

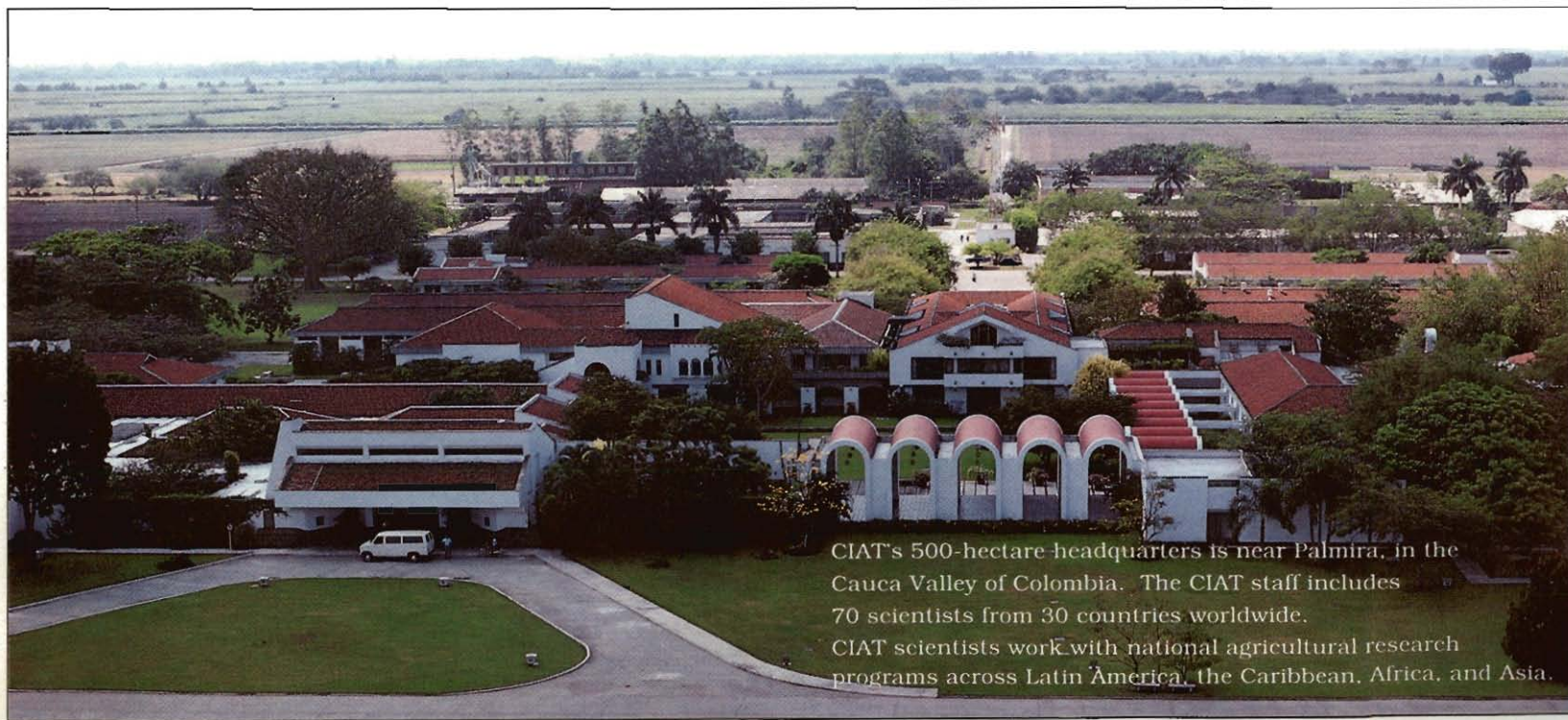
63825

C-2

CIAT

63825
COLECCION HISTORICA

The New Mission



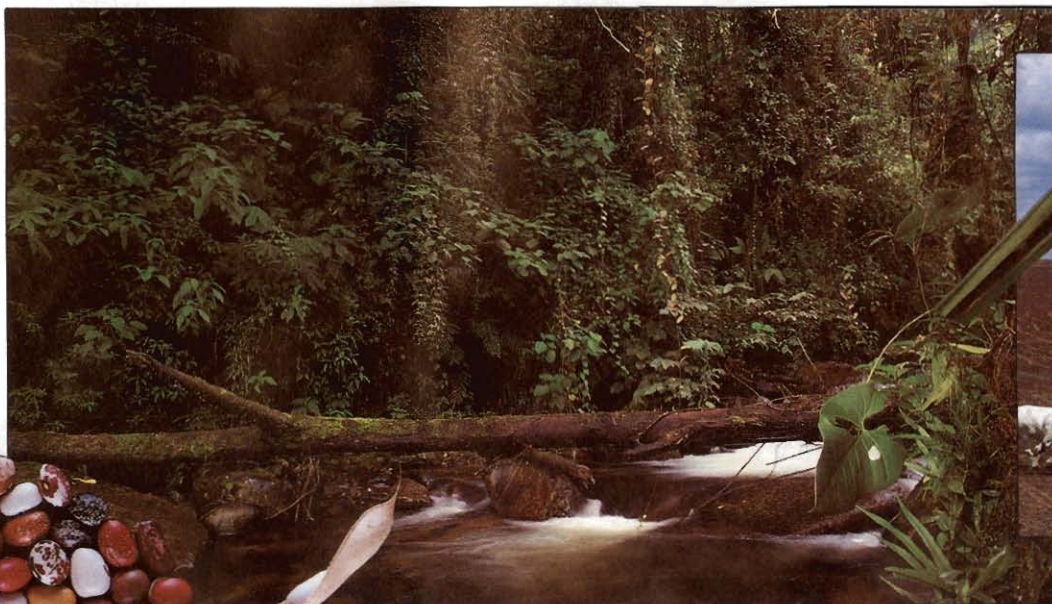
CIAT's 500-hectare headquarters is near Palmira, in the Cauca Valley of Colombia. The CIAT staff includes 70 scientists from 30 countries worldwide. CIAT scientists work with national agricultural research programs across Latin America, the Caribbean, Africa, and Asia.

Growing More Food With Fewer Chemicals...

While Protecting the Environment

Through **Germplasm Development**, CIAT improves four crops that are essential to the world's food supply. To reduce the need for hazardous pesticides, we breed genetic resistance into the crops, and develop nonchemical methods of biological pest control.

Through **Resource Management Research**, CIAT and national partners develop productive and environmentally sound farming systems for fragile ecosystems threatened by destructive land use in tropical America.



-Hillsides support most of Latin America's farmers, and produce 60% of the region's food. If productivity of degraded hillsides is restored and sustained, farmers will not be forced to invade forests or migrate to urban slums.

The International Center for Tropical Agriculture (CIAT) was established in 1967 by the Rockefeller and Ford Foundations, with support from the Government of Colombia. CIAT enters its third decade with new strategies of applying science to agriculture to end hunger and poverty in developing countries.

We work with national agricultural research institutions across the tropics to ensure that food production keeps pace with growing demand—demand that will inevitably be driven by population growth and, we hope, by greater buying power, among the poor.

CIAT considers the earth's natural resources the "capital" on which future growth depends. Sustainable agriculture means living off the interest from this capital, not off the capital itself.

We must help feed a hungry world and, at the same time, protect the natural resources that we will pass on to our children...because all human beings have an inherent right to a decent life.

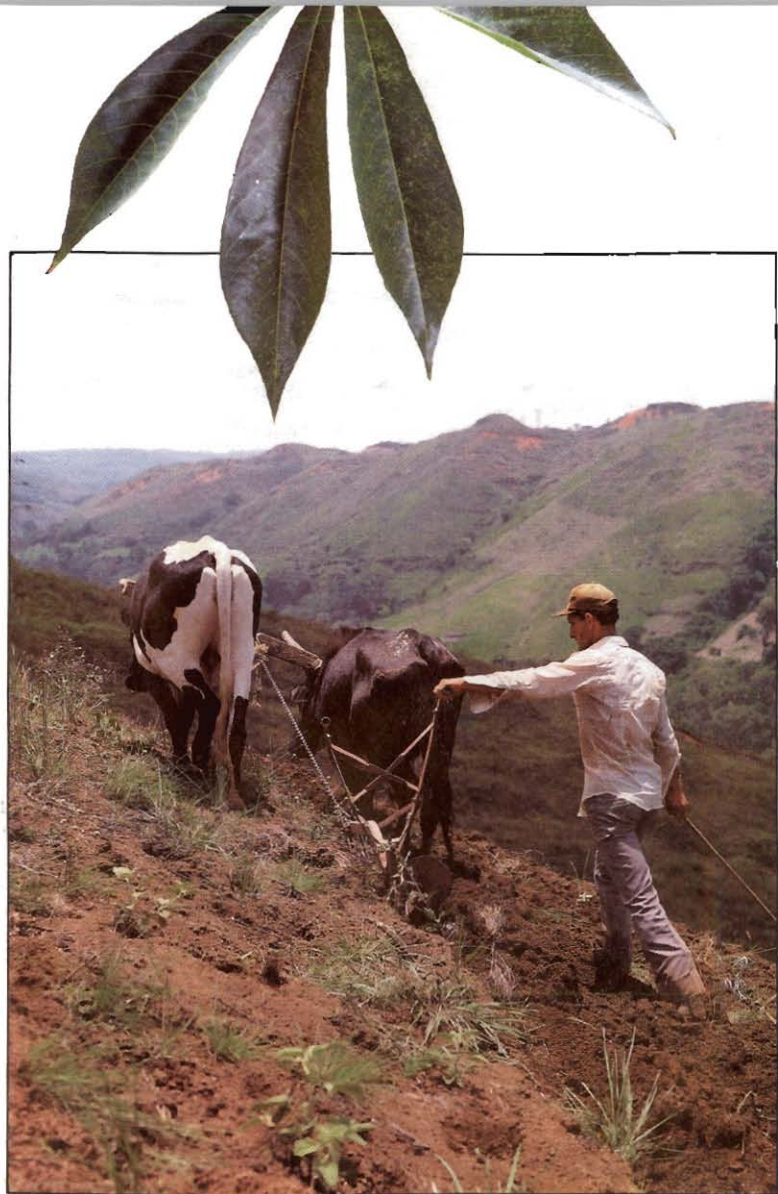


63825
CIAT
BIBLIOTECA
119752

CIAT

63825-C2





Genetic Diversity and Sustainable Agriculture

Genetic diversity of plants results from aeons of evolution and 10,000 years of selection by farmers.

Once genetic diversity disappears, it can never be recreated. Such diversity is essential if crops and animals are to yield well over time without degrading natural resources.

The CIAT **gene bank** is a treasure for future generations because it preserves seeds and living plants of 52,000 varieties of beans, cassava, and pastures. These *seeds of hope* are the building blocks for improved varieties with higher yield potential, genetic resistance to pests and environmental stresses, and the capacity to preserve and restore soil quality.

A wild bean from the rugged mountains of Mexico, for example, looks like a useless weed. But 20 years ago, a collector saved a handful of its seeds, knowing that its genes could be useful for future generations.

Those seeds entered the bean collection at CIAT, which now includes 26,500 samples.

CIAT scientists later discovered that the bean resists the bean weevil, a pest that devours 25% of the beans stored in Africa, and 15% in Latin America. That trait has been bred into Latin American and African farm varieties, reducing the need for pesticides.

Similarly, the productive use of 40 million hectares of *Brachiaria* pastures in South America depends on varieties with built-in genetic resistance to spittlebug and adaptation to soils of low fertility.

CIAT exchanges seeds internationally, assuring their phytosanitary quality through the Seed Health Laboratory.



Relations with Institutions Worldwide

The ultimate responsibility for helping humanity feed itself, without destroying the planet, lies in the hands of scientists and policy makers in national agricultural research and development systems. More than 5,000 scientists have participated in CIAT training programs.

CIAT has developed *training of trainers* programs for scientists and extension leaders who work with rice, beans, and cassava.

CIAT provides post-graduate opportunities to acquaint young scientists with international agricultural research. Colombian undergraduate students conduct bachelor's degree research, guided by CIAT scientists.

The CIAT Library holds 80,000 books and documents, plus 3,500 journals. Bibliographies on beans, cassava, forages, and rice are published and disseminated. CIAT provides pages of contents services on current journals, and literature searches of major bibliographic databases for scientists in national programs.

CIAT publishes scientific books, conference proceedings, and periodicals for researchers in developing countries, and conducts public awareness activities to inform the public of the importance of research in tropical agriculture.

Educational materials are produced in modern desktop publishing and printing facilities. Audiovisual training programs are filmed in a small television studio.





CIAT uses conventional breeding, tissue culture, and molecular techniques to tailor crops that resist pests, use inputs efficiently, and grow well on infertile soils. We have global responsibility for research on cassava, common bean, and tropical forages; and responsibility for rice research in Latin America and the Caribbean.

-Beans. "the poor person's meat," feed at least 300 million of the world's poorest people, mostly in Latin America and Africa. Beans are the second most important source of protein and the third most important source of calories in eastern and southern Africa. The yearly value of additional production due to improved bean varieties developed by CIAT and cooperators is more than US\$80 million.

-Rice feeds one of every three persons on earth and is the most important food, in terms of per capita caloric and protein intake, in the Caribbean and tropical South America. Rice production in Latin America has almost doubled, and the cost to consumers has dropped by 25%, since CIAT was established. Improved, pest-resistant varieties and better production technologies made that possible.

-Cassava was often called the "neglected crop" until CIAT and partner institutions began to investigate and improve its production and processing. Cassava resists drought and grows well in poor soils. The starchy root crop is a staple for about 500 million humans—almost 1 of every 10 people on earth. It is an increasingly important raw material for animal feed and for the production of starch for food and industrial purposes.

-Forages provide not only feed for cattle—and therefore, milk and beef for humans—but also help control soil erosion and maintain or enhance soil quality. Introduction of improved grass-legume pastures in the Colombian savannas has increased beef production from 20 to 400 kg per hectare.

Hillside research aims to relieve the pressure on soil resources, increase their productivity, and halt the destruction of watersheds that are vital to water supplies and the generation of hydroelectric power.

-Forest margins. Tropical forests hold half of the world's species of plants and animals—yet scientists have studied less than 10% of this vast reservoir of potential foods, medicines, energy sources, and natural pesticides. Because of poverty and population growth, pressures on tropical forests are increasing at alarming rates.

Stabilizing of farming in the forest margins will encourage farmers to stay on the present land and thus, protect the precious rain forests.

-Savannas. Soils are acid and infertile on 200 million hectares of underutilized lowland savannas that border the South American rain forests—an area four times the size of France.

Growing rice and improved pastures together can increase the productivity of both crops. The rice harvest pays for planting the pasture, and leaves a profit. Pastures benefit from residual fertilizer applied to the rice. Rice, in turn, benefits from the fertility of well-managed pastures. Rice-pastures systems are spreading in the savannas of Brazil and Colombia, and entering Venezuela. Ten years of CIAT work to tame wild forage species, along with improved, acid-resistant rices, make the system economically viable. The research was in cooperation with EMBRAPA, Brazil's agricultural research agency; ICA, the Colombian Agricultural Research Institute; and the Colombian Rice Growers Federation.

-Land use. Existing social structures and misguided policies often contribute to patterns of land use in tropical America that are neither socially nor environmentally sustainable. Lumbering and slash-and-burn farming, for example, provide short-term benefits while destroying the ecological base for development.

Scientists aim to better understand causes and mechanisms that determine land use, and identify policies to foster alternative patterns that are economically viable, socially equitable, and ecologically sound.

International Agricultural Research Pays Its Dues

CIAT

is one of 18 International Agricultural Research Centers sponsored by the Consultative Group on International Agricultural Research. About

20 countries, international agencies, and private foundations support CIAT.

The increased production from improved varieties of the CIAT crops—beans, cassava, pastures, and rice—already brings Latin America about US\$270 million worth of additional food yearly. Further research has the potential to produce another \$650 million yearly. Poor farmers and urban consumers are the ultimate beneficiaries of that investment.



CIAT LIBRARY



100079100

International Center for Tropical Agriculture
Centro Internacional de Agricultura Tropical (CIAT)

A.A.6713
Cali, Colombia
Telephone: 57-23-675050
Telex: 05769 CIAT CO
ITT DIAL.COM ID 57:CG1301
Internet: CIAT@CGNET.COM
Fax: 57-23-647243