted root growth. It may also promote certain diseases such as damping-off. Water the plants in the morning, to permit foliage and soil surfaces to dry before night. Water sparingly on cloudy or rainy days.

#### Supplemental Feeding:

Fertilizers can be easily supplied as the plants are watered. This system affords a practical means of adjusting nutrient levels according to the stages of plant development and existing environmental conditions. You can control plant growth by the amount and strength of the fertilizer solution used and the frequency of application. Many soluble fertilizers are available for supplemental feeding. Starter fertilizers of various analyses, such as 10-52-17, 10-50-10, 20-20-20, 5-25-15, or 16-32-16, have been used with good results. These are high-analysis, water-soluble fertilizers which are primarily mixtures of di-ammonium phosphate and mono-potassium phosphate. Potassium nitrate (14-0-46 analysis) and ammonium nitrate (33-0-0 analysis) have also been used successfully. Some growers prefer to fertilize with each watering, using a weak solution. A rate of one teaspoonful of the above soluble fertilizers per gallon of water is suggested. For less frequent feeding, use about ounce per gallon for watering young seedlings. After the plants are 3 weeks of age, the strength can be increased to 1 ounce of the fertilizer per gallon of water. To remove any fertilizer that might burn the foliage, give the plants a light watering with clear water. Soluble salts can be a problem in plant-growing beds as a result of using too much fertilizer or improper fertilizer. Because it is easy to over-fertilize a small area, be careful not to use rates higher than those suggested. Also, avoid the use of muriate fertilizers, which contain large amounts of chlorides. Symptoms of soluble salt injuries are poor seed germination, stunted plant growth, small dark leaves, and wilting. Wilting may occur even when the soil is sufficiently moist.

## New National Weather Service Graphical Interface and Forecasting Tools

R. Precheur

Check Out the New Graphical Interface and Forecasting Tools, on the NWS website. With the growing season beginning soon, growers need a fast method to check on weather conditions for today, tomorrow or out to the next 5 days. These new forecasting tools give quick information on: Temperature - max & min, dew point, probability of precipitation, wind speed and direction, amount of precipitation, plus more. All the tools you need to determine whether or not it is going to rain on your

planting day or if it is too windy to spray. The forecast covers 4 time periods during the day and 2 periods at night.

PLEASE NOTE: The NWS emphasizes The Experimental Forecast Image Display is an experimental product for planning purposes only !!! . This Forecast Image web page is an image display project. It is an effort to improve the utility of our forecast images made by National Weather Service meteorologists. This product is provided for Emergency Managers, Local Media, Businesses, Schools, Law Enforcement, and the public. Use the Forecast Image web pages to factor in the forecast weather into your daily plans. Links to the The National Weather Service offices for most of southern and northern Ohio are found in the "Weather Links" section. Return to the home page and click on Weather Links button in the left column. Scroll down until the NWS links to Wilmington, OH and Cleveland, OH. Click on the link.

Some counties in the corner of the state may have to refer to the nearest NWS office in neighboring IN, PA or WV to get coverage for your location.

What's New At The VegNet Web Site

Online 2003 Research Reports, Go To the Home Page

Ohio Vegetable Production Guide Survey

We want to know what you think about the content and format of the guide. Take this on line survey available on the home page and let us know. It only takes a few minutes. <http://vegnet.osu.edu>

[Return to Vegetable Crops Homepage | Ohio State University Extension](#)

Where trade names are used, no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely and accurate, the pesticide user bears the responsibility of consulting the pesticide label and adhering to those directions.

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