



STATION NOTES

CALENDAR of EVENTS

Wednesday, August 17, 8:30 am

Lounge, Jordan Hall
Defensive Driving Course

Wednesday, August 17, 10:00 am

Sawdust Cafe
*Lehigh Safety Shoe Company
Shoemobile visit*

SEMINARS

Computer Workshop/Developing Series Fourth in a Series

Date: Tuesday, August 16

Time: 10:00 am

Place: Auditorium, Jordan Hall

Speaker: Demetrios Ioannides

Topic: Dialog/BRS (Biosis, Agricola) Practice Session
Endnote Demonstration
Other Gateway Resources

Coffee and donuts will be provided by
SAGES and GEC

Contact Tina Carrasco at x254 with any
questions.

FOOD SCIENCE & TECHNOLOGY

Date: Wednesday, August 17

Time: 10:00 am

Place: Food Science Conference
Room

Speaker: Eric Huang
Graduate Research Assistant
Department of Food
Science & Technology

Topic: Production, Purification
and Characterization of Lipase
from *Trichoderma koningii*



STATION RESEARCHERS REDUCE PESTICIDE USE AND SAVE THE NEW YORK PROCESSING SWEET CORN INDUSTRY \$500,000/YEAR

*The newest good guy in the war being waged between the ears in the corn fields of
New York state may be a tiny parasitic wasp from China.*

Researchers at the Experiment Station believe the release of tiny wasps that attack and kill the eggs of the European corn borer holds great potential for the sweet corn industry as a biocontrol in deterring one of its major pests. Tony Shelton, entomologist at the Station, and Michael Hoffmann, entomologist on the Ithaca campus, are currently determining the best species of *Trichogramma* to release in commercial corn fields and the most cost-effective way to artificially rear massive quantities of wasps which are no bigger than dust specks.

"So far, the use of *Trichogramma ostrinae*, a species imported from China by some of our colleagues in Massachusetts, has provided the best results," said Shelton, who has been involved in integrated pest management (IPM) research on sweet corn for over 15 years.

In an attempt to permanently establish the wasps in New York, researchers have released 4 million of them over the last three years. "If the wasp becomes established, it would continuously help control European corn borer at no expense to the growers," said Hoffmann, who has been working in cooperation with the U.S. Department of Agriculture. "Scouts could sample the fields and, if the number of corn borers exceeded a threshold, then the wasps could be released rather than insecticide applied."

Shelton has also been testing the use of commercially available Bt (*Bacillus Thuringiensis*) in a spray which is applied to corn foliage. Larvae which ingest the bacteria stop feeding
(Continued on pages 2)



The SCUM Team (AKA Sweet Corn Unified Managers): Curt Petzoldt, Mike Hoffman, Jan Nyrop, Tony Shelton, and Janet Knodel.

(Sweet Corn, cont.)

within a few hours and die. Bt is not harmful to beneficial insects in the field and allows for the introduction of natural enemies, like wasps, which parasitize or consume Bt survivors.

The current research builds on a proven program of pest management developed over the past decade at the Experiment Station by the New York Sweet Corn Unified Management team—or SCUM, as they like to call themselves. With a little over \$125,000 invested in total research and extension efforts, the team of entomologists, extension agents, and plant pathologists has managed to reduce pesticide use and save the processing sweet corn industry an average of \$500,000 per year.

“Industry-wide adoption of proven IPM programs has already reduced the number of aerially applied insecticides in processed sweet corn fields by 30-70 percent,” said team member Shelton, who would like to see pesticide use reduced even further in ways that are cost effective to industry and consumer.

Unlike the case with most vegetable crops, it is the corn processors—and not the growers—who control the use of insecticides in the fields. Processed sweet corn accounted for 33,900 acres of production and \$11.1 million in producer revenues in 1992, according to the New York State Agricultural Statistics Service. More than 90 percent of that acreage is controlled by Comstock Michigan Fruit, of Rochester, N.Y., and Seneca Foods, of Marion, N.Y. In the past, processors would routinely

spray all corn when it reached the early green tassel stage, and then continue weekly treatments until harvest.

“The reason we were able to make such an impact on the industry as a whole is because so few processors make the decisions for so many acres,” said Shelton, who was first asked to develop a pest management program for insects by sweet corn processors in 1981. “Growers who were using three to four sprays per field back in ’81 are now down to an average of one.”

In the first two years, Shelton developed a sampling plan with Jan Nyrop and then developed a treatment guideline or threshold plan. The third year, they ran field demonstrations in 11 commercial fields, treating half of each field according to their recommendations and treating the other half in the usual fashion.

“Without decreasing yield or quality, we were able to reduce the number of sprays by one-third in just one year, and we knew that we could help decrease them even further,” said Shelton. Sampling for pests and knowing if there is a need to treat are the keys to any successful pest management program. Over the next five to six years, extension agents and processors worked on adoption techniques.

To aid in this effort, Extension Associate Janet J. Knodel and Extension Agent Laura H. Pedersen implemented a pheromone trapping program to detect the first flights of the European corn borer, fall army worm, and corn ear worm and predict initial egg

laying. The data was used as an “early warning” system to help direct scouts to more intensive field sampling for eggs and larvae in high risk areas. Pheromone traps and field sampling were combined with a treatment threshold indicating what level of infestation justified spraying.

The IPM package approach helped minimize the number of applications of insecticide. According to company spray records from 1990-1993 collected by Vegetable IPM Coordinator Curt Petzoldt, growers who utilized IPM techniques averaged 0.9 to 1.3 insecticide sprays per field per year, a reduction of 55-65 percent, or well over 100 tons of insecticide that would have been applied to New York corn fields. Assuming a cost of \$10 per acre spraying costs, and saving two sprayings per acre per season, that amounted to \$1.8 million savings in insecticide costs over a three-year period. Even after subtracting increased scouting, pheromone trap purchases, and trap monitoring that average \$3.18/acre, or \$314,800 over 3 years, savings still amounted to \$1.5 million, or \$500,000/year.

The road from documented research to industry implementation is long. “The current research in parasitic wasps and Bt is still in the early stages of development,” said Shelton. “It took nearly 10 years for us to develop the current IPM program, test and demonstrate its effectiveness, and then get the sweet corn processors to adopt our recommendations on a wholesale basis. In the research business, that is really a very short time.”



MORE AG STORIES NEEDED FOR EXTENSION SERVICE

Dave Poland is the new director of the Agriculture News Service, a division of Media Services on the Ithaca Campus. He is bringing new energy to the effort to supply county extension offices with pertinent and timely ag news. He would like to encourage faculty and researchers at the Station to sign up in advance with stories that would be appropriate for fall and winter. E-mail him at dap6@cornell.edu or call 255-9422.



THE GOOD NEWS

Dave Lasher has been walking around with a smile on his face since August 5—the day he was informed that the Station had received \$260,000 in state funding for four repair and maintenance projects.

“The Station puts in for funding every year,” said Lasher, “but this year we did better than usual. The money comes through the state budget process which is why it’s so late. It is money that is earmarked for repair and maintenance of state property. We still have a lot of unfunded projects—some of which we have been applying for for years—but this is a good start. Some of the projects we had already started on.”

The money will be used for four projects: \$100,000 is earmarked for switch replacements and recalibration of transformers Station-wide; \$62,000 is earmarked for installation of a backflow prevention device on the water supply system to prevent any chemicals from backfeeding into the public water system. Two repair projects include: \$27,000 for the replacement of the emergency generator in the food science building; \$71,000 for the replacement of the roof of the central heating plant.

Some of the work was at the top of B&P’s priority list and has already been started. “Other jobs could start as early as one month from now,” said Lasher.



“MAC” ATTACK

CALCULATE PARTS OF A FORMULA

When using Excel, you may want to calculate part of a formula in a cell. To do this, simply highlight the portion of the formula you want to calculate and press **Command-=**. The highlighted portion of the formula converts to a value. You can accept the conversion by pressing the **Return** key, or undo the conversion by pressing **Command-Z**.

MAKE BORDERS THE COOL WAY

When you use Excel, you can use the following shortcut to make borders. First, select the cells you want to contain borders. Press and hold both the **Command** and **Option** keys while pressing the down arrow (to border the bottoms), the up arrow (to border the tops), the left arrow (to border the left sides), or the right arrow (to border the right sides).

SAVE REGULARLY

One of the best habits to have if you work on a Mac is to save your work often. **Command-S** saves your file in almost all Mac applications. Get in the habit of pressing **Command-S** before you answer your phone, leave your desk, or spill coffee on your keyboard. Press **Command-S** before you perform any memory-intensive tasks (including printing). That way, if your Mac crashes during the task, you will not lose any work.

PARTICIPANTS SOUGHT FOR HOME LAWN GRUB STUDY

A population study of scarab grubs in home lawns will be conducted this summer by the Entomology Department and IPM Program here in Geneva. The investigators are Jennifer Grant, Michael Villani and Jan Nyrop. They are looking for people to volunteer their lawns. The sampling usually causes no damage. However, if the weather is dry you may temporarily have some small (< 4 inch diam.) dead areas in your lawn. Sampling will be done in late August and early September. You will receive a map of the numbers and species of grubs found on your property. If you would like to participate, please answer the Grub Questionnaire on the Quick Mail Public bulletin board or call the IPM office (x353) for a hard copy. For further information contact Jennifer Grant on Quick Mail or phone x378.

*Participants do not need to be affiliated with NYSAES.

POLICIES, PROCEDURES, and PEOPLE

• Thank You

I would like to thank all those who have helped me in any way during last three years of my stay here at the Experiment Station, Geneva. Individual names of the contributors are almost impossible to acknowledge. The Horticultural Sciences Department provided me the best opportunity to learn about the molecular genetics of grapes and provided me with a friendly atmosphere in which to work. At the same time I express my best wishes for the future of the Station and the people working here.

I can be contacted at:

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DEADLINES



SUBMISSION OF GRANT PROPOSALS

• August 31

USDA Alternative Agricultural Research and Commercialization Center

• September 1

NSF International Opportunities for Scientists and Engineers

• September 1

BARD

• September 15

Alfred Sloan Foundation Research Fellowships

• Open Date

NSF *Arabidopsis* Genome Research Project

See the July 11 issue of *Sponsored Programs Newsletter* for details on the above programs. Application forms are available by calling x212.



STATION SOFTBALL
Director's Cup Championship Begins

Pressure is mounting as each of this season's six teams started final competition in the Director's Cup Championship. All teams participate in a single elimination tournament to be ranked according to their number of victories.

Round 1:

August 9 - #6 XT def. #3 PP
 August 10 - #4 GR def. #5 ENT

This week's Round 2 Schedule:

August 15 - XT vs. #2 HS
 August 16 - GR vs. #1 BP



Thursday, August 18, will be the final game of the season as the winner of August 15 vs. the winner of August 16. Who will take home the Prestigious Director's Cup this year?

CLASSIFIEDS

WANTED: Visiting scientist from India is looking for a reasonably priced used car for his stay of four to five months at Geneva. Call x232, x237, or 781-1568.

FOR SALE: Going back to Brazil October 2 and have some belongings to sell before leaving. Contact Vania at x209 or see Manoel Souza in room A134 Barton Lab, or call 781-7072 after 5:00 pm: Single mattress, \$30; Double mattress, \$60; toaster, coffee maker, mini-mixer, each \$2.50; small vacuum cleaner, \$5; Triple pole halogen floor lamp, \$25.

FOR SALE: 1989 Isuzu Imart, blue, 75,000 miles, manual transmission, \$3,000. Contact Vania at x209 or see Manoel Souza in room A134 Barton Lab, or call 781-7072 after 5:00 pm.

MOVING SALE: A large variety of items including furniture, household and antiques. 4668 Pre-emption Rd. 3.5 miles south of K-mart. Thursday thru Saturday (8/11-8/13) 9 am-6 pm. Also, '88 Honda Civic-std. High miles, but runs well; is good, clean, dependable. \$3,600. 789-2632.

BABY-SITTER NEEDED: Looking for warm, mature, and responsible person to provide full-time care for our nine-month old son who is an active and happy baby. Must be non-smoker and cat-friendly. If interested, please contact Jeremy or Manisha at 789-8600.

ROOM FOR RENT: Room for rent in large country home, 4 miles south of Experiment Station, \$170/month includes kitchen privileges and use of garage. Call Irene Smith at 781-0460.

FOR SALE: 1983 Blue Ford Fairmont - Body and exhaust bad, good engine, battery, tires, and other parts. Will sell complete for parts \$300 negotiable. Call Dave at x278 or Dorothy at 585 6329.

MARYLOU DUMBLETON

Retirement Party

Sunday, August 21, 1994
 1:00 pm ~ Dinner begins at 1:30 pm
 Station Pavilion

MENU

*Sliced pork roast; barbecue chicken,
 chef salad, macaroni salad, potato salad,
 sauerkraut with caraway, salt potatoes, dressing,
 corn, gravy, assorted breads, chocolate cake,
 beverages*

\$10.50/PERSON

*Dinner checks and gift donations should be made
 payable to Sharon Smart, and sent to
 Business Office, Jordan Hall.
 Reservations must be received by: August 15, 1994*