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Predictions for Corn Flea Beetle and Stewart's Wilt on Sweet Corn

C. Welty

Stewart's wilt is a bacterial disease that causes reduced yields, and when severe it can stunt or kill an entire planting of sweet corn. The disease is transmitted by the corn flea beetle. Yield is affected the most if plants are infected at the 3- to 5-leaf stage.

We expect fewer problems with Stewart's wilt on sweet corn in Ohio this summer compared to last year because Ohio has had a colder than usual winter, and the flea beetles that carry Stewart's wilt disease do not survive well in cold winters. A traditional rule for predicting severity of Stewart's wilt is to calculate a 'corn flea beetle index' by adding the average temperatures (in degrees Fahrenheit) for December, January, and February. If the index is below 90, then wilt should be negligible. If the index is 90 to 95, then wilt should be light to moderate. If the index is 95 to 100, then wilt should be moderate to severe. If the index is over 100, then wilt should be severe. The rule does not make any adjustment for presence or absence of snow cover; the rule works reasonably well in most years regardless of snow cover. 2003 will be a good test of this rule because we had unusually large populations of corn flea beetle going into the winter, but due to prolonged cold temperatures, the flea beetle index values are low.

The flea beetle index for the current winter shows that Stewart's wilt should be negligible in most of Ohio but should be a light to moderate problem in Southern Ohio. Flea beetle index values for 2003 for 10 Ohio locations are: 91 for Piketon, 90 for Jackson, 85 for Oxford, 83 for Columbus, 78 for Delaware, 77 for S.Charleston, 76 for Wooster, 74 for Kingsville, 72 for Hoytville, and 68 for Fremont.

This year's flea beetle index values are quite similar to those in 1994. This year's values along with values for representative Ohio locations for the previous 15 years, are posted on the internet at:

<http://www.ag.ohio-state.edu/~ipm/traps/fbeetle.htm>

The number of Ohio sites in each of four categories of predicted disease severity are also shown at this site, as well as the long term average.

Sweet corn growers have cultural and chemical options for managing this disease. In a year like 2003 when the disease is predicted to be negligible in central and northern Ohio, cultural control alone should be sufficient. In southern Ohio, cultural control is strongly encouraged and could be supplemented by chemical control on farms with a history of problems with this disease.

Cultural control: The most effective management option for Stewart's wilt is to use resistant varieties. Some hybrids that are most resistant to Stewart's wilt are Eliminator (yellow su), Sweet Sue (bicolor su), Miracle (yellow se); the se bicolors Ambrosia, Buckeye, Encore, Lancelot, Seneca Nation, and Table Treat; Argent (white se); and Trigger and Zenith (yellow sh2). A complete list of ratings from Illinois can be found on the internet at: <http://www.sweetcorn.uiuc.edu/summary/summary.html>

Chemical control of corn flea beetle is possible by commercial seed treatment with the insecticides Gaucho or Cruiser. Growers should contact their seed supplier to find out about availability of insecticide-treated seed. Both of these insecticides have systemic action when applied to seed or to soil in the root zone. Cruiser contains the active ingredient thiamethoxam (the same AI as in Platinum and Actara) and is made by Syngenta. Gaucho contains the active ingredient imidacloprid (the same AI as in Admire and Provado) and is made by Gustafson. Tests done by Dr. Jerald Pataky at the University of Illinois showed that incidence of Stewart's wilt in susceptible varieties was reduced by about 70% by Gaucho. Severity of symptoms was also reduced by Gaucho. The degree of control by Gaucho was roughly equivalent to using a hybrid with one higher level of resistance, among 4 levels used to rate diseases. Gaucho is thus not a product that alone will control corn flea beetle and Stewarts wilt. Cruiser is similar to Gaucho but is supposed to have a broader spectrum of activity against soil insect pests.

In summary, the primary strategy that should be used to manage Stewart's Wilt is host plant resistance. The secondary strategy is insecticide. Cruiser or Gaucho are the easiest insecticides to use since they come already on the seed. The second best insecticide option is Furadan 4F at planting. Other options are Counter or Thimet at planting, or waiting until seedlings emerge when they can be sprayed with Sevin, Pounce, or other non-systemic foliar insecticide.



New Pest Status for Squash Bug

by Ric Bessin, from the KY pest news

Control of squash bug has always been important in cucurbit crops, particularly on its preferred hosts, squashes and pumpkin. In the past, I had recommended that growers wait until seedlings showed signs of wilting due to adult squash bug sap removal or until larger plants had an average of one egg mass per plant before a decision was made to control squash bug. But the situation has changed. Squash bug has now been identified as a persistent vector of the newly recognized disease, Cucurbit Yellow Vine Decline (CYVD). We cannot wait for squash bug numbers to buildup before

applying a control as we did when it was considered an indirect pest.

An insect-control study at the UK South Farm in 2002 indicated that control of squash bug helped to delay and reduce the impact of CYVD. A single, at-planting, soil-drench, applications of either Admire or Platinum used for cucumber beetle control also reduced squash bug numbers. This delayed the development of the disease and reduced the yield loss caused by CVYD in acorn squash. Foliar applications of other insecticides for squash bug should also help to reduce losses by this disease, but foliar applications may need to be applied several times to provide lasting control.

Observations made by Dr. Nesmith and myself indicate that CVYD infection is likely occurring either almost immediately after transplanting, or prior to transplanting. It is critical to keep squash bug from feeding on small seedlings, regardless of whether the plants are in the greenhouse or field.

In the past, squash bug was of minor concern on its less preferred hosts, melons and watermelons. But they do feed on these and the disease is appearing with these crops. Fortunately, control of squash bug should aid in the control of striped and spotter cucumber beetles, the persistent vectors of bacterial wilt of cucurbits. Growers using plasticulture for cucurbit production should note that squash bug does attack the plants beneath the plastic. Control should be aimed at eliminating the adults early, below and above the plastic. Foliar sprays directed above the row may provide better control down in the hole. Water-sensitive paper can be used to evaluate spray coverage.

What About Cucurbit Yellow Vine Decline in Ohio (Prepared by C. Welty)

Range:-Oklahoma, Texas, Kentucky, -Not confirmed in OH but suspected.

First: plants usually turn yellow. Cut stem shows phloem ring is brown. Plants collapse prior to fruit maturity.

NOTE: Please alert diagnostic clinic if you find similar symptoms at 614-292-5006 or email: taylor.8@osu.edu

Recommendations from Kentucky: Control squash bug as vector and you must start control on day of planting. Soil treatment with Admire or Platinum (although squash bug not on labels) or weekly foliar treatment with Pounce or other pyrethroid.

See "Problem of the Week" for pictures of Cucurbit Yellow Vine Decline (CYVD) at the VegNet website. Photos from OK State Univ.



More 2002 Research Reports Now Available

R. Precheur

Still more 2002 research results are now available on the web. The following are updates and detailed information on cover crops and disease control in pumpkin production. Go to the homepage of the Vegnet website and follow the links under 2002 Research Reports.

As we are made aware of other research reports, we will let you know of their availability.

Updates and Cover Crops for Disease Control in Pumpkins

**by Andy Wyenandt et al.,
Plant Pathologist,
Department of Plant Pathology,
Ohio State University Extension.**

The following reports on cover crops in pumpkins are best viewed with Internet Explorer and may not work with other browsers.

The HTML online version is recommended because a comprehensive set of notes and explanations are included with each presentation. Be sure to adjust the windows with your mouse so you can read the notes.

Some of the ppt files are very large and recommended only for those with high speed connections and not dial-up connections.

- **Spring-sown oat & annual medic in Black Plastic Mulch pumpkin production.**

The following is a presentation on the use of spring-sown oat (herbicide kill) and annual medic (living) cover crop mulches in black plastic mulch pumpkin production. Research was done at a small roadside market with a U-Pick field near Columbus, OH in 2002. In two parts.

[Cover Crops, Spring Oats, BPM Part 1, html Online] [ppt 15 Mbytes]

[Cover Crops, Spring Oats, BPM, Part 2., html Online] [ppt 6 Mbytes]

- **Using cover crops for control of Fusarium fruit rot in commercial pumpkin production.**

The following presentation is a research update on the use of cover crop mulches for control of Fusarium fruit rot (FFR) in pumpkin production.

[Cover Crops for Fusarium Rot Control, html Online] [ppt 6.4 Mbytes]

- **Update on the use of cover crop mulches in pumpkin production - 2003**

Seminar presented in part at Ohio Small Fruit and Vegetable Congress in Toledo, OH on January 15, 2003 presentated in 2 parts.

[Update on Cover Crops for Pumpkins, Part 1, html Online] [ppt 11.3 Mbytes]

[Update on Cover Crops for Pumpkins, Part 2., html Online] [ppt 4.2 Mbytes]



Coldest Part of the Year About Over

Metereological winter is the coldest quarter of the year. Based on daily normals, it was from early

meteorological winter is the coldest quarter of the year. Based on daily normals, it runs from early December into the first week of March across much of North America. On the calendar, spring begins on March 21. But, the vernal equinox is determined by the position of the earth with respect to the sun and does not take into consideration temperature normals.

Weather services still say March will be 4 to 8 degrees below normal high temperatures with continued storminess as the southern and northern jet streams continue to clash.



What's New At The VegNet Web Site

● Problem Of The Week

A pictorial comparison of Squash Vine borer damage and Bacterial Wilt in pumpkins. While the symptoms are similar, there are some key differences. Check it out. Click on the 'Problem of the Week' button of the left side.

● Highlights From the Pumpkin and Muck Crops Field Days

Couldn't make it to Celeryville on July 25th or forgot about The Pumpkin Field Day on August 7th, then take a look at just a few of the highlights from these two field days. Click on the 'Talk Between The Rows' button on the VegNet homepage.

● 2001 Slide Presentations

**Pepper Variety Slides 2001 | HTML Slide Show
Pumpkin Variety Slides 2001 | HTML Slide Show
Go to the Library Section under Research Reports.**

● VegNet Vegetable Schools

A series of slide presentations are now available in order to update you on the latest pumpkin and sweet corn research. We begin with 6 pumpkin topics in Pumpkins 101 and have 10 slide presentations available in Sweet Corn 101. In sweet corn. Powerpoint presentations and html online slide shows are available now. Go to the VegNet homepage.

Pumpkins 101

The use of trap crops and Admire for cucumber beetle control and New varieties for 2001. We have presentations on cover crops for disease control and pumpkin fungicide use.

- **Perimeter Trap Cropping. Online html slide show | Perimeter Trap Cropping. PPT, 7 Mbytes
See also the Research Results section on the home page for text version of the report.**
- **Pumpkin Variety Slides 2001 | HTML Slide Show**

Sweet Corn 101

Presently only Powerpoint presentations available. Coming Soon: Online HTML slide shows. Check back often Nine topics including:

- Aspects of Variety Selection based on Disease Control [ppt 40 KB]
 - Internet Link To "Reactions of Sweet Corn Hybrids to Prevalent Diseases" Dr. Jerald Pataky www.sweetcorn.uiuc.edu
 - Producing Early Sweet Corn [ppt 3.5 Mbytes]
 - Managing Weeds in Sweet Corn [ppt, 9 Mbytes]
 - Sweet Corn Herbicides & Variety Sensitivity. [ppt 2Mbytes]
 - Sweet Corn Development and Critical Periods for Irrigation Management [ppt 1.6 Mbytes]
 - Flea Beetle Management in Sweet Corn [ppt 510 KB]
 - How To Keep Worms Out of Sweet Corn Ears [ppt 8.3 Mbytes]
 - Role of Bt Transgenic Hybrids in Sweet Corn Pest Management. [ppt 21.2 Mbytes]
- Bt Sweet Corn Efficacy in OH, 1999-2000 [ppt, 208 KB]



[University Extension](#)

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

We appreciate very much the financial support for this series of vegetable reports which we have received from the board of growers responsible for the Ohio Vegetable and Small Fruit research and Development Program. This is an example of use of Funds from the "Assessment Program".

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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