



Integrated conservation and sustainable use of regional crop wild relatives

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South America includes some mega-diverse countries, but genetic resources locally used for food and agriculture are mostly of exotic origin. Exclusively exotic crops, with no local germplasm, sometimes are key elements behind successful agribusiness. The local importance of coffee, soybeans, sugar-cane, as well as of species of *Citrus* and *Eucalyptus* illustrates the strong dependence on exotic germplasm, with the resulting vulnerability. However, the region also includes plant genetic resources of global importance, gathering diverse wild relatives of crops. Breeding programs of exotic crops such as rice, barley, pearl millet or finger millet could benefit from the addition of local congeneric wild species. In parallel, the breeding of American crops such as maize or lima beans may benefit from the addition of germplasm of local landraces, derived from remote introduction of such crops in South America, from their areas of origin in Mexico and Central America. But the greatest impact of the regional plant genetic resources refers to traditional South American crops, such as pineapple, peppers, and groundnut, of which the area is rich in wild relatives. Three crops of Brazilian origin, cassava, cashew, and rubber-tree, enrich this group, of which most wild relatives occur in Brazil, many of them being endemic. Besides typical wild relatives of crop plants, some species native to Brazil and adjacent countries have shown a potential to become commercial crops. This applies to many native forage plants, fruit trees, and palms. In the last three decades, some elite wild plants, *Arachis pintoi* and *Stylosanthes seabrana*, both exclusive to Brazil, confirmed this potential, reaching the World market. Information will be presented on what is being done, and still needs to be accomplished, towards the conservation of such crop wild relatives, both *ex situ* and *in situ*, especially at a time of strong modifications in the land use systems and practices in South America, while facing threats of climate change. Detailed information on three regional crop gene pools will follow, stressing the growing amount of taxonomic and genetic information piled up on the groundnut wild relatives, on the struggle to conserve the wild *Manihot* species, when their preferred biome, the Cerrado, is under drastic agricultural impact, and on how much diversity is being constantly unveiled on South American species of *Capsicum*, and how this knowledge relates to agronomic advances.