

Tropical Agriculture Gets Attention

FRANCISCO SOLANO/CATIE (K-9810-1)



At a meeting last year in Turrialba, Costa Rica, members of CATIE's Board of Directors listen to a presentation by Francisco Mesen, head of CATIE's Plantation Forestry Unit.

Nearly 62 years ago, then U.S. Secretary of Agriculture Henry A. Wallace proposed the creation of an inter-American institution for tropical agriculture that would benefit all American countries by conducting research and training personnel. The idea quickly took root in Turrialba, Costa Rica, and is now the internationally recognized Tropical Agricultural Research and Higher Education Center, or CATIE (KAH-tee-ay), for short.

Later this month, about 100 invited scientists and policymakers will gather in Turrialba for the first of the Henry A. Wallace Conference Series, cosponsored by the U.S. Department of Agriculture and CATIE.

"This conference series will provide a forum for high-level discussion of

strategies in science and technology for tropical agriculture. It will build on CATIE's strengths as a regional leader in research and education activities," says Agricultural Research Service (ARS) Administrator Floyd Horn, who currently serves on CATIE's board of directors.

Pedro Ferreira, director general of CATIE, says, "There are policy issues in agriculture, forestry, environment, and other areas that affect the whole region, so there is a move to integrate Central America on these issues. The conferences will foster interchange between scientists in North, Central, and South America and between scientists and decisionmakers.

"It's also an opportunity for CATIE to markedly enhance our contributions to research and higher education in our region," notes Ferreira.

Invited speakers are leaders in their fields, and participants are selected for their potential to translate knowledge gained at the conference into benefits for their individual countries. They come from the public and private sectors to develop coalitions in the tropical agricultural region.

Nobel laureate Norman E. Borlaug will open the conference as keynote speaker (see sidebar on page 12), and Francisco Reifschneider, director of the Consultative Group on International Agricultural Research (CGIAR), will give an overview of the effect of globalization on agricultural research. Other speakers include ARS national program leaders and directors of some of the 17 international agricultural research centers affiliated with CGIAR.

In addition to addressing issues related to globalization, the conference will develop strategies for rural development in Latin America and the Caribbean and for adding value to agricultural production in the region.

Ferreira says the price of coffee—an important crop to Latin American farmers and U.S. consumers—has been declining dramatically. Conferees will discuss ways to counteract this, such as producing quality coffee for niche markets and diversifying production to other crops that would turn a profit in global markets. Coffee can be grown along with high-value timber, for example, or with tropical fruits that could be sold as concentrates or jams.

“It’s a matter of changing the way in which coffee farms are managed to add value,” Ferreira says.

Produce While Conserving and Conserve While Producing

The challenge for CATIE in its day-to-day operation and for the conference series is to devise new ways to increase tropical agricultural production to feed a growing global population while conserving the world’s natural resources and the environment. Thus, CATIE’s mission statement: “Produce while conserving, and conserve while producing.”

In addition to a dozen Latin American countries, the United States, Canada, 10 European countries, and Japan contribute to the support of CATIE, and many collaborate on research and/or education projects. The center has a compact staff of about 120 professionals, including 40 with doctorates and 50 with master’s degrees. And the center is strengthening its ties throughout the Americas.

“CATIE plays a very important role in education, training, extension, and research activities in Latin America,” says Horn. “This center is one of our key partners as we pursue mutual collaborative interests in the region.

“USDA has a strong interest in supporting professional development

efforts in Latin America,” Horn notes. “We recognize that the strength of our future research partnerships depends, in large part, on training and capacity-building programs provided by CATIE and other institutes of higher education in the region.”

Recently, says Ferreira, CATIE and the University of Idaho initiated a joint doctoral program for training U.S. citizens in tropical agriculture and natural resource management under CATIE’s graduate program. The National Science Foundation is underwriting the doctoral program.

Cacao is one product of tropical agriculture of great importance to the U.S. chocolate industry, which reaps about \$8.6 billion annually in U.S. sales. The industry has been involved with CATIE and its world-class cacao germplasm collection for years, and the American Cocoa Research Institute recently strengthened this relationship by becoming an affiliated member institute.

That’s because fungal diseases like witches broom and frosty pod rot are devastating cacao crops in Central and South America. Frosty pod reduces productivity to less than half in Central America, says Ferreira.

“The chocolate manufacturers are worried about fungal diseases and insect pests,” says Raymond Schnell, research geneticist at ARS’ Subtropical Horticulture Research Unit in Miami, Florida.

With funding from the chocolate giant M&M Mars, Inc., Schnell collaborates with CATIE and centers in Brazil, Trinidad, and Ecuador to find the genetic markers for disease resistance against these income-robbing fungi. (See “Food of the Gods: Cacao and Marker-Assisted Selection,” *Agricultural Research*, August 2001, pp. 10–11.)

Knowing where the resistance genes are located on the chromosomes will enable geneticists worldwide to select resistant varieties or move the target genes into current varieties with known agronomic traits.

KEITH WELLER (K4636-14)



Cocoa beans in a cacao pod.

In addition to cacao, CATIE maintains a large germplasm collection of coffee, tropical fruits, and horticultural produce. “We have gotten quite a bit of germplasm from CATIE and they from us,” says Schnell. “It’s a very well-run institute. We’re fortunate to have it.”—By **Judy McBride**, formerly with ARS.

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SCOTT BAUER (K5730-1)



Plantains.

Feeding the World

Some might say that Dr. Norman Ernest Borlaug, Nobel Peace Prize winner in 1970 and respected agricultural scientist, was destined for greatness.

For evidence, they might point to the name of his hometown in Iowa: Cresco. In Spanish, *crezco*, pronounced similarly to Cresco, means “I grow.” Indeed, Borlaug’s entire life and research have been about growing. He is recognized the world over as the father of the “Green Revolution,” a term that refers to marked increases in cereal-grain production that began in the late 1960s.

“Back in the late thirties and early forties, I didn’t have any idea that my work would have the impact that was achieved by the so-called Green Revolution,” Borlaug said from Texas A&M University in College Station, where he gives special lectures and has a building named in his honor. “I didn’t have any intentions of going into international agriculture. My education and work was originally in forestry with the U.S. Forest Service.”

At this month’s inaugural Henry A. Wallace Inter-American Scientific Conference Series at CATIE, in Turrialba, Costa Rica, an international body of scientists and agricultural policymakers will hear the Nobel laureate talk about his views on research and food technology. As time marches along in this young millennium, improving food technology is vital to a world populated by more than 6 billion people and growing by 80 million each year. He is in favor of harnessing biotechnology to help address the world’s food shortages.

ARS and CATIE are excited to have at their conference this distinguished scientist, who has a lengthy list of honors, accomplishments, and work experience. The first major assignment of Borlaug’s professional career took him to Mexico, where he organized and directed the Cooperative Wheat Research and

Production Program. That was part of an initiative linking the Mexican government with the Rockefeller Foundation. There, Borlaug oversaw foundation research in genetics, breeding, plant pathology, entomology, agronomy, soil science, and cereal technology.

It was his work in Mexico that began Borlaug’s humanitarian goal of feeding the world’s indigent. While predictions of an overpopulated world with little food to eat entered the mainstream—boosted by the 1968 best-seller *The Population Bomb*—Borlaug helped feed the poor through his research on dwarf wheat varieties that resisted pathogens and pests while yielding two to three times more grain than regular wheat.

From those innovations, wheat production in various countries skyrocketed. Yields rose from 4.6 million tons to 8.4 million in Pakistan between 1965 and 1970. India’s totals for the same period rose from 12.3 million to 20 million. India has recently harvested more than 73.5 million tons of wheat.

From that work, the Rockefeller Foundation and Mexico began the International Maize and Wheat Improvement Center (CIMMYT). While investigating crop and plant problems there is a top priority, Borlaug used new funds to help create a highly productive internship. At last count, more than 1,900 young scientists from 16 different countries

had worked with CIMMYT.

Today, Borlaug is a distinguished professor with many involvements. Through the Carter Center’s Global 2000 program, Borlaug and former U.S. President Jimmy Carter work together to help more than an estimated 4 million small-scale farmers in 11 sub-Saharan countries improve food production. After all these years, his work is still *creciendo* (growing).—
By **Lupe Chavez**, ARS.

BILLY HOWARD/THE CARTER CENTER



Norman E. Borlaug