

"CFC/ISO/20 is one of the best run CFC-sugar projects"

January-August 2005

PHILSURIN Update (Official PHILSURIN Newsletter)

Netherlands based Common Fund for Commodities lauded member countries of the CFC/ISO/20: Sugarcane Variety Improvement in Southeast Asia and the Pacific project for a job well done.

"It is one of the best run and best implemented sugar projects," CFC Representative and CFC/ISO/20 Associate Project Manager Eltha Brown said, noting CFC/ISO/20's significant accomplishments and its impact on sugarcane planters and breeders across the region.

"CFC is very pleased with the project outcome," she added. One of nine sugar development programs funded by the agency, CFC/ISO/20 was endorsed by the International Sugar Organization in 2000 to improve and sustain market competitiveness in the region by enhancing the production and quality of sugarcane.

Headed by the Philippine Sugar Research Institute Foundation, Inc., the US\$2 million regional variety improvement program sought to undertake regional cooperation and coordination in germplasm collection and conservation, the exchange of sugarcane varieties, as well as the enhancement of technical research and development capabilities of national cane breeding institutions in Bangladesh, Indonesia, Malaysia, the Philippines and Thailand.

At the performance review meeting in Surabaya, Indonesia on December 14 and 15, 2004, the consortium members all agreed that the project had achieved what it set out to accomplish. "This project is an excellent undertaking in the sense that it has been managed very efficiently, and all the people involved are very professional and committed," ISO Senior Economist Lindsay Jolly said. He noted that "each of the institutional members has undertaken its role very seriously to bring the project to a successful end." CFC/ISO/20 drew to a close in August 2005.

"The project has contributed heavily to the institutional strengthening of member countries," said PHILSURIN Director General Leon Arceo. Among the program's achievements, he reports, are expanded sugarcane genetic resources, improved research infrastructure, as well as better developed human resources. A Regional Sugarcane Biotechnology Laboratory was established in Negros to generate new technologies which will be shared with other member countries.

Also, the breeding institutions were provided with small to medium scale equipment for their research laboratories. "The undertaking also has resulted in more harmonized standards for quarantine procedure, variety trial and characterization of germplasm collection, and a vastly improved regional networking among the partners," Arceo said.

Over 50 sugarcane varieties have been exchanged among member countries between 2001 and 2005, enabling them to acquire new varieties with high production potential. The participating countries also were given property rights to the varieties, allowing them to adopt cane varieties that are suitable to their environment.

Yield trial results show that the Malaysian variety 80-A-1867 grows well in Bangladesh, the Philippines and Thailand. "This demonstrates that there can be a universal variety suitable to conditions in many

countries," Arceo said. VMC varieties from the Philippines emerged as topnotchers in Bangladesh, Indonesia, and Thailand.

The germplasm characterization component of the project is manned by sugar experts from the Institute of Plant Breeding – University of the Philippines Los Banos, CFC/ISO/20's co-implementing agency. Reynaldo Quiloy, a project leader of the germplasm component, reported that a total of 960 accessions of sugarcane are maintained at IPB. The morphological, molecular, cytogenetic, and biochemical characterization were conducted in the PHILSURIN Experiment Station in Victorias and IPB-UPLB.

"Characterization is vital to the assessment of genetic diversity, accession identification, gap filling, establishment of core collections, and the identification of duplicates in the collection," Quiloy said. All the data gathered were encoded into MS Access for database development.

Project leader Nestro Altoveros reported significant progress on CANEPOINT (Philippine Sugarcane Genetic Resources Data and Information Management System), the database which will contain all information on sugarcane, arranged for easier research, retrieval and navigation. "Already, there are 930 accessions available in the program, and over 8,100 photos in the processing stage," Altoveros said. He added that the CANEPOINT team is working to include more data such as chromosome number, DNA fingerprints, as well as profile hyperlink to the accessions. The technology was made available to all CFC-member countries.

The post-entry quarantine greenhouse of the IPB-UPLB was rehabilitated to house exchanged varieties from the member countries, IPB-UPLB University Researcher Dr. Fe dela Cuerva reported. A disease-indexing scheme was developed to ensure that exchanged varieties are free from all diseases before being planted in commercial fields. Moreover, disease indexing enables pathologists to compare the strains of foreign and local sugarcane diseases.

"The varieties undergo a thorough process of indexing of downy mildew, smut, leaf scald, mosaic and other diseases. After two years in close-quarantine, the sugarcane varieties are transferred to an open quarantine area in Guimaras, Iloilo. The varieties are monitored for other diseases over another one-year period," dela Cueva said.

PHILSURIN Crop Physiologist and Plant Breeder Dr. Norvie Manigbas reported on his ongoing study "Molecular Marker-assisted Selection in Identifying Downy Mildew and Smut Resistance Genes in Sugarcane." A modern and more efficient technique which accelerates the breeding process, marker-assisted selection results in considerable savings in research costs and losses caused by diseases. "Out of 241 primers in PHILSURIN's Biotechnology Laboratory, 162 have been screened," Manigbas said. He will continue to gather data, identify polymorphic markers, verify identified markers, and apply marker-assisted selection in the breeding program.

The terminal reporting session is set for sometime in March 2006 when all data for the multi-location variety trials have been collated and analyzed. An information dissemination workshop will be conducted to share CFC/ISO/20's successes and experience with a number of African and Latin American countries.

"The ultimate beneficiaries of this project are all sugar producers and consumers," Arceo said.