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Corn Flea Beetle & Stewarts Bacterial Wilt Disease of Sweet Corn: Predictions and Management for Ohio in 2005

By C. Welty & B. Precheur

Corn flea beetle populations, and the Stewarts Bacterial Wilt pathogen that they carry, are likely to vary from severe in southern Ohio to negligible in northern Ohio this year. This is different than the year 2003 when all of Ohio had negligible problems from this pest and disease, and different from 2002 when the disease was severe in all of Ohio. Greater south-to-north variation in 2005 is due to a wider than usual spread in temperatures across the State during the past winter. Shown below are brief summaries of predicted wilt disease and management recommendations.

After the summaries are more details about specific management options.

Predictions and management recommendations for 2005:

The following locations in Ohio have a Corn Flea Beetle Index >100 and are predicted to have severe Stewarts Wilt: Piketon-107, Jackson-106 and Oxford-102. In this situation, resistant varieties are strongly recommended. Susceptible varieties are likely to perform poorly even if treated with the best insecticide. On resistant varieties, use insecticide option 4 (see below). On moderate or susceptible varieties, use insecticide options 1 or 3 (see below).

The following locations in Ohio have a Corn Flea Beetle Index of 95-100 and are predicted to have moderate to severe Stewarts Wilt: Columbus-95.

Resistant varieties are strongly recommended. Susceptible varieties can be grown but must be supplemented by insecticide. On resistant varieties, use insecticide option 4. On moderate or susceptible varieties, use insecticide options 1 or 3.

The following locations in Ohio have a Corn Flea Beetle Index of 90-94 and are predicted to have light to moderate Stewarts Wilt: S. Charleston-93, Delaware-92, Wooster-91.

Resistant varieties are recommended. Susceptible varieties can be grown but should be supplemented by insecticide. On resistant varieties, use insecticide option 4. On moderate or susceptible varieties, use insecticide options 1, 2, or 3.

The following locations in Ohio have a Corn Flea Beetle Index of <90 and a negligible risk Stewarts Wilt: Kingsville-87, Hoytville-84, Fremont-78.

Resistant or susceptible varieties can be grown, but should be scouted to verify that flea beetles are not present. On resistant or susceptible varieties, use insecticide option 4.

Overview of management options

1. Plant sweet corn varieties that are resistant to Stewart's Wilt disease at sites where the disease is predicted to be slight to severe. The most effective management tactic for Stewart's wilt is to use resistant varieties. Varieties can be categorized into four levels: resistant, moderately resistant, moderately susceptible, or susceptible to Stewart's Wilt. Some hybrids that are resistant to Stewart's wilt are Bonus and Eliminator (yellow su), Sweet Sue (bicolor su), Miracle (yellow se), Ambrosia, Buckeye, and Encore (bicolor se), Argent (white se), and Zenith (yellow sh2). A table of Stewart's Wilt ratings of 87 popular varieties is shown at <http://vegnet.osu.edu/library/res04/ListSwCornHybridsRvsS.pdf>. A list of disease ratings for 674 sweet corn varieties evaluated at the University of Illinois can be found via the internet at: <http://www.sweetcorn.uiuc.edu/report-index.html>

2. Insecticides for corn flea beetle control:

Option 1: Buy sweet corn seed that has been commercially treated with a systemic insecticide. Buy seed treated with Cruiser 5FS (thiamethoxam), Poncho 250 (clothianidin), or Gaucho 480 (imidacloprid). This is the easiest way to apply insecticide because it is already on the seed when bought. These treatments are effective for flea beetle control until the 5-leaf stage. Seed treatment is advantageous on varieties rated as moderate or susceptible to Stewart's Wilt, especially in a summer after a relatively warm winter. 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. Gaucho also reduced the severity of symptoms. The degree of control by Gaucho was roughly equivalent to using a hybrid with one higher level of resistance, among the four levels used when rating the disease. Gaucho alone will not control corn flea beetle and Stewart's wilt on susceptible varieties. Cruiser and Poncho are similar to Gaucho but have a broader spectrum of activity against soil insect pests.

Option 2: Use Concur or Latitude as a hopper box seed treatment. These are systemic insecticides that are formulated as dry talc-based products. Concur is imidacloprid + metalaxyl. Latitude is imidacloprid + carboxin + metalaxyl. These are effective for flea beetle control until the first true-leaf stage.

Option 3: Use a systemic soil insecticide at planting, in furrow or as a drench banded over the row. Furadan 4F (carbofuran) is the best choice. The other choices are Counter 15G or 20CR (terbufos) or Thimet 20G (phorate), but these are not usually as effective as Furadan for control of corn flea beetle. The products provide systemic protection for about 2 to 4 weeks.

NOTE: THERE IS NO ADVANTAGE TO USING MORE THAN ONE OF OPTIONS 1, 2, AND 3 TO CONTROL CORN FLEA BEETLE IN THE SAME PLANTING.

Option 4: Wait until seedlings emerge when they can be scouted for presence of flea beetles. Scout two or three times per week until the 7-leaf stage, preferably on calm sunny warm days when beetles are most likely to be found on corn plants. The threshold for susceptible varieties is 6 beetles per 100 plants. The threshold for resistant varieties is 2 beetles per plant and >25% of seedlings severely damaged by beetle feeding injury. If the threshold is exceeded, then spray with Sevin, Diazinon, PennCap-M, Lannate, Lorsban, Pounce, Asana, Mustang, Capture, Warrior, or Proaxis. The foliar sprays are not usually as effective as the systemic seed or soil treatments,

especially when flea beetle populations are heavy. The foliar products provide protection for about 7 days. Control of corn flea beetle is not needed after the 7-leaf stage.

See Vegetable IPM at the VegNet web site <http://vegnet.osu.edu/vegipm.htm> for 3 documents about sweet corn and Stewarts wilt control:

- 1) flea beetle index summaries, 1988-2005
- 2) options for flea beetle control.
- 3) 2005 updated resistant variety list.

College of Nursing Research Project Request

by Jill Kilanowski, MSN, CPNP, RN

Dear Farm Owners,

I am a doctoral student in the College of Nursing at The Ohio State University. My specialty is children and I am interested in examining the health disparities of the children of highly mobile working people, as seen the children of carnival and migrant farm workers. I hope to match resources to health needs. In the summer of 2004 for my pilot study, I was granted access to the migrant workers at Michaels Farms in Urbana. I collected health data on 24 children and am in the process of analyzing that data. I also was at The Ohio State Farm looking at carnival children. My goal is to improve access to care for these families of children that travel for their employment. I would like to include more children like those on Michaels Farms and also migrant children that travel an even greater distance during the summer as their parents follow the ripening crops of tomatoes, strawberries, etc. The purpose of this dissertation study is to look at the health of children of carnival workers and migrant farm workers and to help identify how we can make the health care system work better for families that move around in the summer months for their jobs.

I am looking for parents AND children aged birth to twelve for participation. Answering the two short questionnaires and collecting height, weights, etc, will not take greater than one-half hours time on one day only. After completion of the above parents will receive \$10 CASH and the child will be able to pick from a grab bag of an age appropriate toy valued at \$10

What the parents will be asked to do:

- * Bring records of the child's immunization (shots) and health check-ups
- * Sign permission forms to participate
- * Fill out two short questionnaires
- * Bring their child
- * Able to read English or Spanish

NO NAMES WILL BE USED FOR RESEARCH WRITE-UP

What we will do:

- * Review the immunization baby record for shots, heights and weights
- * Weight, height, chest and waist measurements will be taken by nurse
- * Oral/dental examination done by health care provider
- * Give them a report and recommendations for their child's health

If they do not want to answer any questions they do not need to do so. The parents may withdraw from this research survey at any time with no penalty. Parents will not receive cash incentive but the child will be able to get toy from grab bag. I would greatly appreciate if you would allow me access to your farm and allow me to meet with the workers and their children. If you agree I will need from you a statement on your letterhead stating that I may come on your property and interview migrant workers, if they agree as well. I would be at your farm on a convenient day and time in the summer of 2005 and would need less than one day to collect this data. I will send flyers and a poster announcing the study. If you are interested in participating in this important research study please email me at kilanowski.2@osu.edu and I can supply the needed language for this letter of access. Your time and cooperation is greatly appreciated and will help the working families obtain better access to care for their children. Home 614-793-1305.

2004 Midwest Vegetable Variety Trial books, Still Available

This bulletin contains numerous vegetable variety evaluations from the Midwest region and copies are now available for sale for \$20.00 which includes postage. Supplies are limited so send your order to Jim Jasinski, OSU Champaign County Extension, 1512 South US Hwy. 68, Suite B100 Urbana, OH 43078, Phone 937-484-1526.

Make checks or money orders payable to: The Ohio State University Extension.

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

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.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Keith L. Smith, Director, Ohio State University Extension.

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