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China Embraces Agricultural Innovations Through Partnership with India-Based International Center

Hardy Legume Makes a Dramatic Comeback; New Groundnut Varieties Reinforce Chinese Leadership; and Watershed Development Projects Address Local Needs

BEIJING—Chinese agricultural scientists and rural communities have embraced diverse agricultural innovations through a partnership with the India-based International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), resulting in higher incomes and better living conditions for rural people. These are among many benefits being highlighted at the 2007 Annual General Meeting of the Consultative Group on International Agricultural Research (CGIAR) in Beijing on 3-7 December.

“Our partnership with China, aimed at improving key crops and natural resources, has benefited this country in multiple ways, while also strengthening our work for the rest of Asia,” says Dr. William Dar, ICRISAT’s Director General. “This is the spirit of a true international partnership.”

Pigeonpea’s China Comeback

Having practically gone out of production in China during recent decades, the hardy legume pigeonpea is making an astonishing comeback. Innovative farmers in Yunnan, Guangxi and other provinces have found diverse uses for the crop.

Among these are to prevent soil erosion; to serve as a substrate for mushroom cultivation and rearing of lac insects (the resinous secretion they produce is processed into “seedlac,” which is used in varnish); to provide fodder for cattle, sheep and rabbits as well as feed for fish; and to serve as a vegetable in the human diet. To further popularize the use of pigeonpea for food, Chinese food technologists have developed a variety of snacks and other items, even pigeonpea noodles, using dry and green pigeonpea seeds.

As a result of those efforts, the area planted to pigeonpea has expanded from just 50 hectares in two provinces during 1999 to 100,000 hectares in 12 provinces last year. The crop is now commonly seen growing on roadsides, slopes and riverbanks. Its strong root system, particularly in perennial varieties, helps hold the soil in place. This makes pigeonpea especially useful in southern China, where 90 percent of the land is hilly.

“Pigeonpea has been found to be very successful in reducing soil erosion,” says Dr. Zong Xuxiao of the Chinese Academy of Agricultural Sciences (CAAS) at Beijing.

China’s pigeonpea revival has resulted from collaboration between ICRISAT and various local partners, including the Chinese Academy of Forestry in Kunming, Yunnan , and the Guangxi Academy of Agricultural Sciences (GxAAS) at Nanning, Guangxi. Starting in the 1990s, ICRISAT supplied appropriate seeds and production technologies, together with training. Since then, Chinese partners have established strong research and extension programs for introducing pigeonpea in diverse cropping systems.

The pigeonpea revival is expected to receive a further boost, according to ICRISAT scientist Dr. K.B. Saxena, when new hybrid varieties reach the country. “There is already interest among Chinese seed companies,” Saxena says, “which could produce hybrid seed both for the Chinese and Indian markets.”

Disease-Resistant Varieties of Groundnut Reinforce Chinese Leadership

International exchange of disease-resistant groundnuts has reinforced China’s leadership in the production of this crop, while also benefiting various countries of Southeast Asia.

China was already a world leader in groundnut production, when it began collaborating with ICRISAT in research on this crop. The Center provided Chinese partners with varieties resistant to various foliar diseases as well as capacity strengthening. For its part, China supplied groundnut lines resistant to bacterial wilt.

According to ICRISAT scientist Dr. Shyam Nigam, most of the senior scientists working on groundnut in China have undergone training at ICRISAT. Moreover, they play an active role in Asian research networks, through which resistant groundnut lines from China were used to deal with bacterial wilt disease in Cambodia, Indonesia, Laos, Malaysia and Thailand.

Meanwhile, China remains Asia’s number one groundnut producer and figures among the top producers in the world, registering more than 14 million tons in 2004.

A New Model for Community-Based Watershed Development

Watershed development projects in Yunnan and Guizhou Provinces, having significantly improved the well-being of rural people, while protecting water and soil, now offer a model for replication in other communities. A key reason for the projects’ success is that they gained the confidence of local communities by first addressing rural people’s immediate needs. This created an entry point for exploring other options to reduce rural poverty and improve the management of natural resources.

In Guizhou’s Lucheba watershed, for example, the community’s main problem was a lack of drinking water. With project funds and community support, water from nearby springs was collected in tanks and piped to the village. Having met this immediate need,

farmers then built structures for harvesting water to irrigate high-value crops, such as kidney beans, chilies and cabbage.

Next, with the aim of improving their access to markets, the community convinced local government to support construction of a 6.5-kilometer farm road. Vegetable sales and farmers' incomes increased.

Meanwhile, farm families began adopting biogas plants, which produce gas from animal and human waste. The result was to reduce women's drudgery and improve their health by enabling them to avoid walking long distances for firewood and inhaling smoke from wood fires.

“Luchebe has become a model for introducing biogas plants in community development projects,” says Dr. Suhas P. Wani, who leads ICRISAT's work on watershed management in Asia. In the Luchebe watershed, this work is done in collaboration with local communities and the Guizhou Institute of Integrated Agricultural Development (GAAS).

China now belongs to a regional network of countries – including India, Thailand and Vietnam – which have successfully improved watershed management with financial support from the Asian Development Bank (ADB) and scientific support from ICRISAT.

About ICRISAT



The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's aim is to empower 600 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT belongs to the Alliance of Centers of the Consultative Group on International Agricultural research (CGIAR).