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# FEATURE

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## LOSS OF WILD PLANTS THREATENS WORLD FOOD SUPPLY

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COLOMBO, IDRC -- All cultivated species of plants are derived from wild relatives known as cultivars. Scientists are worried that the extinction of these wild species -- probably at a rate of one a day -- may pose a grave threat to world food supplies.

The conservation of the gene pools of wild species is essential to maintaining genetic diversity as scientists are increasingly turning to cultivars to improve cultivated crops. The genetic resources available in the jungles and pampas of South America and the marshes of Asia have helped plant breeders make modern hybrids stronger and more disease-resistant.

Almost all the commonly cultivated crops such as rice, wheat, barley, sorghum, maize, coffee, cocoa, sugarcane, and rubber have been boosted with genes from their wild relatives growing in different parts of the world.

When a crop is domesticated, its genetic base narrows and it becomes more vulnerable to pests and diseases. Breeders first look to the cultivated species for improved varieties and better hybrids.

But besides pest and disease-resistance, breeders are looking for higher yields, bigger fruits and adaptation to wider extremes of climate and environment. Improving market characteristics such as flavour, colour and ability to keep are also important.

If they cannot find in the domesticated species the genes that will confer

the desired characteristics, they turn first to what are called landraces -- plants that farmers have traditionally cultivated as opposed to the modern hybrids. If these fail, breeders turn to the wild cultivars.

Often, they find the required qualities among deceptively unlikely plants of the same species. The fluffy pod of domestic cotton grown in the United States, for instance, is in fact a product of cross-breeding with a weed (*Gossipium Thurberi*) that grows in Mexico. Although the wild plant has only a few strands of thin, scraggly cotton, it imparts strength to the fibres in domestic cotton.

This and many other crosses show how the nondescript weed growing on a hillside in India or the shrub surviving the desert of Mexico can be of immense use to mankind.

A single sample of wild rice from India (*Oryza nivara*) helped combat grassy stunt virus which had wiped out 116 000 hectares of rice in Sri Lanka, India, Indonesia, Vietnam and the Philippines in the 1970s.

Genes from wild sugar found in Indonesia, India and Papua New Guinea have helped to double cane yields. All the sugarcane grown in India and many other regions is derived from a cross between a cultivated variety and a wild sugarcane that grows in Java and southern India.

Grains in the U.S.A. have been protected by crossbreeding with wild varieties. A germ plasm from a wild wheat in Turkey saved American wheat fields from the stripe rust that caused much damage in the 1960s. An Ethiopian strain has strengthened California's barley crop.

The story is repeated around the world. Three Malaysian varieties of rubber have acquired resistance to leaf blight thanks to a species of wild rubber in Brazil, while genes from a Peruvian wild rubber tree that yields more than cultivated varieties are under study. A wild south American oil palm infused greater saturation of oil into the African oil palm, and the European potato got a boost from a Mexican wild relative.

Wild plants have also been the source of many important medicines. Drugs derived from plants native to tropical rain forests have been used in the treatment of Hodgkin's disease, hypertension and rheumatoid arthritis, as an aid in surgery, and in the production of birth-control pills and sex hormones.

It is estimated that two-thirds of the world's wild genetic resources are found in the Third World. This could well become a conflict between the South and the North. The great majority of the half of all species believed to exist in the tropical rain forests have not yet been described by scientists. And as these forests shrink under pressure from agriculture and lumbering, scientists fear many unknown species may be lost forever.

While the poor countries contain and have to preserve these ecosystems, it is the industrialized nations who must make available the sophisticated science and technology necessary to assure the vital genetic resources of the South.

At the Third International Congress of National Parks held in 1982, some delegates insisted that developing countries benefit as much from their genetic resources as developed countries do.

It is not just research institutes and universities that have been making use of the gene pool. Multinational corporations with monopolistic seed patents are the biggest beneficiaries. Some countries are prepared to take a firm stand on the issue.

Ethiopia is one such country. No germ plasm is allowed to leave the country as it is viewed as a natural resource.

Indonesia's minister of state for development supervision and environment, Emil Salim, expressed the same view at the conference. He has suggested that a one percent tax on pharmaceutical sales would bring in US\$200 million a year from the U.S.A. alone. A further one percent tax on commercial sales of seeds could bring in an additional US\$100 million from the U.S.A.

Such calls for a fair return on genetic resources are bound to become a source of debate between North and South as the developed countries look increasingly to wild species to improve their cultivated crops.