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November 6, 2002

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Dennis Gonsalves Receives the 2002 von Humboldt Award for Agriculture

by Linda McCandless

GENEVA, NY: Dr. Dennis Gonsalves, the former Cornell University Liberty Hyde Bailey professor of plant pathology, received the prestigious 2002 Alexander von Humboldt Award for Agriculture on Monday, November 4, at the New York State Agricultural Experiment Station in Geneva, NY.

Gonsalves and his research team were recognized for developing two virus-resistant papayas that saved the $47 million Hawaiian papaya industry from ruin by the ringspot virus. 'SunUp' and 'Rainbow' were the first genetically engineered fruit to be commercialized in the U.S. The project utilized the gene gun invented at Cornell and other innovative technologies in what now serves as a model system for developing virus resistance in fruits and vegetables where traditional breeding methods are not successful.

"What inspired our team was the knowledge that we had to apply the best science we could to solve very real problems for farmers and families who were desperate for a solution," said Gonsalves.

This was the first time in 28 years that the prestigious Alexander von Humboldt Award for Agriculture went to a team of scientists. Dennis Gonsalves, former Cornell University Liberty Hyde Bailey professor of plant pathology, and his team were recognized for developing two virus-resistant papayas that saved the $47 million Hawaiian papaya industry from ruin by the ringspot virus. (from left to right) In addition to Dr. Gonsalves, the team was comprised of Dr. Richard Manshardt, professor of Tropical Plant & Soil Sciences at the University of Hawaii; Dr. Maureen Fitch, a plant physiologist with the U.S. Department of Agriculture; and Dr. Jerry Slightom, a molecular biologist with Pharmacia Co. When the project

Papaya is the second most important agricultural crop in Hawaii. The disease caused a 50 percent drop in production from 1995-1998 before seeds of the virus resistant papaya were deregulated and made available for free to Hawaiian growers. In 2001, production was back to pre-1994 levels.

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During an emotional acceptance speech before members of the foundation, colleagues, and friends, Gonsalves called the event his "swan song." The Experiment Station in Geneva, NY, has been the center of Gonsalves' research program in for 25 years, until last spring, when he left Cornell to become the director of the USDA's Pacific Basin Agricultural Research Center in Hilo, Hawaii.

During the award ceremony, Gonsalves was praised by members of his team as a "visionary and innovative thinker," who was able to "connect on a personal as well as a technical level," in leading the team over various technical and regulatory hurdles. The challenges were many, as Gonsalves pointed out during his presentation about what the adoption of the virus-resistant papaya meant to Hawaiian farmers.

Susan A. Henry, Ronald A. Lynch Dean of the College of Agriculture & Life Sciences, encouraged the assembled group of Cornell scientists and former von Humboldt awardees to "continue to explore the use of all available technologies," in solving the world's food problems, and "to answer questions that are raised by their use intelligently."

"We are really one world," she said during her keynote address. "As scientists at Cornell, we cannot dismiss a problem because it affects one area of the world that is far from our doorstep. This is an eloquent story of how the principles of genetic engineering can solve a very real problem that had no other traditional solution. The world cannot afford to abandon a technology simply because it is controversial."

The controversy surrounding consumer acceptance of genetically modified organisms has limited approval of genetically engineered papaya in certain Asian and European markets. Papaya is highly nutritious and full of Vitamin A. It is a staple in many Pacific Rim and Third World countries. Representatives of Bangladesh, Africa, Jamaica, Thailand, Venezuela, and Brazil have been working with Gonsalves to develop disease-resistance varieties for their countries. Papaya, a fast-growing tree fruit, begins to bear in the first year, and-except for susceptibility to ringspot virus-is easily grown.

"It is somewhat unique that a group of scientists from different institutions and different expertise worked together early on to use a very new technology to develop and implement

a timely solution for a severe agricultural problem in Hawaii," said Gonsalves who holds bachelor of science and master of science degrees from the University of Hawaii, and a doctorate from the University of California-Davis. He has over 180 publications, holds 13 patents, and has helped educate 18 graduate students and numerous post-doctorate fellows in his lab.

"We cam expect to see more and more team approaches to solving important scientific problems," said Dr. James Hunter, director of the Experiment Station. "We are very honored to be involved in this award and to have another awardee at the Station." He challenged Gonsalves and the state of Hawaii to "give back" to New York, by applying the "model system" they had developed for papaya to fight the European plum pox virus which has infected stone fruits in Pennsylvania and Ontario, and may hit New York next.

The Alexander von Humboldt award is presented annually to the person judged to have made the most significant contribution to American agriculture during the previous five years. The von Humboldt Foundation was founded by Alfred Toepfer (1894-1993), a German grain merchant and philanthropist, and named in honor of Alexander von Humboldt, the 19th-century German naturalist and geographer.

This was the first time in 28 years that the von Humboldt Foundation has awarded the $15,000 prize to a team of scientists, and the first time a woman has been a member of that team, according to economist Dr. Lore Toepfer, daughter of Alfred, who made the awards.

Previous Cornell recipients of the von Humboldt Award include Wendell Roelofs, Liberty Hyde Bailey Professor of insect biochemistry and current chairman of the entomology department at the Experiment Station, who won the award in 1977; Dale Bauman, Liberty Hyde Bailey Professor of animal science who won the award in 1985; and Steven D. Tanksley, Liberty Hyde Bailey Professor of plant breeding who won the award in 1998. Cornell can rightly claim a connection to a fifth award winner-William S. Bowers-who won the award in 1989 after leaving the Station for the University of Arizona.

On Monday, the von Humboldt Foundation also awarded a $5,000 Alfred Toepfer scholarship to a Cornell student for agricultural studies in Germany. Jodi Creasap, a Cornell University graduate student in plant pathology, has been chosen for that honor (see related story; http://www.nysaes.cornell.edu/pubs/press/current/creasap.html).

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