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Corpoica

TIBAITATÁ
CENTRO DE INVESTIGACIÓN

THE VEGETAL GERMPLASM BASE BANK
TIBAITATA RESEARCH CENTER

DECEMBER OF 2009

Mosquera // Cundinamarca // Colombia

PRESENTATION

The Group of Genetic Resources and Crop Improvement (GRGMV in spanish) of Corpoica, is a strategic Group of research and support for the agricultural development of the country, based on the appraisal, conservation and sustainable use of the agro biodiversity.

OBJECTIVES

The main objective of the URGMV is to preserve, recognize and use the genetic variability of plant species of present and potential importance, for its use in the development of sustainable agricultural systems, new uses of the agro biodiversity and in the solution of problems of diverse nature, according to the high-priority research approaches of the production agro-industry-consumption chains and the changes in the biophysical and socioeconomic environments.

Diversity of fruits.

STRUCTURE

The group has two main areas of resesarch: Genetic resources and plant breeding. The first one is referred to the conservation and comprehension of the agro biodiversity, with an interface for the creation of genetic bases for support of the improvement programs. In the second the development and evaluation activities of new materials for their offering to productive systems are made.

COLOMBIA'S FOOD AND AGRICULTURE GERMPLASM BANK SYSTEM

The Germplasm Banks conserve, under conditions *ex-situ*, genetic resources of different species with present and potential economic value. These genetic resources contain variability of such species as well as of their wild relatives. The collection contains the genetic variability for the development of genotypes adapted to sustainable productive systems, also providing genetic attributes for the solution of limiting production factors.

Diversity of corns.

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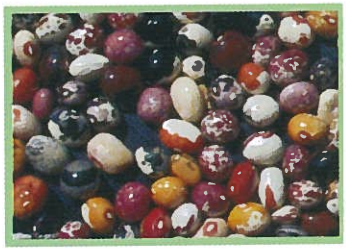
Diversity of roots and tubers.



Diversity of leguminous and oleaginous.

CORPOICA is responsible of handling Colombia's food and agriculture germplasm bank system, which includes collections of plants, animals and micro-organisms.

The Plant Germoplasm Banks have two categories:

a) **Banks with orthodox seeds**[1]: A base collection is located in the C. I. Tibaitatá (Mosquera, Cundinamarca), with a copy of all the existing materials. Each entry has a minimum of 1,500 seeds which has at least 85% of germination. The base collection is keeping in cold storage at -20°C, allowing a long term seed storage. The orthodox seed bank has two active collections located in two different research centers: Tibaitatá and La Selva (Rionegro, Antioquia). These collections have cold rooms for medium term storage of seeds at 4°C for high demand entries.

b) **Field Collections**: There is a main bank sorted by species exhibiting recalcitrant seeds[2] or vegetative multiplication in the field collection subsystem, in which a copy of all the entries belong to the species and to the wild relatives. For security reasons there are satellite banks for each of the species in field or in vitro conditions in different places in the country.

1 Seeds that can be dried to low moisture contents (4% to 6%) without damage and be stored dry at low temperatures (-18° C to -20° C) without losing their viability over long periods of time.

2 Seeds that cannot withstand desiccation to moisture contents below of determine critical levels, which are variables among species.

THE VEGETAL GERMPLASM BASE BANK OF THE TIBAITATA RESEARCH CENTER

The bank includes 22,176 entries, of which 19,274 are material with orthodox seed, 1,628 are species that exhibit recalcitrant seeds or vegetative multiplication in field conditions and 1,274 are conserved under *in vitro* conditions. The materials correspond to 88 species or groups of species, which appear by systems of conservation of germplasm, in the following Table 1:

Table 1. Number of species and entries by storage system of the Vegetal ermplasm base bank of the Tibaitata research center.

Storage system	Number of species	Number of entries
Short term cold storage (4° C)	53	12.422
Long term cold storage (-20° C)	33	9.405
Subtotal	**86**	**21.827**
In Vitro conservation	4	1.292
Field conservation	4	1.298
TOTAL	**94**	**24.417**

The materials correspond to 8 groups of species, which appear, by categories, in the Table 2.

Table 2. Kind of species and number of entries by storage subsystem of the Vegetal germplasm base bank of the Tibaitata research center.

Kind of species	Number of entries		
	Field	Seeds	*In Vitro*
Cereals		5.041	
Fruits		585	
Vegetables	83	690	61
Leguminous		2.688	
Oleaginous		1.312	
Roots and tubers	1.545	2.299	1.060
Industrial crops		867	
Bananas			163
TOTAL	**1.628**	**13.482**	**1.284**

ESENT AND POTENTIAL ECONOMIC VALUE.

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MAIN RESULTS

The Germplasm Bank that CORPOICA handles offers all this material to obtain new varieties that can be resistant or tolerant to diseases or plagues and have characteristics demanded by the market. Many of the bank materials have participated in the development of 50 improved varieties given in CORPOICA from 1994 and at the moment they have commercial use in 50.000 hectares per year.

INFORMATION OF GERMPLASM BANKS

In order to find the information and details on the Vegetal Germplasm Base Bank of the Tibaitata Research Center, you can contact the Group of Genetic Resources and Plant Improvement at:

CORPOICA, La Selva Researh Center: Km 7 vía Las Palmas, Vereda Llano Grande, Rionegro, Antioquia; PBX (094) 5770090, 5370188. Colombia, Suramérica.

CORPOICA, Tibaitata Researh Center: Km. 14 vía Bogotá to Mosquera, Cundinamarca; PBX (091) 42273 00 ext. 1460, PO Box 240142 Las Palmas, Bogotá D. C., Colombia, Suramérica.

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Colombia, mi país patria amada, por ti todo