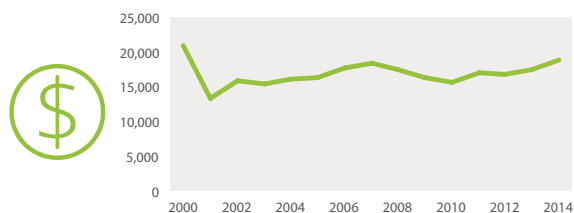


CÔTE D'IVOIRE

Léa Vicky Magne Domgho, Sékou Doumbia, and Gert-Jan Stads

AGRICULTURAL RESEARCH SPENDING



Million CFA francs
(2011 constant prices)

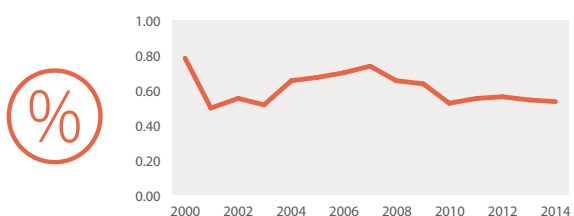
18,732.9

Million PPP dollars
(2011 constant prices)

82.1

	BURKINA FASO	GHANA	SENEGAL
Million CFA francs (2011 constant prices)			
Million PPP dollars (2011 constant prices)			
Agricultural research spending as a share of AgGDP	1.01%	0.99%	1.15%
Full-time equivalents	310.8	575.0	124.4
Share of researchers with MSc and PhD degrees	99%	95%	100%

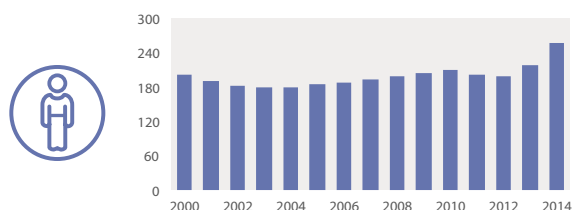
SPENDING INTENSITY



Agricultural research
spending as a share
of AgGDP

0.53%

AGRICULTURAL RESEARCHERS



Full-time
equivalents

253.2

Share of researchers with
MSc and PhD degrees

99%

Notes: Data above are for 2014. Research conducted by the private for-profit sector is excluded from this factsheet due to lack of available data. Information on access to further resources, data procedures and methodologies, and acronyms and definitions are provided on Page 4. See www.asti.cgiar.org/cote-divoire/directory for an overview of Côte d'Ivoire's agricultural R&D agencies.



Increased capacity

Côte d'Ivoire's agricultural research capacity increased rapidly in recent years, both in the government and higher education sectors and both in terms of numbers and qualification levels. Between 2012 and 2014 alone, the country added 43 PhD-qualified agricultural researchers to its workforce. Moreover, as of 2014 a considerable number of researchers were undertaking PhD-level and other training, locally and abroad. Undoubtedly, these large-scale capacity upgrades will have a positive impact on the future quality of the country's agricultural research.



Exemplary funding mechanism

Unlike most NARIs in West Africa, which are funded mainly by national governments and donors, CNRA is predominantly funded by private producers through FIRCA. FIRCA allocates at least 75 percent of the subscription fees raised by producers in a given subsector to research serving that commodity. The remaining funds are allocated to a solidarity fund to serve sectors (mostly food crops) unable to raise sufficient funding through their own subscription fees. FIRCA is unique and exemplary in Africa in that it promotes demand-driven research.



Stagnant spending

Growth in Côte d'Ivoire's research spending was negligible in the decade preceding 2014 in inflation-adjusted terms. During 2009–2014, government funding accounted for just 16 percent of CNRA's total funding, representing a much lower share than the 40 percent per year stipulated when the center was established in 1998. The government's inability to meet its budget targets, combined with delayed disbursement of funding, make it difficult for CNRA to conduct its ongoing program of research and to successfully plan its longer term agenda.

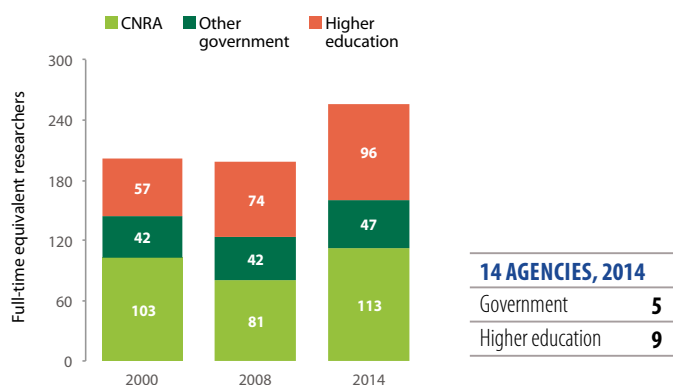


Productive research system

Despite recent political turmoil and funding challenges, Côte d'Ivoire still has the most advanced and productive research system in franco-phone Africa. It has far better physical research infrastructure than most countries, its researchers publish extensively in international journals, its research agencies release a steady flow of improved varieties and other technologies, and a well-functioning extension system enables large-scale commercialization of newly released varieties and technologies.

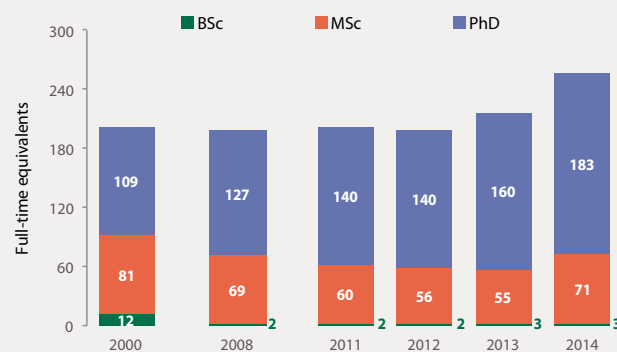
Institutional composition of Côte d'Ivoire's agricultural research

Sociopolitical turmoil prompted a stagnation in agricultural researcher numbers during 2000–2008, followed by large-scale recruitment and training upon the return to peace. Universities have become increasingly involved in agricultural research over time. As a result, CNRA's share of researchers declined from 51 percent in 2000 to 44 percent in 2014.



Côte d'Ivoire's agricultural researchers by qualification level

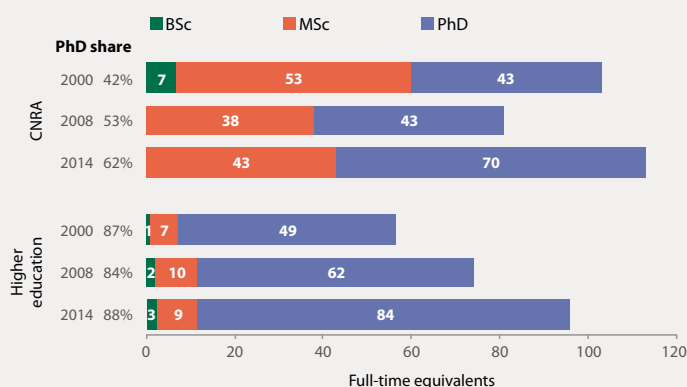
Large-scale training and recruitment prompted a rapid rise in the number of agricultural researchers with PhD degrees in recent years. Consequently, their share of the country's agricultural researchers rose from 54 percent in 2000 to 71 percent in 2014.



Note: Research agencies in Côte d'Ivoire employ large numbers of technical support staff who are trained to the BSc- and MSc-degree levels but do not hold official researcher status.

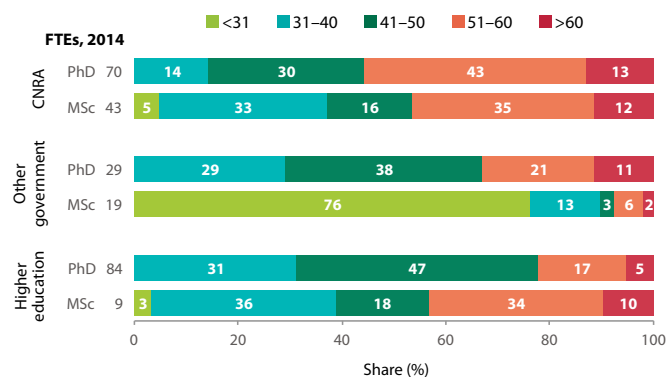
Côte d'Ivoire's agricultural researchers by sector and qualification level

Although CNRA's PhD-qualified researcher numbers have risen rapidly in recent years, researchers employed in the country's higher education sector are still more qualified, on average. As of 2014, 62 percent of CNRA's agricultural researchers held PhD degrees compared with 88 percent of those employed in the higher education sector.



Côte d'Ivoire's agricultural researchers by age bracket

As of 2014, more than half of all CNRA's PhD-qualified researchers were in their 50s or 60s, representing much higher shares than those recorded by the other government or higher education agencies. This age imbalance was being addressed with the 2014 provision of PhD training for 21 of CNRA's younger MSc-qualified researchers.



CNRA's and CRO's MSc- and PhD-qualified agricultural researchers by discipline

As of 2014, 24 of 113 agricultural researchers employed at CNRA were crop breeders and geneticists. Other important disciplines among CNRA's researchers are plant pathology, zoology, and food science and nutrition. Unsurprisingly, the majority of researchers at CRO specialize in fisheries and aquatic resources.

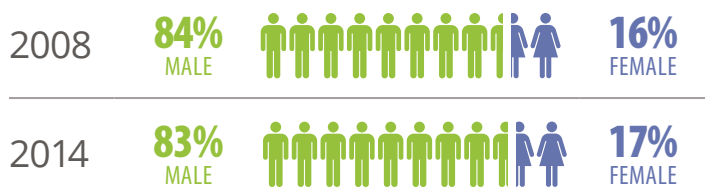
Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Plant breeding/genetics (incl. biotechnology)	9	15	21	17
Plant pathology	2	12	5	14
Plant physiology	3	4	7	5
Botany	–	–	–	–
Seed science and technology	–	–	–	–
Other crop sciences	6	9	14	10
Animal breeding/genetics	2	2	5	2
Animal nutrition	2	1	5	1
Poultry	–	–	–	–
Veterinary medicine	1	–	2	–
Zoology/entomology	7	5	16	6
Other animal and livestock	1	–	2	–

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Forestry and agroforestry	1	2	2	2
Fisheries and aquatic resources	1	8	2	9
Soil sciences	4	4	9	5
Water and irrigation management	–	1	–	1
Ecology	–	–	–	–
Biodiversity conservation	–	1	–	1
Food sciences and nutrition	2	6	5	7
Socioeconomics (incl. agricultural economics)	1	2	2	2
Other sciences	1	15	2	17
Total	43	87	100	100

Note: Data for other government agencies and higher education agencies are excluded due to lack of availability.

Côte d'Ivoire's share of female researchers

In 2014, just 17 percent of Côte d'Ivoire's agricultural researchers were women, a marginal increase from the 16 percent share recorded in 2008. Female researchers are comparatively better represented at the BSc- and MSc-degree levels than among PhD-qualified researchers, and in the youngest age bracket (40 or younger).



By qualification level, 2014

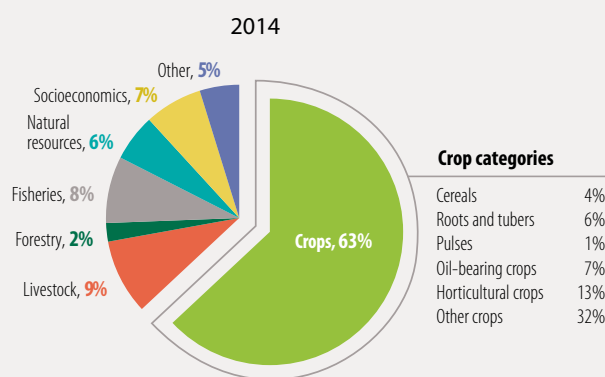
BSc 23%	MSc 23%	PhD 15%
----------------	----------------	----------------

By age bracket, 2014

< 41 27%	41–50 13%	> 50 11%
-----------------	------------------	-----------------

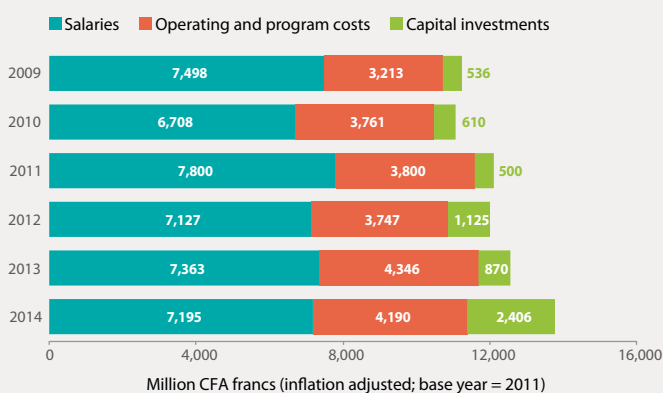
Côte d'Ivoire's agricultural researchers by area of focus

Almost two-thirds of agricultural research in Côte d'Ivoire targets crops. Unsurprisingly—given that Côte d'Ivoire is the world's largest cocoa producer—cocoa is the most researched crop. Other major crops include cotton, fruits, vegetables, sugarcane, oil palm, and cassava. Notably, limited research focuses on cereals compared with the rest of Africa.



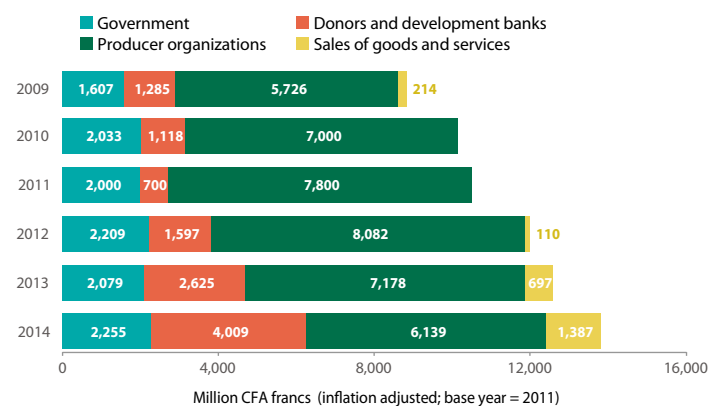
CNRA's spending by cost category

During 2009–2014, on average, salaries accounted for 60 percent of CNRA's total agricultural research spending, operating and program costs for 36 percent, and capital investments for 8 percent. Growth in spending over this period was largely driven by increased operating and program costs and capital investments.



CNRA's funding sources

As a semi-private agency, CNRA's financing structure was established based on a 40/60 percent split between government and private funding. Over time, however, the government share has turned out much lower. Private producers, through FIRCA, account for the bulk of CNRA funding. World Bank funding has increased with the 2012 launch of WAAPP.



CNRA's recently released crop and tree varieties

CNRA released six new crop varieties during 2012–2014, which included vegetables (eggplants, tomatoes, and chili peppers), rice, and maize. In addition, the center released two new rubber tree clones (*Hevea brasiliensis*) and one new coffee tree variety.

Crop	Number of varieties, 2012–2014
Vegetables	3
Rice	2
Rubber tree	2
Coffee tree	1
Maize	1
Total	9

CNRA's and CRO's recent peer-reviewed publications

CNRA's researchers are the most productive among francophone African NARIs in terms of publishing their work, in part because promotional opportunities largely depend on their doing so. On average, CNRA and CRO researchers published 60 journal articles per year during 2012–2014, primarily in international journals.

Type	Number of publications, 2012–2014 annual average		
	CNRA	CRO	Per FTE researcher
Journal articles			
International	46.7	5.0	0.461
Regional	6.0	0.7	0.060
National	1.0	0.3	0.012
Books	0.7	–	0.006
Book chapters	0.3	–	0.003
Total	54.7	6.0	0.542

Resources for Côte d'Ivoire

This factsheet presents recent data on the performance of agricultural research in Côte d'Ivoire, primarily focusing on key financial, human resource, institutional, and output indicators, while also highlighting relevant trends, challenges, and institutional changes. Additional resources are available at www.asti.cgiar.org and include:



ASTI's **interactive country page** for Côte d'Ivoire features national agricultural research investment and capacity data, a data exploration and download tool, as well as access to a variety of country publications.



ASTI's **benchmarking tool** allows key agricultural research indicators to be ranked and compared across African countries.



ASTI's **data download tool** provides access to more in-depth ASTI datasets and graphs for Côte d'Ivoire and many other countries.



ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Côte d'Ivoire, along with their locations and key agency-level indicators.



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 **decimal rounding** can cause totals to be one point higher or lower than the sum of their parts.



For more information on ASTI's data procedures and methodology, visit www.asti.cgiar.org/methodology.

Acronyms

- AgGDP agricultural gross domestic product
- CNRA National Center for Agricultural Research
- CRO Oceanographic Research Center
- FIRCA Inter-Professional Fund for Agricultural Research and Extension
- FTE(s) full-time equivalent(s)
- NARIS national agricultural research institute(s)
- PPP(s) purchasing power parity (exchange rates)
- R&D research and development
- WAAPP West Africa Agricultural Productivity Program

ABOUT ASTI, IFPRI, AND CNRA

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 Center for Agricultural Research (CNRA)** is Côte d'Ivoire's principal agricultural research agency. Its research mandate includes crops, livestock, forestry, and postharvest processing, as well as technology transfer and human resource development.

ASTI/IFPRI and CNRA gratefully acknowledge participating agricultural R&D agencies for their contributions to the data collection and preparation of this factsheet. ASTI also acknowledges the Bill & Melinda Gates Foundation and CGIAR Research Program on Policies, Institutions, and Markets for their generous support of ASTI's work in Africa south of the Sahara. 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 CNRA.