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CORNELL UNIVERSITY **STATION NEWS** GENEVA NEW • YORK

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BRIEFS

SIGMA XI LECTURE

A public lecture sponsored by the Geneva Chapter of Sigma Xi, the Scientific Research Society, will be given by Professor Nicholas Geacintov of the Department of Chemistry at New York University, Wednesday, May 13 at 8 pm. The lecture will take place in Coxe Hall Rm. 8, Hobart & William Smith Colleges, and the title will be "Environmental Carcinogens: Modes of Action and Reaction in Living Systems."

We are continuously exposed to chemical carcinogens present in our air, food, and water supplies. Once in our bodies, these generally inert chemicals can be metabolically activated to form highly reactive and dangerous compounds. These compounds can bind to DNA, the genetic material of the cell and, if not removed by cellular repair enzymes, can give rise to mutations and cancer. This lecture will describe our current knowledge of the multi-step mechanisms by which environmental carcinogens cause cancer.

Sigma Xi is dedicated to honoring scientific accomplishments, encouraging and enhancing appreciation and support of original investigation in science and technology, and fostering worldwide a creative and dynamic interaction among science, technology, and society.

UV PASTEURIZER UNIT NEWS

According to a recent report, successful testing at NYSAES has paved the way for manufacturers to ask for FDA approval of the ultraviolet cider pasteurizer. Final approval will enable FPE, Inc. of Macedon, NY, with whom Station microbiologist Randy Worobo worked to develop the new pasteurizer, to begin marketing its Model 2000 cider processor. The unit uses UV rays to kill the microorganisms found in cider, particularly *E.coli* 0157:H7.

FPE engineer Patrick Borrelli has chosen OESCO of Conway, Massachusetts, as sole U.S. distributor of the Model 2000. The unit measures

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GENETICALLY ENGINEERED PAPAYA SEEDS RELEASED TO GROWERS

Growers in Hawaii are depending on the virus-resistant 'UH SunUP' and 'UH Rainbow' to restore the pot of gold to the papaya industry, which has been decimated by the deadly papaya ringspot virus in recent years. Seeds from the genetically engineered fruit were distributed free of charge May 1—an historic occasion that marked the culmination of over 20 years of work.

"This is the first case for commercialization of a genetically engineered, virus resistant, perennial fruit crop," said Dennis Gonsalves, plant pathologist at Geneva. "Commercialization could save the entire Hawaiian papaya industry. Our cultivars have shown excellent resistance in the laboratory, in the greenhouse, and in long-term field trials."

Papaya—Hawaii's fifth largest crop—generates $45 million in annual revenues, but yields have been dropping steadily. The virus reduces fruit quality and quantity and eventually kills the trees. From 1993 to 1997, papaya production fell from 58 million pounds to 36 million pounds.

"These seeds give the papaya industry in Hawaii a second chance," said Emerson F. Llantero, manager of the Papaya Administrative Committee (PAC), of Hilo, HI. PAC helped finance the costs associated with licensing the genetic engineering technology and producing seed.

"This genetically engineered, disease-resistant papaya is an excellent example of improving agricultural productivity through partnership," said Michael V. Dunn, assistant secretary for USDA's marketing and regulatory programs. "In this case, the partnership between USDA, Cornell, and the University of Hawaii has resulted in a papaya that is environmentally safe, will lower input costs for producers, provide a better product for consumers, and improve export potential."

In addition to Gonsalves, the research team that developed the improved papaya lines includes horticulturist Richard Manshardt of the University of Hawaii, Honolulu-based USDA plant physiologist Maureen Fitch, Upjohn Company scientist Jerry Slightom, and the Papaya Administrative Committee.

The team used recombinant DNA techniques to isolate and clone a gene in the virus that encodes for production of the coat protein of the virus. The gene was "shot" into cells of the papaya plant using a special gene gun developed by John Sanford of the Station Horticultural Sciences department. Expression of the gene in the resulting papaya line renders the plants resistant to the virus, thus producing more fruit of higher quality. Scientists have dramatic photographs of test plots where genetically engineered papaya trees are thriving next to virus-riddled non-genetically engineered trees.

The transgenic papaya will have no harmful effects on humans because the virus already infects fruit that consumers eat. Gonsalves noted: "The only way we have affected papaya quality is to make it resistant to the virus and improve its survivability."

(Continued on page 2)

(PAPAYA, cont.)

The first fruit from the genetically engineered seeds should be available in stores in about a year.

Jim Hunter, director of the Geneva Station, compares the process of conferring resistance using a gene from the virus to "molecular immunization." "The techniques used to develop the resistant papaya are a 'model system' to investigate the practicality of cross protection to control other plant viruses," he said.

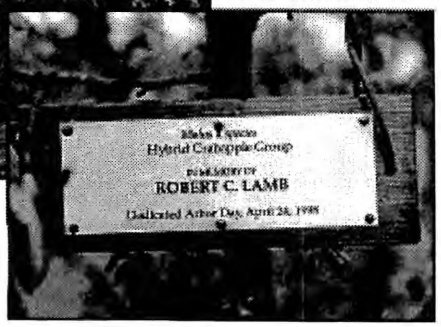
"Using a mild strain of a virus to protect plants against infection by a severe strain of the same virus is a potentially practical way to control virus diseases of crops important in New York—especially the tomato ringspot virus infecting peaches, and viruses infecting cucurbits," said Gonsalves. The Liberty Hyde Bailey professor envisions a worldwide network of scientists transferring knowledge and technology as well as cooperating in the sharing of genes to solve food problems in a global village of hungry people.

Genetic engineering of fruits and vegetables can increase yields while decreasing the amount of chemical pesticides required to grow them. Bio-engineering desired traits can often reduce the time it takes plant breeders to alter a plant by traditional methods, perhaps by a factor of about five, saving millions in crop development.

The virus-resistant papaya were deregulated by APHIS, EPA, and FDA in 1997. The Cornell Research Foundation and PAC pursued licensing, which was successfully obtained in April 1998. In anticipation of commercialization, PAC funded seed production over a year ago, and enough transgenic seed will become available during 1998 to replace all acreage damaged by virus in Hawaii. Seed is being produced by the Hawaii Agriculture Research Center under contract from PAC on about 5 acres of University of Hawaii land. They will furnish 27 million seeds within a 3-year period.

"I am grateful to Dr. Jim Hunter, at that time my chairman and now the head of the Station, for allowing me to use papaya as a model system to investigate cross protection and the concept of pathogen-derived resistance," said Gonsalves. The research resulted in the development of 'Freedom II', the first commercial virus resistant squash. "There is a logical and close connection between the PRSV research and my efforts to control viruses that are important to New York agriculture," said Gonsalves.

J. Zakour and L. McCandless



Arbor Day 1998

Martin Goffinet helps Barbara Lamb affix an engraved identification tag to one of a group of four trees planted in Bob Lamb's memory during last Friday's Arbor Day obsevance. This is the first time that an Arbor Day memorial planting has come out of the Station fruit breeding program, and is an especially fitting tribute to Bob Lamb who spent much of his career breeding resistant apple varieties. Barbara, along with Jim Cummins and Mike Dickson, selected the trees this past fall. Speakers at the ceremony included Director Jim Hunter, Martin Goffinet, Barbara Lamb, Jim Cummins and Roger Way. Jim and Roger shared a few stories and andecdotes, some of them quite humerous, about their friend and colleague.

(BRIEFS, cont.)

24" x 24" x 45" and weighs 150 lbs. It is an alternative to thermal cider pasteurization.

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VEHICLE RESERVATIONS SYSTEM ENHANCED

Starting May 1, 1998, the new car pool (vehicle reservations system) program can be found on the Web by going to the Buildings & Properties Web page (http://www.nysaes.cornell.edu/bp/) and selecting Car Pool.

This web page will show what vehicles are available for specific dates. After you select a vehicle on the screen, a window will appear in which you will enter information. You can then e-mail your request to your department representative who will reserve the vehicle for you (if it is still available).

You will get an e-mail confirmation that your sign-out was made if you filled out the section that asks for your e-mail address (the rest is entered automatically). You can also go to your department rep and ask for a vehicle the old way. To view or print the Users Manual, select the Help Button on the Car Pool web page. (Trip Ticket forms are still being used)

Your department reps will be able to sign out vehicles, change Trip Tickets (up to an hour before sign out), and enter your "Start" and "Stop" mileage into this system. To make it easier on them, please always fill in your start and stop miles on trip tickets.

Long Term sign outs still go through Buildings & Properties, x301. *A. Best*

COLLIER DRIVE CLOSED

Starting this week Collier Drive is closed between Food Science and Raw Products. Traffic is being routed around the lower road past B&P and FRU.

Over and Under Piping is cutting a trench across Collier from the steam tunnel to Raw Products for the new steam line. The road will be closed for approximately 4 weeks.

Thank you for your patience.

J. VanderWeide

PESTICIDE CORE AND CERTIFICATION EXAMS

The DEC's pesticide core exam and/or category exam(s) will be offered at the Geneva Experiment Station Wednesday, June 3, starting

(Continued on page 2)

(BRIEFS, cont.)

at 9:00 in the Jordan Hall Auditorium. A minimum of 10 individuals taking the exam(s) is required by the DEC.

Mandatory core training will be held in Ithaca on May 5. Individuals who need to take the core training must register with Mary-Lynn Cummings (mc101@cornell.edu; 5-2557). Individuals who are currently certified applicators or will have participated in the mandatory training must pre-register for the exam(s) with Charie Hibbard, x210, by May 11. Only exams for which people have pre-registered will be available.

Contact Charie Hibbard, x210, for further information.

STATION SMOKING POLICY REMINDER

Effective October 25, 1993

The following smoking policy was adopted by the Director after considering comments by Unit Leaders and Department Chairs who reviewed earlier versions of the policy.

Smoking is prohibited in all buildings or facilities at the Experiment Station that are occupied by more than one employee. This includes the Hudson Valley Laboratory and the Vineyard Laboratory at Fredonia. If facilities occupied by only one person on a full-time basis have to be entered frequently by another employee who objects to even short-term exposure to smoke, smoking will be prohibited there also. The Heating plant will be exempt from this policy because of the need for constant monitoring of operations and the excellent air exchange, but if an employee in this facility objects, this policy will be reviewed. Smoking is also prohibited in all Station vehicles. Policy #710 in the Cornell Personnel Manual should be consulted for situations not covered by the Geneva Smoking Policy.

Addendum: 8/15/94

Current tenants of communal Station housing (681 Castle Street and 652, 654, and 656 West North Street) have agreed that they desire a "No Smoking" policy. Consequently, such a policy will take effect on September 1, 1994. This means that there will be no smoking allowed inside any of these four houses after that date. Leases written for new occupants will indicate that no smoking is allowed in these houses. *P. Krauss*

MAILROOM ONLINE

Matt Lewis in the mailroom can now be reached by e-mail: mel18@cornell.edu. Please make this addition on your Station directory.

IPM TAKES TEAMWORK— '98 ANNUAL REPORT SHOWS WHY

"IPM: It takes teamwork." This theme is spelled out in three ways in the 1998 New York State IPM Program Annual Report: brief updates and status reports on current topics such as the Food Quality Protection Act and New York grower and consumer attitudes about IPM; stories introducing the teams of Cornell faculty, Cornell Extension educators, and growers who make IPM work in strawberries, nurseries, and field crops; and highlights of the year's research and demonstration projects in fruit, livestock and field crops, ornamentals and vegetables.

Here is a "top 10" sampling of developments reported this year:

1. Injury from the "strawberry clipper," long thought to be a significant pest, has virtually no effect on strawberry yield for many varieties commonly grown in New York.
2. New York fresh-market tomato growers may cut pesticide use by 12.5 pounds per acre by using a disease forecasting model and increase their earnings by $3,000 per acre due to staking and mulching.
3. IPM scouting saved New York field crops growers $1,000 to $7,000 each.
4. Biological control of a major mite pest is being achieved in Long Island vineyards.
5. Treatment for two major grape diseases could be limited to a specific two- to three-week period during which grapes have been found to be vulnerable to them.
6. Moderate seeding rates may lead to healthier turfgrass stands than high seeding rates, while providing equivalent aesthetic results.
7. A new lawn grub "Decision rule" could reduce the need for insecticides by 50-80 percent.
8. New insect-resistant varieties of alfalfa had higher yields, higher net value per acre, and lower insect damage than susceptible varieties in a year of unusually heavy insect pressure.
9. Adequate weed control was achieved in cabbage by substituting cultivation and cover crops for herbicides.
10. A survey of over 200 sweet-corn growers in New York indicates that 69 percent of them have adopted at least half of the "IPM elements" defined for that crop.

The 48-page report includes 23 photographs and 5 tables. Among the handy references in the report is a complete reproduction of the "IPM elements" for fresh-market sweet corn, giving the reader a concrete understanding of all the planning and implementation undertaken by a grower who strives to adopt IPM.

The report was prepared by Margaret Haining Cowles and Jim P. Tette, with input from the entire IPM team. The cover was designed by Karen English-Loeb. *M. Cowles*

HOPE FOR HONEYBEES

Russian honeybees that may be able to resist bee-killing mites have passed quarantine inspection at Grand Terre Island in Louisiana. Scientists at the Agricultural Research Service are beginning outdoor experimentation to determine if the mild-mannered Russian bees can help domestic honeybees resist attack from varroa and tracheal mites. Scientists will also test the bees for honey production.

BIOWORKS HIRES NEW CEO

William J. Foster is the new president and CEO of BioWorks, Inc. He has more than 15 years of experience in management, marketing and technical research in the horticulture and turf care industries. Most recently, he was director of the professional business unit at IMC Vigoro.

In addition, BioWorks has added three new sales reps: JoAnn Peery, who will cover the south central states; John McGowan, who will cover the Midwest; and Cameron Smith, western states rep.

BioWorks is a Geneva, NY-based company that manufactures and sells biological control products for use in agriculture. Its products are a spin-off of technology developed at the Station by Gary Harman. RootShield and T-22 are two of BioWorks' products.

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CALENDAR of EVENTS

APRIL 24-MAY 1, 1998

MEETINGS & EVENTS

Tuesday, May 5, 11:00 am-noon
Jordan Hall Lounge
Mary Slaght, Cornell Human Resources
Early Retirement Program

SEMINARS

ENTOMOLOGY

Date: Tuesday, May 5, 1998
Time: 10:30 am
Place: Room 310, Barton Laboratory
Speaker: Dr. Edward Glass
Professor Emeritus
Dept. of Entomology
Cornell University, Geneva
Topic: How to Win the World Food Prize: A Story About Biological Control in Africa

There will be a period of social interaction with the speaker at 10:00 am.
Coffee & cookies will be available.

PLANT PATH GRADUATE STUDENT ASSOCIATION ANNUAL COLLOQUIUM

Date: Tuesday, May 5, 1998
Time: 10:30 am
Place: Room 133A, Barton Laboratory
Speaker: Dr. Seogchan Kang
Dept. of Plant Pathology, CALS
Penn State University
Topic: Nature and Mechanism of Muta-\ tions Associated with Multiple Virulence Changes in the Rice Blast Fungus *Magnaporthe grisea*

Additional information on Dr. Kang and his research program can be found at:
http://www.cas.psu.edu/docs/CASDEPT/PLANT/faculty/kang.html

PLANT PATHOLOGY

Date: Tuesday, May 5, 1998
Time: 3:30 pm
Place: Room A133, Barton Laboratory
Speaker: Jonathan Comstock
Boyce Thompson Institute
Ithaca, NY
Topic: Hydraulic Architecture and the Integration of Water Relations and Carbon Gain in Stomatal Behavior

Meet the speaker at 3:00.

SEMINARS (cont.)

FOOD SCIENCE & TECHNOLOGY

Date: Wednesday, May 6, 1998
Time: 10:30 am
Place: Conference Rm., FST Bldg.
Speaker: Annie Ho
Food Science & Technology
Cornell Univ., Geneva
Topic: Development and Evaluation of a Flow-Injection Liposome Immunoanalysis (FILIA) System for Fumonisin B1

FDA/USDA Video Teleconference

Date: Tuesday, May 5
Time: 1:00-3:00 pm
Place: Staff Room, Jordan Hall
Content: Update on FDA/USDA Food Safety Initiatives. Experts from the federal government and private sector organizations working on the food safety initiative will provide updates on the National Food Safety Initiative, the FoodNet Early Warning Surveillance System, and other FDA/USDA regulatory initiatives. Panelists will also discuss the status of the Partnership for Food Safety Education "Fight BAC!" campaign, and plans for the upcoming National Food Safety Education Month. After each panel, participants at local sites can call in questions to the panelists.

WPS TRAINING

Training sessions for the Worker Protection Standard (WPS) will be held on Friday, May 1, 15, and 29 in the Staff Room of Jordan Hall from 10-11:15 am. All new employees who will work in farm fields and/or greenhouses and all new B&P staff should attend within two weeks of their first day of work. This training is in addition to any OSHA training that may be required for lab or office workers.

Contact Mart VanKirk (781-5307) for more information.

CLASSIFIED

FOR SUBLEASE: One bedroom apartment available May 1 at Sheridan Park for $535 with flexible duration of lease (min. 2 months). Quiet location, 2 floor, balcony overlooking pool, cathedral ceiling. Contact ajb23@cornell.edu, phone: x282, priv. 315-789-0190.

FOR RENT: 2 bedroom, upstairs apartment on Lafayette Ave. $550 per month includes gas and electric, water and trash. Call Nancy at x288.

WANTED: Room in house for graduate student. Beginning on or about June 13 for 2 months. Please contact Tony Shelton (x352 or ams5@cornell.edu).

LOST: Pair of glasses. Contact Dick Robinson at x237 if found.

FOR SALE: 1989 Suburu wagon, red, 4WD, power everything, $2,500. Call 789-4940, evenings.

DATES TO SAVE

PERENNIAL PLANT EXCHANGE

Come to the annual Perennial Plant Exchange, and bring divisions from your favorite perennials to trade. For more information, call Rixana at x246 or Franzine, 789-8112.
Saturday May 2, 1998 - rain or shine - from10 until noon in the Station Pavillion.

Station Club

SPRINGTIME

LUNCH & T-SHIRT SALE

Friday, May 8th from noon 'til 1:00 pm in the Sawdust Cafe

STATION CLUB CASINO NIAGARA DAY TRIP

Sunday, May 31, 1998 • See circulated posters or contact your Station Club department representastive.

Retirement Party for John Martini

Thursday, May 28, 1998

See insert in last week's issue of News or contact Jane DeCann, x287