

# COLOMBIA

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## KEY INDICATORS, 2006–2013

Total Agricultural Research Spending	2006		2009		2013
Colombian pesos (million constant 2011 prices)	225,530.9		221,094.1		294,785.8
PPP dollars (million constant 2011 prices)	194.1		190.3		253.7
<b>Overall Growth</b>		<b>-2%</b>		<b>33%</b>	
Total Number of Agricultural Researchers					
Full-time equivalents (FTEs)	1,045.0		1,072.3		1,102.9
<b>Overall Growth</b>		<b>3%</b>		<b>3%</b>	
Agricultural Research Intensity					
Spending as a share of agricultural GDP	0.62%		0.58%		0.79%
FTE researchers per 100,000 farmers	29.26		30.14		31.81

Notes: Research conducted by the private for-profit sector is excluded from this factsheet due to lack of available data. Acronyms, definitions, and an overview of agricultural R&D agencies are provided on page 4.

► After years of stagnation, government support for agricultural R&D increased with the 2011 launch of the National Research, Development, and Innovation Agenda and significant reforms in the national royalty system. Corpoica, Colombia's main agricultural R&D agency, has benefited greatly from these developments.

► Producer associations play a critical role in agricultural research, differentiating Colombia's agricultural R&D system from its South American counterparts. Research conducted by the largest producer associations is predominantly funded through commodity taxes levied on production or exports.

► The number of agricultural researchers employed in Colombia remained stagnant during 2004–2012 at around 1,000 FTEs, but increased substantially in 2013 due to an influx of BSc-qualified researchers.

## FINANCIAL RESOURCES, 2013

### Spending Allocation

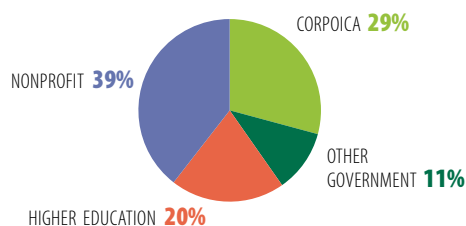
Salaries	86%
Operating and program costs	10%
Capital investments	4%

### Funding Sources

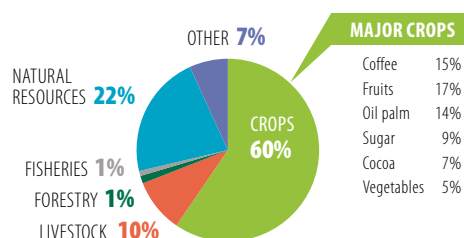
Government	85%
Sales of goods and services	8%
Other	6%

Note: Shares are based on data for Corpoica only.

## INSTITUTIONAL PROFILE, 2013



## RESEARCH FOCUS, 2013

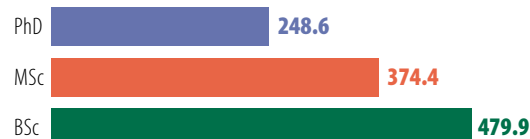


Notes: Major crops include those that are the focus of at least 5 percent of all crop researchers; 33 percent of total crop researchers focused on a wide variety of other crops.

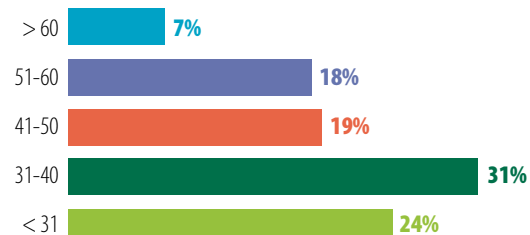
## RESEARCHER PROFILE, 2013



### Number by qualification (FTEs)



### Share by age group (years)



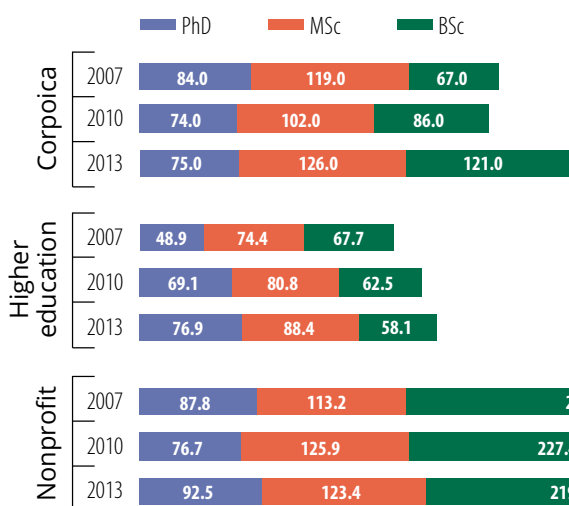
## CHALLENGE

► PhD-qualified researchers represented less than a quarter of Colombian agricultural researchers in 2013. Over the years, low public-sector salaries combined with an inequitable staff promotion system have prompted many highly qualified scientists to pursue better remunerated research positions abroad. Attracting PhD-qualified researchers to positions in certain (emerging) priority areas remains a challenge.

## POLICY RESPONSE

► By offering improved salaries and promotional opportunities, Corpoica aims to attract an additional 225 PhD-qualified researchers by 2018 (up from 75 in 2013). Since its launch in 2014, “*Es tiempo de volver*”— a program designed to attract expatriate Colombian scientists home — and Corpoica’s own calls, have been successful in attracting about 30 PhD-qualified researchers to Corpoica. A more coordinated approach to capacity strengthening is needed, however, involving government agencies, universities, and farmer organizations.

Number of researchers by qualification level, 2007, 2010, and 2013 (FTEs)



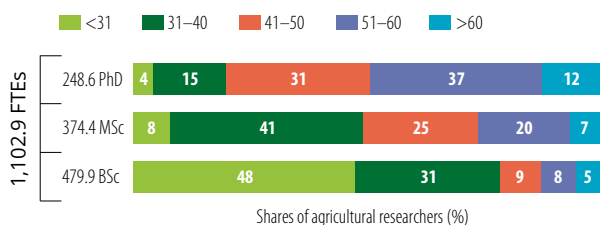
◀ In contrast to Corpoica and the universities, the total number of agricultural researchers employed at the producer associations has declined during 2007–2013. At Corpoica, however, an increasing share of researchers is only qualified to the BSc level.

### ► AGRICULTURAL RESEARCH IS BACK ON THE POLITICAL AGENDA

For years, agricultural research was not a political priority in Colombia. Funding and staffing levels at Corpoica steadily dwindled for most of the 1990s and 2000s, but the launch of the National Research, Development, and Innovation Agenda in 2011 reversed all this. The agenda aims to improve the coordination of the currently fragmented national agricultural research system and reduce research duplication by establishing a NARS observatory team and SIEMBRA, an online database of the country’s agricultural research projects.

In addition to bringing substantial increases in government funding to Corpoica, this initiative has prompted Colombia’s producer associations to align their research priorities with those outlined in the agenda, thereby taking advantage of increased funding opportunities from COLCIENCIAS and regional R&D funds. A major objective of the agenda is to reestablish Corpoica as the driving force behind the country’s agricultural R&D. To this end, Corpoica’s five-year plan for 2013–2018 is centered around 28 “macroprojects” financed by the Ministry of Agriculture as well as some regional funds.

Distribution of agricultural researchers by age bracket, 2013 (FTEs)



◀ In 2013, about half the country’s PhD-qualified agricultural researchers were in their fifties or sixties, and this share was higher for Corpoica (60 percent) than for the other agencies. Given the official retirement age at government agencies of 57 years for female researchers and 62 years for male researchers, it is important that sufficient resources are made available to train the next generation of agricultural researchers.

## CROSS-COUNTRY COMPARISONS OF KEY INDICATORS

	Total number of researchers, 2013 (FTEs)	Growth in number of researchers, 2009–2013	Share of PhD researchers, 2013 (FTEs)	Total spending, 2013 (million 2011 PPP dollars)	Overall spending growth, 2009–2013	Spending as a share of AgGDP, 2013
Colombia	1,102.9	3%	23%	253.7	33%	0.79%
Chile	715.7	6%	37%	186.4	-2%	1.65%
Ecuador	149.4	46%	10%	27.3	9% <sup>a</sup>	0.18%
Peru	339.1	14%	13%	83.4	-12%	0.35%

<sup>a</sup> For Ecuador, this overall spending growth is based on data for the 2010–2013 period. Note: Please visit [www.asti.cgiar.org/benchmarking/lac](http://www.asti.cgiar.org/benchmarking/lac) to benchmark Colombia with other countries in Latin America and the Caribbean or compare the country’s key indicators with regional averages.

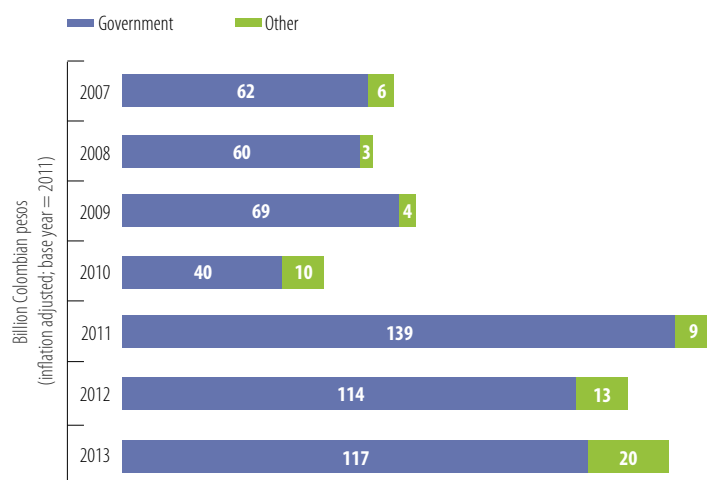
## CHALLENGE

- ▶ Despite rapid increases in recent years, Colombia's spending on agricultural research is relatively low as a share of its AgGDP compared with many other South American countries. The majority of Corpoica's recent funding increases targeted salary and related expenses, but capital investment will be vital in the coming years given that many of the corporation's offices and laboratories require rehabilitation.

## POLICY RESPONSE

- ▶ In 2014, Corpoica was granted legal autonomy over its budget provided that its research priorities remain in line with those agreed with the Ministry of Agriculture. This change is expected to have a positive impact not only on the long-term continuity of research programs, but also on day-to-day operations. Yearly budget increases are foreseen in the coming decade, which will allow the corporation to upgrade its infrastructure and equipment.

### Funding sources of Corpoica, 2007–2013



- ▶ Corpoica receives the majority of its funding from the national government, supplemented by contributions from donors and development banks and revenues generated internally through the sale of goods and services. The vast increase in Corpoica's spending levels in recent years stems from higher government appropriations since 2011.

### ▶ PRINCIPAL FUNDING SOURCES OF COLOMBIAN AGRICULTURAL R&D

- Until 2013, Corpoica was funded by the Ministry of Agriculture through technical cooperation contracts, but since the enactment of law 1731 of 2014, Corpoica has a budget line of the National Budget approved by Congress and the resources are channeled through the Ministry of Agriculture.
- Colombia's producer associations fund the bulk of their research through taxes levied on the production of certain crops, thereby directly involving the private sector in both the costs and benefits of the research. Certain associations have opted to elicit voluntary contributions from their members rather than instituting a tax.
- COLCIENCIAS manages several competitive S&T funds to which government agencies, producer associations, universities, and corporations have access. Currently, five national research programs of relevance to agriculture are supported this way: the National Program for Basic Sciences, Agricultural S&T, Biotechnology, Maritime S&T, and Environmental S&T. Total disbursements through these funds have declined in recent years, however.
- Since 2012, the General System of Royalties allocates 10 percent of the country's royalty revenue to a S&T fund managed by Colciencias. This fund is playing an increasingly important role in funding agricultural R&D.
- Some R&D agencies receive funding from international sources, mainly Fontagro and the Inter-American Development Bank.
- Agricultural R&D at public universities is primarily financed through government appropriations and student fees, supplemented by contributions from COLCIENCIAS and the Ministry of Agriculture. Research at private universities is largely financed through student fees and private research contracts.
- Internally generated revenues are not required to be returned to the Treasury and hence constitute a sizable share of funding for certain agricultural R&D agencies in Colombia.

### New varieties released by Corpoica, 2009–2013

COMMODITY	NUMBER OF VARIETIES RELEASED
Cassava	9
Cotton	4
Cashew nuts	3
Soybeans	3
Eggplant	2
Maize	2
Sorghum	2
Castor oil plant	1
Oil palm	1
Potatoes	1
Rice	1

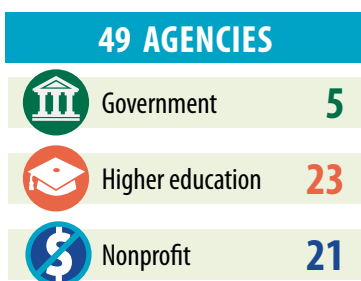
- ▶ Corpoica, Colombia's main agricultural research agency focusing on crop breeding, released 29 new varieties and numerous other technologies during 2009–2013.

### Knowledge transfer activities by Corpoica, 2013

ACTIVITY/OUTPUT/PARTICIPATION	NUMBER OF EVENTS/OUTPUTS/PARTICIPANTS
Field days organized	499
Training events conducted	284
Brochures published	45
Participants trained	10,513

## OVERVIEW OF COLOMBIA'S AGRICULTURAL RESEARCH AGENCIES

Forty-nine agencies conduct agricultural R&D in Colombia. Corpoica is the largest agency by far, employing 322 FTE researchers in 2013 (29 percent of the overall total). Corpoica operates 13 research centers across the country's agroecological zones, each focusing on the following priority areas: vegetables, fruit, permanent crops, transitory crops, roots and tubers, cacao, and livestock. Four other government agencies—the Alexander von Humboldt Biological Resources Research Institute, the John von Neumann Environmental Research Institute of the Pacific, the José Benito Vives de Andrés Marine and Coastal Research Institute, and the Amazon Institute of Scientific Research—conduct agricultural R&D in Colombia, together accounting for 11 percent of the country's agricultural research capacity in 2013. Compared with many other South American countries, the higher education sector plays a relatively modest role in agricultural research in Colombia. As of 2013, 23 higher education agencies (employing 168 FTEs combined) were actively involved in agricultural research; the National University of Colombia is the main contributor accounting for 68 FTE researchers. As of 2013, 21 nonprofit agencies (which include producer associations) were identified as being involved in agricultural research, accounting for close to 40 percent of Colombia's agricultural researchers. The main producer associations include Cenicafe (91 FTEs in 2013), Cenipalma (68 FTEs), Cenicaña (46 FTEs), and the National Federation of Growers of Cereals and Legumes (30 FTEs), and the National Federation of Rice (20 FTEs). CENIVAM (85 FTEs), a nonprofit organization promoted by Colciencias, conducts research on aromatic plants. The private for-profit sector plays a limited role in Colombian agricultural R&D. Many multinational agrobiotech companies use Colombia as a base of operations for the Andean and Central American region, but their contribution to local R&D is small and largely focuses on testing and screening improved germplasm developed elsewhere.



Note: Excludes private for-profit agencies.

 For a complete list of the agencies included in ASTI's dataset for Colombia, visit [www.asti.cgiar.org/colombia](http://www.asti.cgiar.org/colombia).

## ASTI DATA PROCEDURES AND METHODOLOGIES

- ▶ The **data underlying this factsheet** were predominantly derived through primary surveys, although some data were drawn from secondary sources or were estimated.
- ▶ **Agricultural research** includes research conducted by the government, higher education, and nonprofit sectors; Research conducted by the private for-profit sector is excluded due to lack of available data.
- ▶ ASTI bases its calculations of human resource and financial data on **full-time equivalent (FTE) researchers**, which take into account the proportion of time staff actually spend on research compared with other activities.
- ▶ ASTI presents its financial data in 2011 local currencies and **2011 purchasing power parity (PPP) dollars**. PPPs reflect the relative purchasing power of currencies more effectively than do standard exchange rates because they compare prices of a broader range of local—as opposed to internationally traded—goods and services.
- ▶ ASTI estimates the **higher education sector's research expenditures** because it is not possible to isolate them from the sector's other expenditures.
- ▶ Note that, due to **decimal rounding**, the percentages presented can sum to more than 100.

 For more information on ASTI's data procedures and methodology, visit [www.asti.cgiar.org/methodology](http://www.asti.cgiar.org/methodology); for more information on agricultural R&D in Colombia, visit [www.asti.cgiar.org/colombia](http://www.asti.cgiar.org/colombia).

## ACRONYMS USED IN THIS FACTSHEET

<b>AgGDP</b>	Agricultural gross domestic product
<b>Cenicafe</b>	National Coffee Research Center
<b>Cenicaña</b>	Colombian Sugarcane Research Center
<b>Cenipalma</b>	Palm Growers Research Center
<b>CENIVAM</b>	National Research Center for the Agro-industrialization of Aromatic and Medicinal Tropical Vegetable Species
<b>COLCIENCIAS</b>	Administrative Department of Science, Technology, and Innovation
<b>Corpoica</b>	Colombian Corporation of Agricultural Research
<b>FTE(s)</b>	Full-time equivalent (researchers)
<b>NARS</b>	National agricultural research system
<b>OCyT</b>	Colombian Observatory of Science and Technology
<b>PPP(s)</b>	Purchasing power parity (exchange rates)
<b>R&amp;D</b>	Research and development
<b>S&amp;T</b>	Science and Technology

## ABOUT ASTI, IFPRI, AND CORPOICA

Working through collaborative alliances with numerous national and regional R&D agencies and international institutions, **Agricultural Science and Technology Indicators (ASTI)** is a comprehensive and trusted source of information on agricultural R&D systems across the developing world. ASTI is led by the **International Food Policy Research Institute (IFPRI)**, which—as a CGIAR member—provides evidence-based policy solutions to sustainably end hunger and malnutrition and reduce poverty. The **Colombian Corporation of Agricultural Research (Corpoica)** is Colombia's principal agricultural research agency; the institute falls under the Ministry of Agriculture and Rural Development and focuses on crops, livestock, and natural resources research.

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