Alliance
Bioversity & CIAT

OUR WORK IN COLOMBIA

Driving science and innovation for sustainable food systems

Through cutting-edge research and joint work with local, national and international partners, we generate evidence and incorporate innovations to harness the country's agricultural biodiversity.

Colombia, with its wealth of natural resources and vast human talent, has great potential to achieve sustainable agricultural development and strengthen the country's food security. The International Center for Tropical Agriculture (CIAT),[1] with a solid track record in research and technological innovation, has supported Colombia in addressing these challenges.

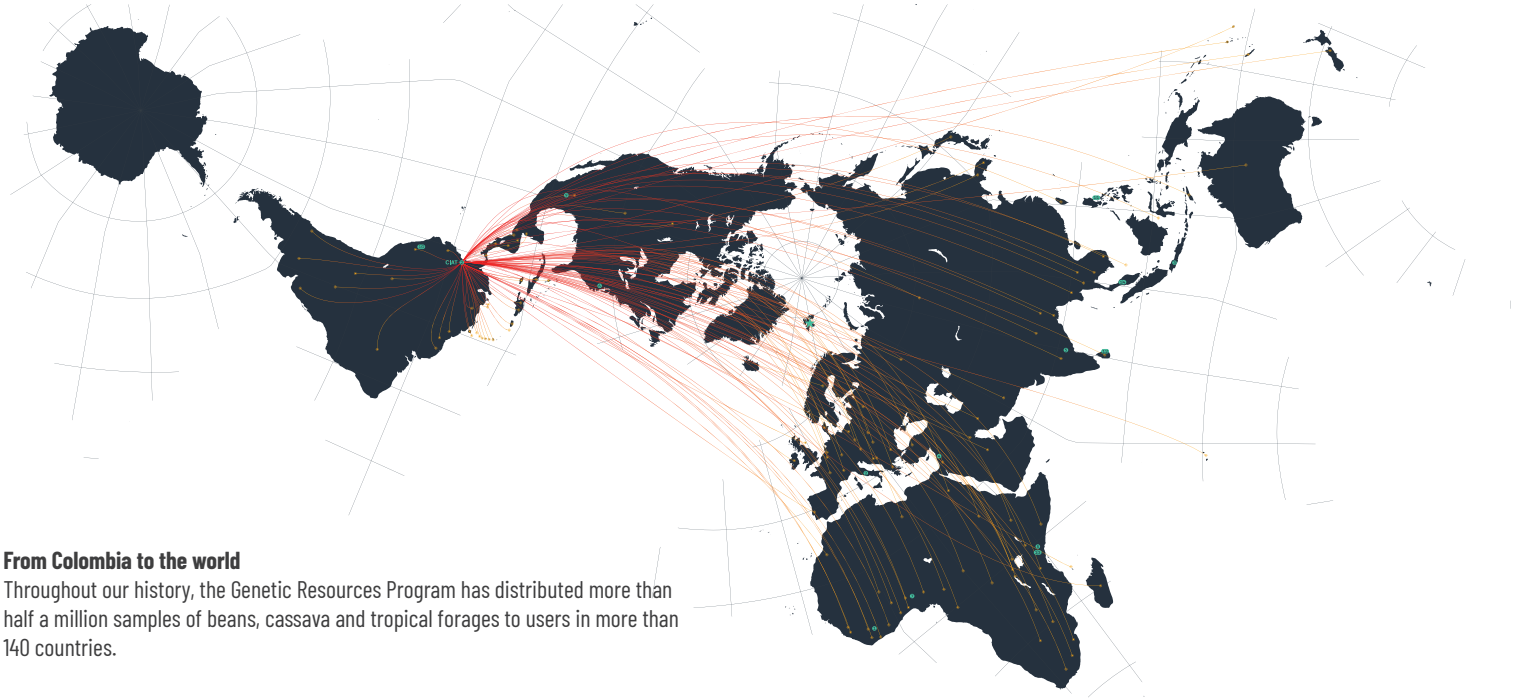
More than 55 years of history in the country

Since its founding in 1967, CIAT has collaborated closely with Colombia with a shared conviction that agricultural research is an important tool for generating new technologies, methods and knowledge that contribute to smallholder farmers' ability to achieve more eco-efficient production (competitive, profitable, sustainable and resilient). In addition to being CIAT host since its inception, Colombia has provided us with a solid platform and offered us excellent human talent to project our work to the rest of Latin America, the Caribbean and the world.

IMPACTS

- In crop breeding, generating knowledge and agricultural technologies to help improve productivity and address the problem of malnutrition.
- In strengthening the capacities of smallholder farmers to adapt to climate change and variability.
- In the forging partnerships to create sustainable value chains based on inclusive business models.
- In the design of collaborative production systems that are environmentally, socially, and economically sustainable.
- On the use of Big Data as a tool to close performance gaps and foster innovation to modernize the national technical assistance system in agriculture.

1 As of January 1, 2020, CIAT and Bioversity International, two CGIAR Centers, through a Partnership Agreement, formed an alliance known as the Alliance of Bioversity International and CIAT, having one CEO, and a common research strategy and governance as part of their new operating structure.



From Colombia to the world
Throughout our history, the Genetic Resources Program has distributed more than half a million samples of beans, cassava and tropical forages to users in more than 140 countries.

A global vision, a national scope, and a local focus

We are an organization with global impact, but with a local focus. We are committed to developing local approaches to address the needs of the communities where we work. In Colombia, we have a national reach working in large areas of the country from Vichada to Nariño and from Putumayo to La Guajira. Our work in Colombia has been a platform for developing innovations that have responded to needs in Asia and Africa.

The vital importance of our partners

Our research, innovations, and impacts are thanks to our funders and to the joint work with local, national, and international partners (national and local governments, multilateral organizations, etc.), and international organizations, the private sector, unions, academia, civil society, cooperatives, and farmer associations, etc.). Thanks to them, we align our research with the needs of the country, foster innovation in priority areas, and reach out to different communities to develop our research, implement our innovations, and build capacity.

Synergy with the Government of Colombia

We have a long history of collaboration with the Colombian government, its ministries, and attached entities in different areas of work. At present, the main ones are:

1. Climate action

Together with key stakeholders, such as the Ministry of Agriculture and Rural Development, the Ministry of Environment and Sustainable Development, IDEAM, DNP, and local governments, we have strengthened the institutional capacity in Colombia to address the challenges of climate change and variability, as well as the fulfillment of its international climate commitments through the generation of technical inputs and policy recommendations. We also promote the generation and implementation of community-based climate information systems and participatory approaches to climate risk reduction in agriculture. Through the involvement of various stakeholders, initiatives such as the Technical Agroclimatic Committees have made it possible to bring agroclimatic information closer to farmers, reducing their uncertainty when making decisions about their production.

2. Food security and combating malnutrition

Thanks to the joint work with MADR and AGROSAVIA, we have developed more than 90 improved varieties of four key crops (rice, tropical forages, common beans and cassava), strengthening food security and increasing the income of farming families.

HELPING TO COMBAT MALNUTRITION IN COLOMBIA

We have helped to combat malnutrition in the country and the region by developing, distributing, and promoting biofortified[2] crops rich in micronutrients (iron, zinc, and provitamin A), which are also more tolerant to certain climatic variables.

The implementation of our biofortified food strategy in Colombia has been arduous and has required the involvement of many national and local entities, especially farmers and communities. To fulfill the purpose of benefiting a large percentage of the rural population, a product development and delivery plan has been designed for biofortified crops, which includes dissemination and differentiated promotion strategies for farmers and consumers.

Currently, more than 3,400 hectares are planted with biofortified crops in the country, benefiting 60 thousand rural families. It is estimated that more than 150,000 Colombian households consume biofortified foods, and their purchases directly impact the income of producer families. The Biofortified program has more than 110 partners in 27 departments and to date has trained more than 8,000 people in integrated crop management, production of agricultural bio-inputs, post-harvest practices, food processing, and marketing.

CIAT / Neil Palmer

WORKING ON ADVOCACY AT THE LOCAL LEVEL

We have worked with several departments in Colombia and their local governments in the construction of projects that have subsequently influenced the development of public policies and institutional processes. An example of this is the "**Cali Eats Better**" project, an initiative whose challenge was to analyze Cali's food system in order to generate strategies aimed at optimizing its operation, benefiting consumers and low-income farmers. The initiative sought to mobilize the actors of the food system and move forward the Municipal Public Policy on Food and Nutrition Security of Santiago de Cali. Since 2015, CIAT joined the work of the Cali Municipal Mayor's Office, specifically with the Secretariat of Public Health in the redesign of a public policy for food and nutritional security and sovereignty as part of this project. This process concluded with the formulation of Cali's municipal public policy on food security and food sovereignty.

3. Sustainable livestock

We work to promote technologies that drive the transition to more sustainable livestock farming. These technologies contribute to the mitigation of enteric methane emissions through the development of diets based on improved tropical forages and the promotion of nature-based solutions. Jointly with key stakeholders and together with government entities, we have developed sustainable livestock business models that seek to reduce pressure on natural ecosystems while improving economic and social development in areas occupied by inefficient livestock production systems.

2 Biofortification is the process of enhancing the nutritional value of crops by increasing vitamin and mineral density through conventional breeding.

WHEN THE DEVELOPMENT OF BEST PRACTICES AND SUSTAINABLE TECHNOLOGIES REACHES CONSUMERS

GANSO (Sustainable Livestock) is a model of technical and financial assistance for the professionalization of sustainable livestock farming in the Colombian Orinoquia. This initiative seeks to support the transformation towards a low-carbon and sustainable livestock farming in the productive, economic, social, and environmental spheres. GANSO has become a sustainability certification: the GANSO endorsement. This endorsement offers a tool for livestock farmers and companies that want their production to be evaluated, and that want to initiate a process of continuous improvement in their production methods that is recognized by end consumers, but also allows consumers to recognize products with conservation and sustainability attributes. Since 2020, products from livestock farms committed to sustainability and supported by GANSO can be found in one of the most recognized supermarkets in the country.

Future Seeds | CIAT / J.P. Marín

4. Agrobiodiversity conservation

We work to conserve agrobiodiversity. Our new seed bank and innovation center **Future Seeds** has received valuable support from the Colombian government. There, we conserve global collections of beans, cassava, and tropical forages. Conserving this living treasure of agrobiodiversity and ensuring global food security is the raison d'être of this bank. In addition, in synergy with the Colombian Agricultural Institute (ICA), we have contributed significantly to the distribution and promotion around the world of rice, forage, bean and cassava genetic materials with improved agronomic characteristics, as well as to the maintenance and conservation of the diversity of these crops. This collaborative work has resulted in the distribution of close to 400,000 genetic materials containing base germplasm, advanced lines, or improved varieties to countries around the world.

5. Peace building

We have supported the Colombian government in the search and construction of peace in the country. Together with AGROSAVIA, we have collaborated in programs for the substitution of illicit crops (Bag of Seeds for Peace project). We are currently working on initiatives that seek to achieve social and economic stability in territories affected by the armed conflict in the departments of Caquetá, Putumayo, and Nariño (**PDET Routes Project**), as well as on projects that seek to contribute to reducing greenhouse gas emissions, conserving forests, restoring landscapes and improving rural livelihoods, while stimulating peace-building in rural Colombia (**SLUS Project**).

PDET Routes | CIAT / Forages Program

Our collaboration with the country's educational and research sector

We are committed to providing scientific and technical support, exchanging experiences, and building capacities with universities, schools, research centers and technical, middle, and secondary education, both in urban and rural areas, in line with Colombia's national priorities and in collaboration with other partners in the sector (National Apprenticeship Service-SENA, extension centers, trade union research centers, etc.).

We also work to promote science and research among young people, especially young people in rural and marginalized communities. Through a bidirectional approach, we work to integrate our knowledge products into the curricula of young Colombians. We develop spaces for learning and dissemination of information in which science is learned, lived, and enjoyed. Thanks to these spaces, young people from urban and rural areas of the country have the opportunity to learn first-hand about our scientific advances and innovations, and teachers are trained in innovative techniques and methodologies to then develop pedagogical proposals to implement in their classes.

Bio-Aprendiz

An education program that brings Cali's youth closer to Biotechnology

We have been facilitating the implementation of practical science and technology processes in educational institutions in Cali and Valle del Cauca for more than 22 years. Through the Bio-Aprendiz program (Bio-Apprentice), students from educational institutions affiliated with the Auxiliary Center for Educational Services (CASD) of Cali have the opportunity to visit our campus, learn about our innovations, and exchange with researchers from different areas to learn about the forefront of science, innovation in biotechnology in a simple and fun way. The purpose of these visits is to encourage young people in grades 10 and 11 of these educational institutions to adopt biotechnology in their classrooms.The aim is to promote scientifically based knowledge in the institutions.

> *"This program helps young people from low and middle classes to have a vision of the future, build a country, contribute to education and be part of an interaction where we all contribute to a better future in science"*
>
> Ana del Socorro Narváez, CASD teacher, Institución Educativa Santo Tomás, Cali.

CIAT / Greenhouse gas laboratory

Strengthening Colombian talent

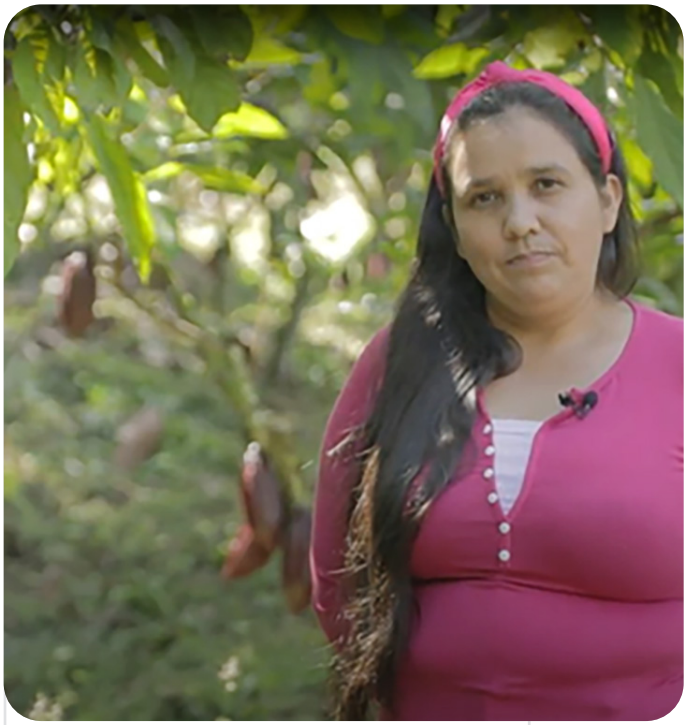
We are committed to strengthening Colombian talent in all regions. Our campus in Palmira (Valle del Cauca) is home to nearly 762 Colombians employed in different areas (research, organizational, and operational), coming from different regions of the country. In addition, we have 12 Colombians working in our global offices and 6 Colombians are directors and thematic leaders in our research areas. During more than five decades of work in the country, we have promoted the knowledge and capacity building of more than 5,000 Colombians – technological and technical students, undergraduate, master's and doctoral students, as well as experienced professionals – through access to different types of training, research internships, educational visits, and master classes that we offer.

Empowerment of smallholder farmers and their communities

We work hand in hand with local non-governmental organizations, farmers' associations, indigenous peoples' organizations, and women's and youth groups to strengthen their capacities and foster alliances to jointly create innovative and evidence-based solutions to improve agriculture, thus empowering smallholder farmers and rural communities. We work with these local actors in different areas of the country, prioritizing participatory processes to generate continuous cycles of learning, capacity building, experience sharing, and the development of inclusive strategies.

Through our projects, we have supported the formalization of local and regional committees of small producers in different value chains. Together with different partners in the field, we support and lead inclusive business models, strategies to strengthen zero-deforestation chains that promote the adoption of sustainable land-use systems and the implementation of methodologies to consolidate the adoption of agroecological and sustainable practices through extension services.

Our impact stories provide glimpses into our engagements with these communities.



Alba Trillos, leading cocoa producer: CIAT / SLUS Project

Revitalizing life through cacao

"As when a child is taken from its mother's side...", this is how Robíns Sánchez describes the forced displacement he and his family experienced losing a brother amid the Colombian armed conflict. Robíns describes himself as a natural farmer and cacao farmer since childhood, who never lost hope of returning to his farm in the village of Los Encantos, in the municipality of La Paz in the Cesar department. Ten years later, he returned to his home, or at least the place where it was, with his crops practically lost. However, the new home he has built with his wife Alba Trillos is full of cacao, coffee, and avocado trees. Alba is the current legal representative of the Producers' Association (ASOPROAGRO), which is in charge of training and providing different tools to each associate to facilitate the organization of their farm. Robíns describes the SLUS project, led by CIAT, as an extended hand that is helping them to improve their production system, renovating the cacao plantations, implementing phytosanitary controls and new pruning techniques, as well as adapting drainage and irrigation, installing canopies, fermenter boxes and the biofactory. These systems demonstrate that it is also possible to care for the environment and build peace in a territory hit by violence, Trillos adds.

Support for the food sufficiency of indigenous communities from an ethnic and gender perspective

Together with AGROSAVIA and with the support of the Asociación de Productores Agroecológicos Indígenas y Campesinos de la Sierra Nevada de Santa Marta y la Serranía del Perijá (ASONEI), we have been working to strengthen an agroecological model for biofortified crops based on **technologies with an ethnic and gender approach**, which has contributed to the food security of the Arhuaca families of the Umuriwa community of the Serranía del Perijá. This proposed productive model respects the ancestral knowledge of the indigenous communities, empowers the women of the community under a participatory approach and promotes the sharing of knowledge about the planting of crops such as beans, corn, and rice to strengthen food self-sufficiency with an emphasis on agroecological management. To achieve this, the project uses a technological linkage plan and the promotion of actions aimed at local or regional consumers to facilitate the commercialization of harvest surpluses, allowing the community to diversify its crops, so that in addition to the traditional coffee and cacao crops, they can grow short-cycle crops that strengthen their food and nutritional security.

CIAT / Biofortified Crops Program

CIAT / Forages Program

Boosting innovation in the Caquetá dairy chain

In Caquetá, hundreds of farmers get up early every day to collect the milk that is their main source of sustenance and food for their families. Many of them have been doing it the same way for years, with the technique their parents taught them and which has always worked for them, but which is not always the most productive or environmentally sustainable.This department is also the place where a group of men and women are innovating the way the dairy chain works. The PDET Routes Program of the European Fund for Peace, implemented by the Adelco Network, ICCO Conexión and CIAT, has been a strategic ally in this transformation, supporting smallholder producers to improve and standardize their milking practices in order to achieve better yields, higher quality, and ensure animal welfare. The program has a co-design approach that encourages producer participation in training, consulting and specialized workshops, where they are given the opportunity to identify their specific needs, co-create solutions and apply technologies that improve their livestock practices, considering the particularities and strengths of each farm in the region.

PODCAST "CIENCIA A TU MESA"
Episode 3. Champions, ranchers fighting against deforestation in the Colombian Amazon (available in Spanish)
http://bit.ly/44JQx4g

Contact

Juan Lucas Restrepo
Director General
Alliance of Bioversity International and CIAT
j.l.restrepo@cgiar.org

Maya Rajasekharan
CIAT Director General
Managing Director for the Americas at the Alliance of Bioversity International and CIAT
m.rajasekharan@cgiar.org

Marcela Quintero
Associate Director General, Research Strategy and Innovation
Alliance of Bioversity International and CIAT
m.quintero@cgiar.org

Alliance Bioversity & CIAT

CGIAR

The Alliance of Bioversity International and CIAT is part of CGIAR, a global research partnership for a food-secure future dedicated to transforming food, land and water systems in a climate crisis.

alliancebioversityciat.org

cgiar.org

July 2025