

COSTA RICA

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KEY INDICATORS, 2006–2012

Total Agricultural Research Spending	2006		2009		2012
Colones (million constant 2011 prices)	11,353.8		13,703.3		12,847.1
PPP dollars (million constant 2011 prices)	32.7		39.5		37.1
Overall Growth		21%		-6%	
Total Number of Agricultural Researchers					
Full-time equivalents (FTEs)	252.6		259.1		241.5
Overall Growth		3%		-7%	
Agricultural Research Intensity					
Spending as a share of agricultural GDP	0.82%		1.07%		1.06%
FTE researchers per 100,000 farmers	77.02		79.97		75.94

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.

▶ Costa Rica has the largest and most advanced agricultural research system in Central America; government agencies predominate, supplemented by strong—and growing—higher education and nonprofit sectors.

▶ Costa Rica invests more than its neighbors in the region, spending slightly more than 1 percent of its AgGDP on agricultural R&D (equal to 0.06 percent when compared to the country's total GDP). However, spending levels fell during 2009–2012 and have most likely continued to fall since then.

▶ The national number of agricultural researcher fell during 2009–2012 due to a sharp decline in the number of researchers employed at INTA, the country's main agricultural research agency. As a result, by 2012 the higher education sector employed twice as many agricultural researchers as INTA.

FINANCIAL RESOURCES, 2012

Spending Allocation

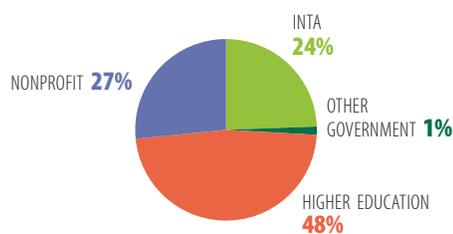
Salaries	82%
Operating costs and capital investments	18%

Funding Sources

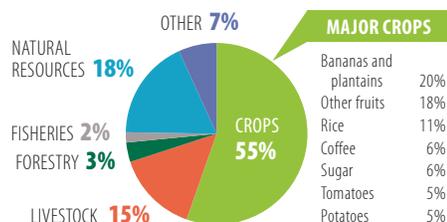
Government	96%
Donors	4%

Note: Shares are based on data for INTA only.

INSTITUTIONAL PROFILE, 2012



RESEARCH FOCUS, 2012



Notes: Major crops include those that are the focus of at least 5 percent of all crop researchers; 29 percent of total crop researchers focused on a wide variety of other crops.

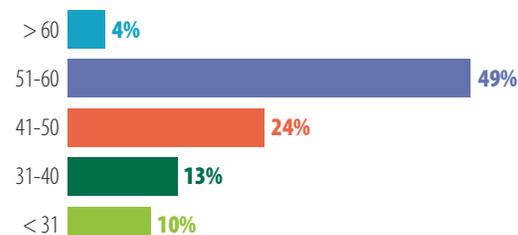
RESEARCHER PROFILE, 2012



Number by qualification (FTEs)



Share by age group (years)



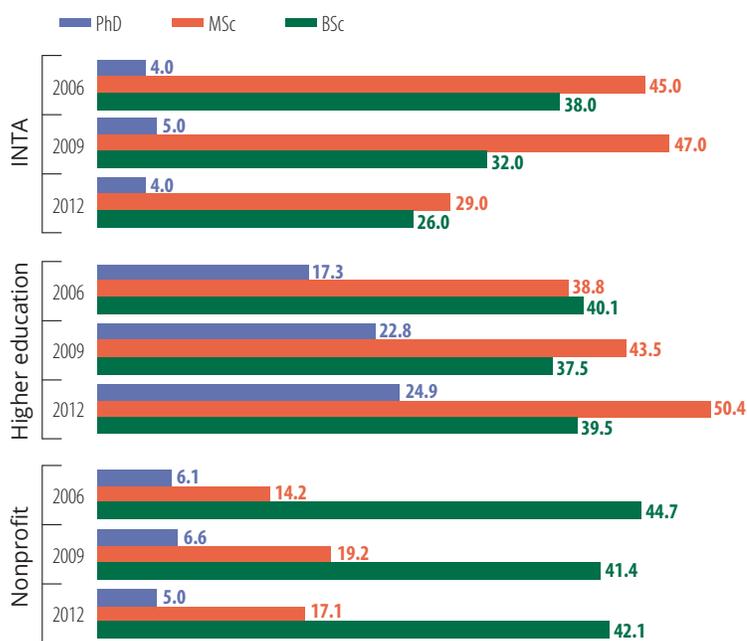
CHALLENGE

- ▶ INTA's research capacity is limited, especially at the PhD level. In addition, the institute has a large aging pool of agricultural researchers (in part due to civil service recruitment restrictions in place since 2010). During 2009–2012 the government shifted its focus from agricultural R&D toward strengthening the country's agricultural export market; in response, several agricultural researchers were reassigned to national programs promoting export commodities, to other trade-related activities, or to administrative tasks. The change in priorities also meant that fewer researchers employed at INTA received PhD training, and INTA is facing greater difficulty in attracting and retaining well-qualified researchers.

OBSERVATION

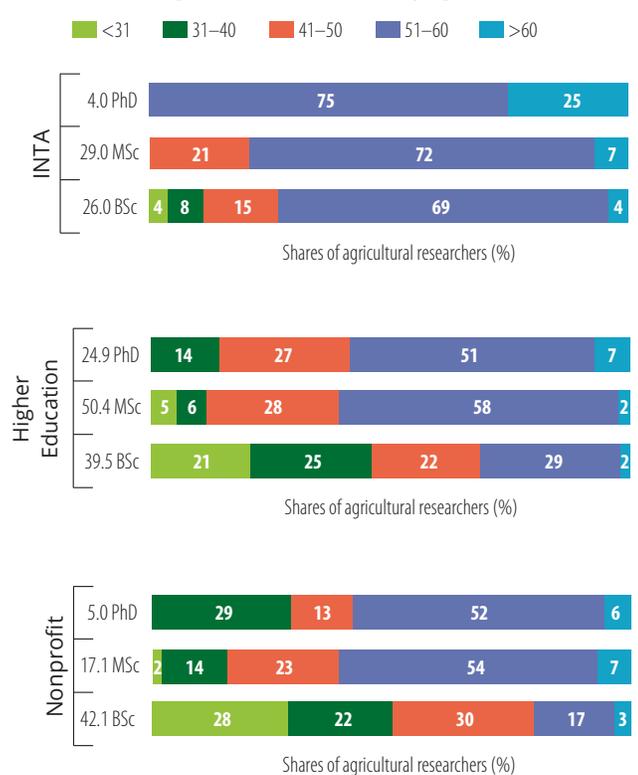
- ▶ Given that Costa Rica's higher education agencies now have a significantly larger and more-qualified pool of agricultural researchers, greater coordination between university-based research centers and INTA is warranted to ensure that the country's agricultural research and training needs are met. In a positive development, early in 2015 INTA discussed an agreement with CATIE to create INTA-specific MSc- and PhD-level programs with the goal of training the institute's researchers while they work. The curriculum will focus on the national priorities to ensure food security.

Number of researchers by qualification level, 2006, 2009, and 2012 (FTEs)



- ▲ Between 2006 and 2012, the number of agricultural researchers employed at INTA contracted substantially, whereas capacity in the higher education sector significantly increased. As of 2012, INTA employed 12 percent of the country's PhD-qualified agricultural researchers, whereas the higher education sector employed 73 percent, and the nonprofit sector employed 15 percent.

Distribution of agricultural researchers by age bracket, 2012



CROSS-COUNTRY COMPARISONS OF KEY INDICATORS

	Total number of researchers, 2012 (FTEs)	Growth in number of researchers, 2009–2012	Share of PhD researchers, 2012 (FTEs)
Costa Rica	241.5	-7%	14%
Guatemala	141.8	27%	10%
Dominican Republic	199.6	3%	10%
Honduras	87.6	31%	6%

CHALLENGE

- ▶ Costa Rica's spending levels have declined somewhat during 2009–2012. Of concern, however, a more significant decline is anticipated due to the recent adoption of a ministerial mandate requiring that government agencies generate at least 25 percent of their resources through the sale of goods and services. This is an ambitious goal given that INTA, for example, raised no internally generated revenues in 2012.

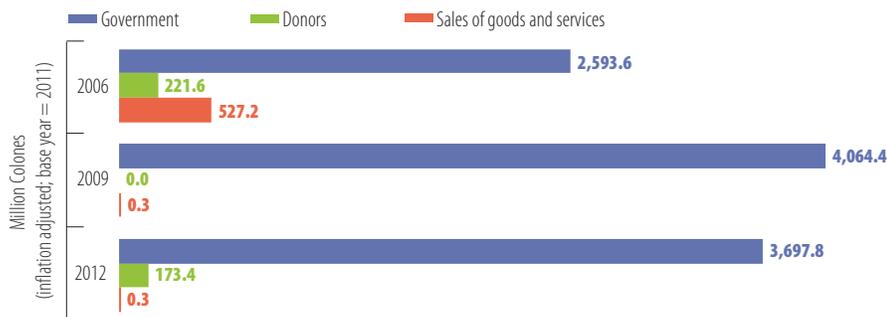
OBSERVATION

- ▶ INTA's strategy to generate internal revenues is to provide the service of validating and certifying soil testing. This represents a positive step in diversifying funding sources, but it is unlikely to be sufficient to fill the budget shortfall resulting from the contraction in government funding. It will be important for INTA to develop a range of new products and services, and for the institute to receive sufficient funding to continue its operations effectively during the transition.

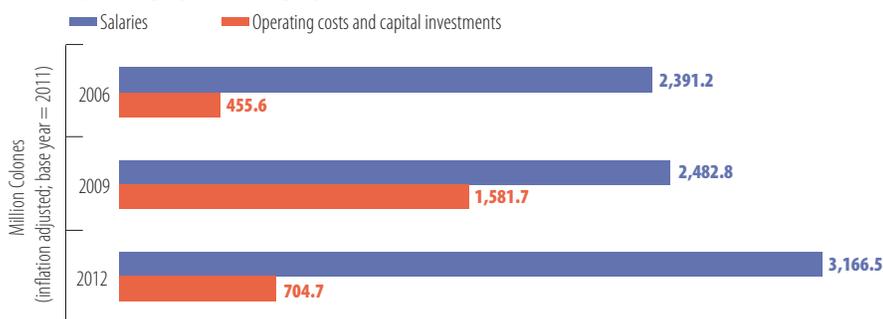
The government is the primary source of funding for agricultural R&D in Costa Rica. Levels of donor support and internally generated revenues at INTA have generally been low and volatile over time. INTA is intended to receive additional funding from INCOPECSA, SENARA, and the country's Phytosanitary Service; in recent years INCOPECSA's contribution has been limited (and at times nonexistent), which has reduced INTA's operating budget. As a result the share of non-salary expenses decreased from 39 percent in 2009 to 18 percent in 2012.



INTA's funding by source, 2006, 2009, and 2012



INTA's spending by cost category, 2009–2012



▶ THE ROLE OF CORPORATIONS IN COSTA RICA'S AGRICULTURAL RESEARCH

Public corporations play a significant role as agricultural R&D performers in Costa Rica. As such they represent a successful example of innovative funding mechanisms, as well as beneficial collaborative partnerships, in that the corporations are assisted in developing their target commodities, and INTA is assisted in advancing national research priorities, such as addressing the needs of smallholder farmers.

Public corporations generally focus on a single commodity and are primarily funded through producer-contributed levies (taxes) on imports or exports. LAICA, for example, is funded through a levy on sugarcane exports. Its research department, DIECA, is dedicated to sugarcane R&D, but it also collaborates with INTA to promote technology transfer to other commodities. Similarly, CORBANA focuses on bananas as an export commodity, but INTA conducts banana research of relevance to smallholder farmers for the purpose of contributing to national food security.

INTA is currently measuring pesticide residues on bananas with support from the U.S. Department of Agriculture. CORFOGA and INTA have developed a strong collaborative partnership with positive results for technology transfer and domestic livestock production. The two agencies are currently collaborating to measure greenhouse gas and develop models for sustainable farming.

CROSS-COUNTRY COMPARISONS OF KEY INDICATORS *continued*

	Total spending, 2012 (million 2011 PPP dollars)	Overall spending growth, 2009–2012	Spending as a share of AgGDP, 2012
Costa Rica	37.1	-6%	1.06%
Guatemala	15.6	30%	0.14%
Dominican Republic	20.4	4%	0.30%
Honduras	8.0	11%	0.17%

OVERVIEW OF COSTA RICA'S AGRICULTURAL RESEARCH AGENCIES

Twenty-two agencies conduct agricultural R&D in Costa Rica. INTA (employing 59 FTE researchers in 2012) is the largest by far. The institute is headquartered in the country's capital and operates four experiment stations focusing on research of regional relevance according to agroecological conditions. INTA conducts research on crop improvement, livestock, and natural resources. The only other government agency involved in agricultural research is INCOPESCA (4 FTEs), which focuses on fishing and aquaculture. The University of Costa Rica (UCR) is home to the National Center for Food Science and Technology (25 FTEs) and Center for Environmental Pollution Research (13 FTEs). A few other small units under UCR and other universities, such as the National University of Costa Rica and Costa Rican Institute of Technology, also conduct agricultural R&D (each employing 2–6 FTEs). The two largest nonprofit agencies conducting agricultural research are CORBANA (22 FTEs) and INBIO (20 FTEs). Other nonprofit agencies focus on sugarcane, rice, coffee, and livestock (between 1 to 9 FTEs each). Private-sector R&D in Costa Rica is limited.



Note: Excludes private for-profit agencies.

 For a complete list of the agencies included in ASTI's dataset for Costa Rica, visit www.asti.cgiar.org/costa_rica.

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; for more information on agricultural R&D in Costa Rica, visit www.asti.cgiar.org/costa_rica.

ACRONYMS USED IN THIS FACTSHEET

AgGDP	Agricultural gross domestic product
CATIE	Tropical Agricultural Research and Higher Education Center
CORBANA	National Banana Corporation
CORFOGA	Livestock Development Corporation of Costa Rica
DIECA	Department of Research and Extension for Sugarcane
FTE(s)	Full-time equivalent (researchers)
INBIO	National Biodiversity Institute
INCOPESCA	Costa Rican Institute of Fisheries and Aquaculture
INTA	National Institute of Agricultural Innovation and Technology Transfer
LAICA	The Sugar Industry Association of Costa Rica
PPP(s)	Purchasing power parity (exchange rates)
R&D	Research and development
SENARA	National Subterranean Water Service

ABOUT ASTI, IFPRI, AND INTA

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 **National Institute of Agricultural Innovation and Technology Transfer (INTA)**, which falls under the Ministry of Agriculture and Livestock, is Costa Rica's principal agricultural research agency; INTA focuses on crops, livestock and natural resources.

ASTI/IFPRI and INTA gratefully acknowledge participating agricultural R&D agencies for their contributions to the data collection and preparation of this country factsheet. ASTI also thanks the Canada Department of Foreign Affairs, Trade, and Development for its generous support of ASTI's work in Central America and the Caribbean. This factsheet has been prepared as an ASTI output and has not been peer reviewed; any opinions are those of the authors and do not necessarily reflect the policies or opinions of IFPRI or INTA.