

CORNELL  
UNIVERSITY

## STATION NEWS

GENEVA  
NEW YORKVOLUME LXXIX • NO. 36  
SEPTEMBER 11-18 1998**BRIEFS****PEACE PARTNERS CAR WASH**

There will be a car wash on Saturday, September 12, from 10:00 am to 2:00 pm at The Oil Spout, 288 Hamilton St. (next to Wegman's). Cost: \$4.00. All proceeds will benefit the Geneva Middle School Peace Partners, a group of Middle School students travelling to Russia in April 1999.

**STATION PROFESSOR  
PUBLISHED  
IN PROCEEDINGS OF THE NAS**

"Genes from mycoparasitic fungi as a source for improving plant resistance to fungal pathogens," a paper coauthored by 12 international university scientists from Italy, Spain, and the U.S., including Gary Harmon of the Station's Horticultural Sciences department, was published in the July 7 *Proceedings of the National Academy of Sciences*. The paper describes insertion of a chitinase gene from *Trichoderma harzianum* into plants. Although many other genes have been inserted into plants for the control of plant diseases caused by fungi, none are in use today because they have not been sufficiently effective. The paper reported that the transgenic plants containing the *T. harzianum* chitinase gene were highly tolerant or completely resistant to several different kinds of pathogens.

*"Give to the world the best you have,  
and the best will come back to you."*

—MADELINE BRIDGE—

**APPLE CROP HIT HARD BY STORM**

**L**abor Day was no picnic for apple growers in western and central New York. Hail and wind damage from the early-morning storm that swept across the eight-county area north of the Thruway on September 7 upturned trees and blew significant numbers of apples onto the ground. Many of the apples left were bruised by hail up to one inch in diameter, other apples, and wind-whipped branches. In some areas, winds of up to 115 mph were reported.

Farm gate losses have been set at \$30 million. Officials estimate 20 percent of the state's entire apple crop was lost.

"This is the most devastating year the apple industry has ever faced," said Shelley Page, Communications Director for the New York State Apple Association. She estimates that growers lost 5 million bushels in two hours. In addition, she said some growers are reporting 20 percent of their acreage upturned or broken off. The storm affected Niagara, Orleans, Monroe, Wayne, Cayuga, Oswego, Oneida and Onondaga counties.

"We were already estimating a reduced crop of 24 million bushels," said Page. The Labor Day storm came on the heels of earlier frost damage, hail storms, ice storms, floods in some areas and drought in other areas. "Now it's down to about 18 million."

The other factor difficult for growers is what to do with the apples that are left. "They are not good for fresh market; there is a very limited market for processed apples; and the market for peelers (apples that go into apple slices, applesauce, and pies) is going to be depressed by an over-supply," said Page. Prices for apple juice are at an all-time low because of the over-supply from China, in particular.

"In many cases, the cost of picking, transportation, and storage is greater than the prices the processors are offering growers," said Page. "Growers will not be able to offset the price they would pay to pick them," she said.

Horticultural Society President George Lamont and Executive Director Dan Donahue met with Governor George Pataki, Attorney General Dennis Vacco, State Senator Michael

(Continued on page 2)



G. NORRIS FOR ZEDCOR, INC., WWW.ARTOFTODAY

## GRANT WINS CHAPMAN SCHOLARSHIP

Jennifer Grant, Ph.D. candidate in the department of Entomology, has been awarded the first Paul J. Chapman Fellowship. The Fellowship, which is modeled after the Entomological Society of America Comstock Award, is given to an outstanding graduate student.

Selection is based on three broad criteria: scientific quality of research work, publications and presentations, and involvement in professional activities. The Fellowship provides Grant with one year of funding which includes tuition and a graduate student stipend.

"I am very pleased that Jennifer received the first competitive Chapman Fellowship," stated Dr. Michael Villani, Grant's major professor. "I believe her research project embodies the spirit that led to the creation of the agricultural experiment station system: the use of rigorous and creative science to solve real world problems to improve the lives of all the citizens of the state."

Grant received her B.S. in International Agriculture from the University of Vermont, in 1983. She was awarded her M.Sc. in Entomology, also from the University of Vermont in 1989. Her master's thesis research, "Controlled-release of insecticides for stored-grain pest control in Indonesia," was conducted in Vermont and Indonesia.

Grant came to Geneva in 1989 to study the feasibility of a recognition program for growers of IPM produce. Results were published in the "Grant Report" (Grant, J. A., J. P. Tette, C. H. Petzoldt and J. Kovach, 1990, Feasibility of an IPM-grower recognition program in New York State, NYS IPM Pro-



R. WAY

gram, Cornell University, IPM Publication No. 3, 40 pp.)

In 1990, she began working as an ornamentals IPM specialist. While working for IPM, Grant was responsible for implementation and applied research of IPM practices for turf and ornamentals. She was involved in research on biological control of insects, weeds, and diseases; training in turfgrass and greenhouse scouting; collection of pest and pesticide data; and the general promotion of IPM.

In 1996, Grant became a Graduate Research Assistant in pursuit of the Ph.D. Her current research is on the behavior of entomopathogenic nematodes under a variety of environmental conditions. She is also investigating biotic insect mortality factors in turfgrass and their relation to scarab grub populations.

I entered the Ph.D. program for two primary reasons," said Grant "First, I want to be able to take a stronger leadership role in the shaping and advancement of pest management in the future. Secondly, I have always striven to bridge gaps between basic and applied research and implementation in the field—and I would like to continue to do so. My dissertation research is a perfect example of my interests and efforts in this area." Grant has had numerous publications.

Besides English, Grant is fluent in Spanish and can also speak some Indonesian. She spent a year in Honduras, teaching gardening to young boys at Hogar de Amor y Esperanza, a school for abandoned children. "The school was poor and Jennifer was essentially a volunteer. Still, she took command of the situation and demonstrated an amazing sense of responsibility for what needed to be done," said Bruce Parker, professor of Entomology at the University of Vermont. "She adapted well to the culture and taught those kids how to grow vegetables." Grant has traveled in Australia, Canada, Costa Rica, China, Malaysia, England, Guatemala, Hong Kong, Indonesia, Mexico, New Zealand, Singapore, and Thailand.

Grant is also an avid sports enthusiast, dedicating many hours to bicycling, skiing, and volleyball. She organized and founded the Station's Bike and Walk to Work Week, is a member of the Bristol Mt. Ski Patrol, and a trainer for their outdoor emergency care program.

Grant is currently on a bicycle tour of the national parks of the Southwest. She expects to complete her Ph.D. degree in 1999.

J. Zakour

(STORM, cont.)

Nozzolic, and State Assemblyman Robert Oakes on September 8. Pataki spoke from G and S Orchard on Lincoln Road in Walworth in Wayne County, where 1,000 fruit trees had been bent, broken and uprooted. The governor is requesting federal disaster relief.

Page points out that "federal disaster relief" amounts to low-interest loans that

have to be repaid. Her organization is working closely with the New York State Horticultural Society to get as much short-term and long-term relief for growers as possible.

Although the loss to growers directly is estimated at \$30 million, ancillary industries that depend on the apple harvest will also be affected: in particular, packing houses, cold storage facilities, and shipping companies.

Closer to home, Hugh Price reported Station orchards suffered some "soft hail," but no real damage. In a chairs and unit leaders' meeting on Wednesday, Jim Hunter said the storm will adversely affect the monies that the Station receives annually from the Apple Research and Development Fund for research projects.

L. McCandless

## NEW DISEASE REPORTED ON PUMPKINS

A Cornell University plant pathologist is investigating a mysterious disease of pumpkins that may be caused by a bacterium. The researcher has seen evidence of the disease in pumpkin fields from around New York State, but the means by which the disease is spread is unknown.

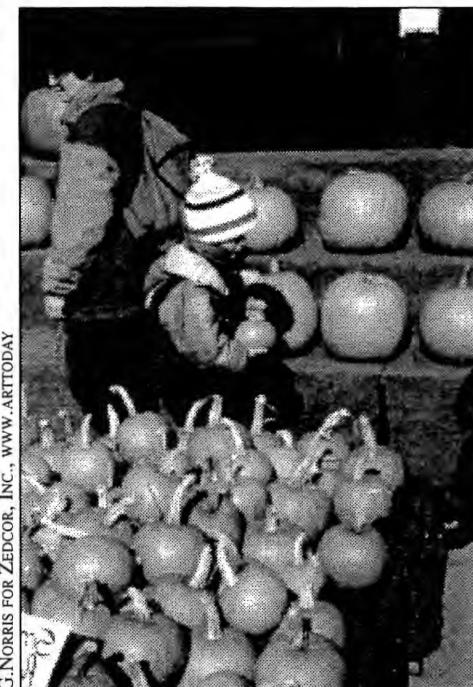
For lack of more evidence, the Cornell pathologist is referring to the condition as "cucurbit lethal yellowing disease." Although the disease has some similarity to one affecting watermelons and melons in Oklahoma and Texas, the causal organism is unidentified.

"This is a brand new disease, we only began seeing it three weeks ago," says Thomas Zitter, Cornell professor of plant pathology. "The pumpkin plants affected by this new disease are going down now."

The disease also has been seen on yellow and zucchini squash, spaghetti squash, winter squash and cucumber. There is no danger to consumers because the vegetables rot and never make it to market.

Zitter first saw the disease on a Pittsford, N.Y., pumpkin farm, where about 10 percent of the patch was affected. He also has seen the disease in Orange County, N.Y., where about 50 percent of pumpkins in one field were diseased. The disease has also been reported in New York's Niagara, Albany, Ulster and Dutchess counties.

"I would expect the disease to be found or reported in other counties once cucurbit fields are surveyed more extensively," Zitter said in a memorandum to all of New York's



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Cornell Cooperative Extension (CCE) agents last month.

Zitter says he is fairly certain that the same disease occurred in pumpkin fields in 1997, but the plants were too badly decayed for scientists to assess the problem. "This year we are finding whole plants and vines in early stages of wilting and collapse, and thus we are able to make more definitive observations," he says.

The yellowing disease is not related to other bacterial cucurbit pathogens, such as bacterial leaf spot and angular leaf spot, according to Zitter. But it is possible, he says,

that these diseases may be present in the same pumpkin fields during some seasons.

In 1991, an agricultural scientist studying a vine decline in Oklahoma and Texas watermelons and melons described a yellow vine disease with similar symptoms and host range, dubbed yellow vine disease. It is caused by a bacterium that attacks and plugs plant conductive tissue called the phloem. Samples of diseased pumpkins from New York have been sent to the South Central Agricultural Research Laboratory in Lane, Okla., where specific assays are being performed.

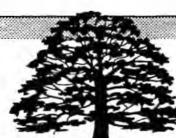
"We need to eliminate yellow vine disease as the possible causal agent before going on to other pathogens," Zitter says.

In the case of the New York disease, affected pumpkins appear stunted, and inside the root and crown section of the plant, the xylem — tissue that carries water to the growing point — is destroyed.

Leaves of affected plants appear yellow in color, Zitter says, and have a blighted appearance as they dry up, and stand upright. "I would expect some variation of these symptoms on pumpkins infected in later stages of development and for them to be somewhat different for the other cucurbit species," Zitter told CCE agents.

Because of the random distribution of the disease in fields, Zitter believes an insect may be responsible for carrying the disease from plant to plant. Zitter has not seen evidence that the disease comes from either the soil or seeds, and it is still too early to make any control recommendations.

B.Friedlander



*Trees at a glance*  
*(Plant Profile of the Week)*

brought to you by the Geneva Arboretum Association

Our campus has on its grounds two stunning representatives of the Fagaceae, or beech family. These lovely trees bring shade, color and contrast to our campus throughout all four seasons and are a particularly nice addition to the fall landscape with their purple bronze to copper fall coloring, triangular nuts covered by spiny bracts, smooth

blue grey bark and long, narrow, sharp-pointed buds. Both are massive and magnificent in outline: the European purple leaf beech (*Fagus sylvatica purpurea*) on the lawn of Parrott Hall, and the European cut-leaf beech (*Fagus sylvatica laciniata*) in the northern section of the Rock Garden. A recent campus addition is a very young Euro-

pean fern leaf beech (*Fagus sylvatica asplenifolia*) on Hedrick Hall's south lawn planted in memory of George MacDonald, Horticultural Sciences.

As the names imply, all three campus beeches are imports—horticultural varieties of European beech, one of the most popular

(Continued on page 4)

## BEAUTIFUL BEECHES

**CALENDAR of EVENTS**

SEPTEMBER 11-18 1998

**SEMINARS****HORTICULTURAL SCIENCES**

- Date:** Friday, September 11, 1998  
**Time:** 2:30 pm  
**Place:** Staff Room, Jordan Hall  
**Speaker:** Pal Kozma  
 Research Institute For  
 Viticulture and Enology  
 Eger, Hungary  
**Title:** Wine Grape Breeding for  
 Fungal Disease Resistance in  
 Hungary

**PLANT PATHOLOGY**

- Date:** Tuesday, September 15, 1998  
**Time:** 3:00 pm  
**Place:** Room A133, Barton Laboratory  
**Speaker:** Pia D. Gavino  
 Department of Plant Pathology  
 Cornell University, Ithaca  
**Title:** Mutants, Migrants, and Mating of  
 a Meandering Menace Manifested by Mitochondrial Markers

*There will be a reception for the speaker  
 at 4:00 pm.*

**FOOD SCIENCE & TECHNOLOGY**

- Date:** Wednesday, September 16, 1998  
**Time:** 10:30 am  
**Place:** FST Conference Room  
**Speaker:** Jun-Tse (Ray) Fu  
 Food Science & Technology  
 Cornell University, Geneva  
**Title:** Rheology of Sol-Gel and Gel-Sol  
 Transition of Low-Methoxyl  
 Pectin + Ca<sup>2+</sup> Gels:  
 The Effect of Sweeteners

**CLASSIFIED**

**FOR RENT:** Studio apt. available Oct. 1, 1998. Fully furnished, clean, one mile from the Station on a quiet street. Full bath and fully equipped kitchenette. \$350/mo includes utilities, linens, and garage space. Private entrance. For information, call Karen at x378 or email kje7.

**FOR SALE:** Nursery stock ready for fall planting. Over 50 species of shade tree available, 30 species of shrubs and 7 species of conifers. (E.g., Japanese maple, Pin oak, River birch, Tulip tree, Redbud, Golden Rain tree, Mountain ash, Corkscrew willow, White pine) Fall is a good time to plant, the plants roots have time to grow before winter and the plant gets a head start in the spring. Call Jim, x378 (jpe6).

(BEECHES, cont.)



GENEVA ARBORETUM ASSOCIATION

large shade trees in the US. This tree was probably introduced to North America during colonial times as a potential timber tree. Varieties of European beech include purple, copper, cutleaf, fernleaf, oakleaf, roundleaf foliage types and both weeping and columnar forms. European beech is an important hardwood in its native range, making extensive forests, just as our American beech (*Fagus grandifolia*), does here in the Northeast. Colonists were quick to recognize this American cousin, a handsome tree with similar edible nuts.

The beech family has eight genera and between 700-900 species nearly distributed worldwide. Five genera are native to North America: beech, chestnut, oak, chinquapin, and tanoak. Sixty-six trees and ten shrub members of Fagaceae are native or naturalized in the US. Fossil records indicate this is an old group and was in the past much more widespread than it is now. Its beech members are slow growing, long-lived trees, reaching 100 ft. in height, 11.5 ft. in diameter and 300-400 years in age. We also have several fine representatives of the oak family on campus.

*F. sylvatica*, our native American beech, is a large deciduous tree with a clear, straight, massive trunk, long, spreading branches, a rounded crown and simple, alternate leaves. American beech can be distinguished from European beech as its blue green leaves have 9-14 pairs of veins per leaf while European beech has only 5-9 pairs per shiny, dark green leaf. American Beech leaves turn a lovely yellow-gold in the fall, and often persist on the tree throughout the winter.

Male and female beech flowers are borne separately on the trees. Male beech flowers are grouped together in globe shaped heads clustered along elongate, slender catkins (aments). Female flowers are borne in 2 to 4 flowered spikes on short stalks at or near branchlet tips. Flowers appear in late April to early May.

Beech nuts serve as food for people, livestock, and wildlife. They mature and drop by the first heavy frost each year, providing a pre-winter food supply. Heavy crops of seeds occur every 2-3 years. The edible nuts are triangular sided, yellow to pinkish brown and were used for oil and ground as a coffee substitute. Beech bark and leaves however, may be poisonous to both people and animals.

Beech wood is hard, tough and strong, and because it takes a beautiful finish, it is used primarily for interior trim, furniture and floors. Superstition has it that beeches planted near a house can keep away lightning. There may be some truth to this idea as records show that beeches are struck by lightning less often than are other trees, perhaps due to the high oil content of the trunk.

Beech can be found on a wide variety of soils, but requires more moisture than do many other hardwoods. Along with sugar maple, American beech is the most tolerant of the northern hardwoods. It reaches its largest sizes in the Ohio and Mississippi River valleys on alluvial bottomland soils. These slow growing, shallow-rooted trees may form many root suckers resulting in clumps or groves throughout their range.

Unlike most trees, beech retains its smooth bark in old age. The word "beech" is of very ancient origin and signifies "book" (both come from same root word). Early writings of the Saxons and Germans consisted of runic characters written on tablets of this wood. Gutenberg carved his movable type for the first machine-printed Bible from beech wood. From Roman times this tree has been a popular graffiti tree, as seen in the Latin proverb "*Crescent illae; crescentis amores*" ("as these letters grow, so may our love grow"), referring to initials of lovers carved into beech bark. Regrettably, beech bark remains a favorite writing material today for carving and preserving dates and initials, along with other, less savory, messages.

Cathy Heidenreich